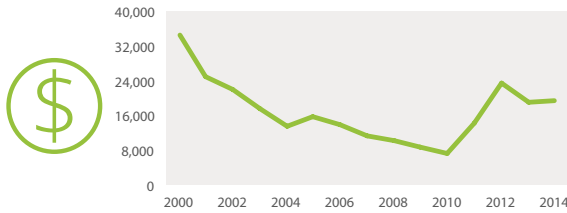




# GUINEA

Léa Vicky Magne Domgho, Famoï Béavogui, Sékou Diawara, and Gert-Jan Stads

## AGRICULTURAL RESEARCH SPENDING



Million Guinean francs  
(2011 constant prices)

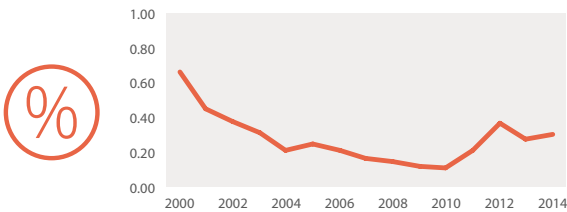
19,283.6

Million PPP dollars  
(2011 constant prices)

7.7

	GUINEA	CÔTE D'IVOIRE	MALI	SENEGAL
Million Guinean francs (2011 constant prices)	19,283.6			
Million PPP dollars (2011 constant prices)	7.7	82.1	37.9	51.3

## SPENDING INTENSITY

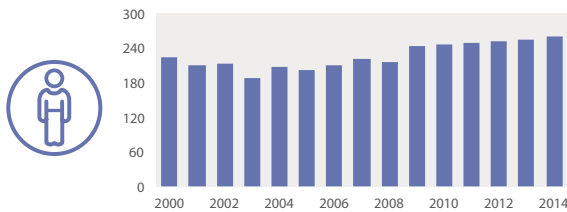


Agricultural research  
spending as a share  
of AgGDP

0.30%

Agricultural research spending as a share of AgGDP	0.30%	0.53%	0.38%	1.15%
--	-------	-------	-------	-------

## AGRICULTURAL RESEARCHERS



Full-time  
equivalents

258.7

Share of researchers with  
MSc and PhD degrees

41%

Full-time equivalents	258.7	253.2	285.7	124.4
Share of researchers with MSc and PhD degrees	41%	99%	96%	100%

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/Guinea/directory](http://www.asti.cgiar.org/Guinea/directory) for an overview of Guinea's agricultural R&D agencies.



### Rebound in spending

Agricultural research expenditures fell by 80 percent during 2000–2010, but a considerable boost in government funding in 2011 reversed this negative, long-term trend. The additional financial resources enabled staff training and much-needed rehabilitation of research infrastructure after years of neglect. Notwithstanding these recent increases, Guinea still underinvests in agricultural research. In 2014, the country spent just 0.30 percent of its AgGDP in agricultural research, well below the 1 percent target recommended by the African Union and the United Nations.



### Greater government support

During 2000–2010, more than 70 percent of IRAG's funding was derived from development banks and donors (mostly France). Guinea's unstable political situation led to a widespread suspension of donor aid in 2009, at which time the government had no choice but to increase its funding to IRAG in order to keep it operating. Government funding remained the principal funding source during 2011–2014, giving the country increased autonomy over its research agenda. Since 2012, WAAPP has strengthened Guinea's rice research capacity through a five-year, US\$9 million grant from Japan.



### Aging researcher pool

Guinea has the oldest pool of agricultural researchers of any African country: 94 percent of its PhD-qualified researchers are in their 50s or 60s, and large-scale capacity losses due to retirement are imminent. With substantial support from the governments of Guinea and France, IRAG was able to provide MSc-level training in a variety of fields to a large number of BSc-qualified researchers and technicians between 2011 and 2015. Many of these recent MSc graduates will be enrolled in PhD programs in the near future, as is stipulated in IRAG's new strategic plan.

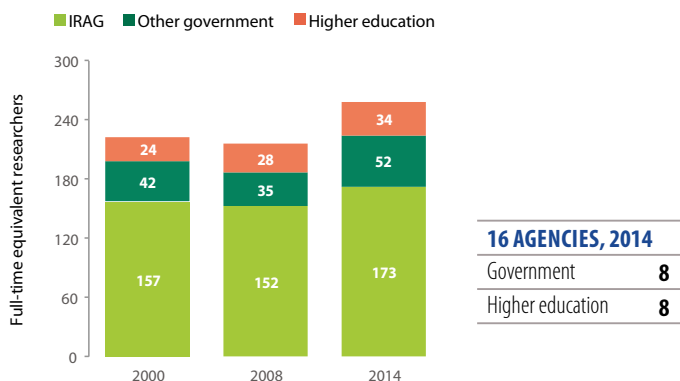


### Limited innovative capacity

IRAG released no new crop varieties during 2011–2014, and its scientists rarely publish in international journals. The institute's low innovative capacity is a cause for concern, raising questions as to the effectiveness of national agricultural research. Weak domestic intellectual property rights legislation is a further impediment to innovation. Guinea and many countries across West Africa struggle with how to reconcile intellectual property rights with farmers' rights and other local interests.

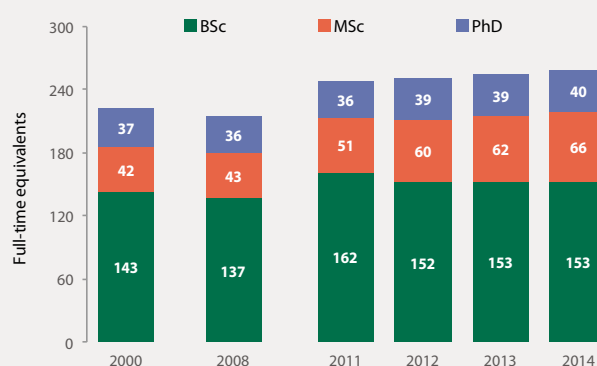
## Institutional composition of Guinea's agricultural research

In 2014, IRAG accounted for two-thirds of Guinean agricultural researchers, while other government agencies accounted for 20 percent and higher education agencies for 13 percent. All three institutional categories recorded growth in FTE researcher numbers during 2008–2014, but the institutional composition changed little over time.



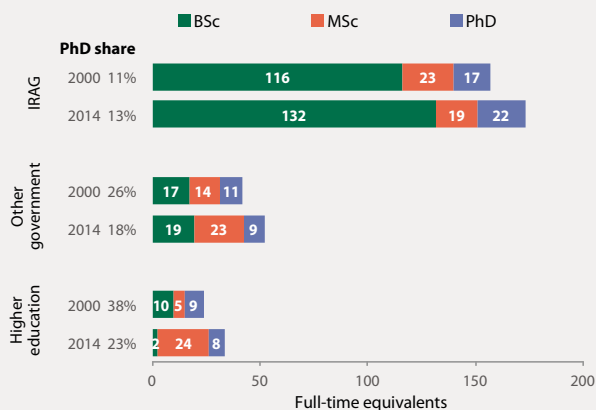
## Guinea's agricultural researchers by qualification level

In 2014, close to 60 percent of Guinea's agricultural researchers held BSc degrees only, roughly a quarter were MSc-qualified, and the remainder held PhD degrees. Recent capacity growth was mainly driven by an increase in researchers with MSc degrees. On average, Guinea's researchers hold lower degrees than those in most other West African countries.



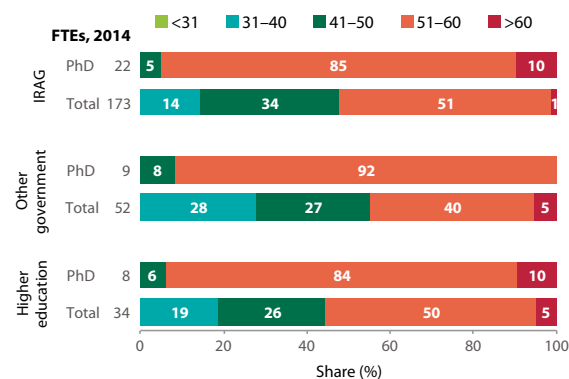
## Guinea's agricultural researchers by sector and qualification level

The number of agricultural researchers increased across all three institutional categories during 2000–2014. As of 2014, IRAG employed comparatively fewer researchers with PhD and MSc degrees than the other government and higher education agencies involved in agricultural research in Guinea.



## Guinea's agricultural researchers by age bracket

As of 2014, roughly half of Guinea's agricultural researchers were in their 50s or 60s, approaching the mandatory retirement age of 65 for men and 60 for women. This situation is particularly alarming among PhD-qualified researchers—94 percent of whom were over 50 in 2014. As a result, PhD training for MSc-qualified researchers is urgently needed.



## Guinea's share of female researchers by sector

Although women constitute a large share of Guinea's agricultural labor force, only 7 percent of the country's agricultural researchers are female—representing one of the lowest shares in Africa. Female participation is particularly low at IRAG (4 percent).

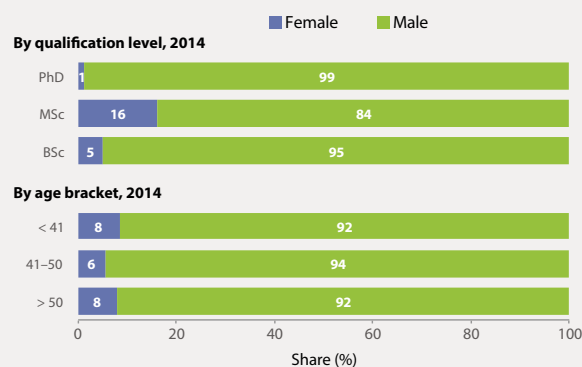


### By institutional category, 2014

IRAG	4%
Other government	20%
Higher education	7%

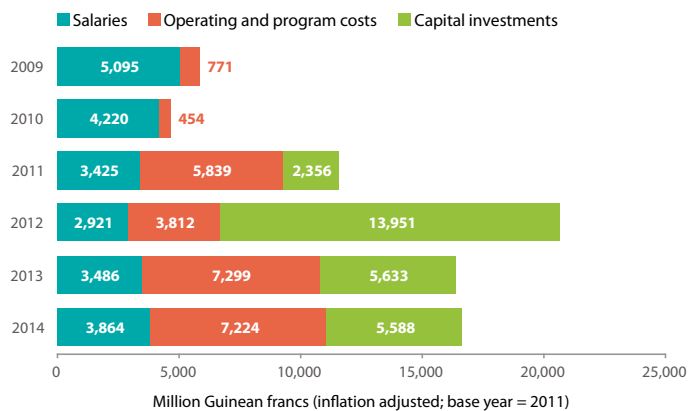
## Guinea's share of female researchers by qualification level and age bracket

Female participation in agricultural research is particularly low among PhD-qualified researchers in Guinea: as of 2014, just 1 percent of researchers holding PhD degrees were female. No discernible difference was noted across age brackets.



## IRAG's spending by cost category

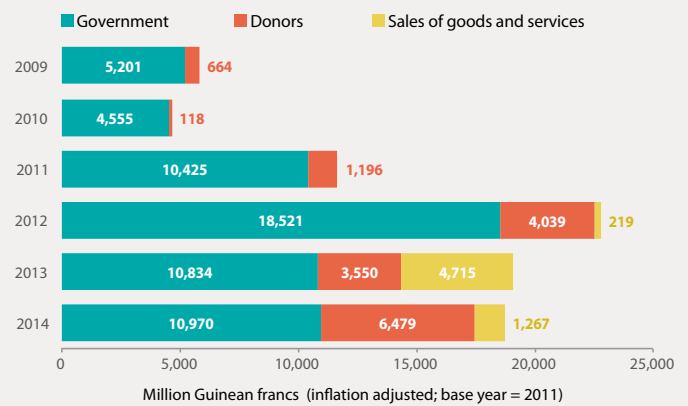
Increased government funding and the launch of WAAPP boosted IRAG's funding during 2011–2014 and enabled the institute to conduct research and rehabilitate its infrastructure for the first time in years. Close to 90 percent of IRAG's spending was allocated to salaries in 2009/2010, compared with just 20 percent in more recent years.



Note: Data exclude the cost of salaries for expatriate researchers.

## IRAG's funding sources

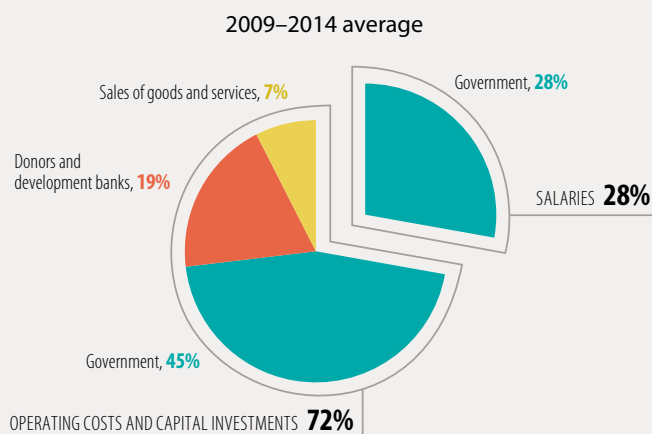
During 2009–2014, government funding accounted for 73 percent of IRAG's funding, donors and development banks for 19 percent, and income through seed sales for 7 percent. Increased government funding and the launch of WAAPP (largely funded through a Japanese grant) were the main drivers of rising funding levels in recent years.



Note: Data exclude the cost of salaries for expatriate researchers.

## IRAG's spending and funding compared

Government funding to IRAG during 2009–2014 covered salary-related costs and a relatively large portion of the institute's operating expenses. Government disbursements, however, are often lower than budgeted allocations, or are delayed. IRAG's main donors include Japan (through WAAPP), France, CGIAR centers, ECOWAS, CORAF/WECARD, and FAO.



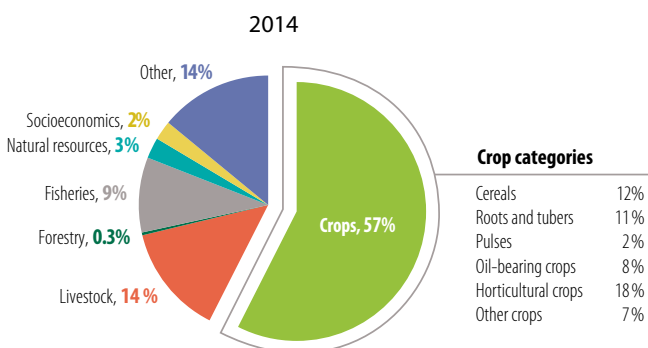
## IRAG's recently released varieties and peer-reviewed publications

IRAG released various rice and groundnut varieties during 2000–2010, but none were released between 2011 and 2014. Similarly, IRAG's publication record is extremely limited compared with most African countries. During 2012–2014, IRAG's researchers published a total of just 6 articles, all in domestic journals.

Type	Number of publications, 2012–2014 annual average	Per FTE researcher
Journal articles		
International	—	—
Regional	—	—
National	2.0	0.012
Books	—	—
Book chapters	—	—
<b>Total</b>	<b>2.0</b>	<b>0.012</b>

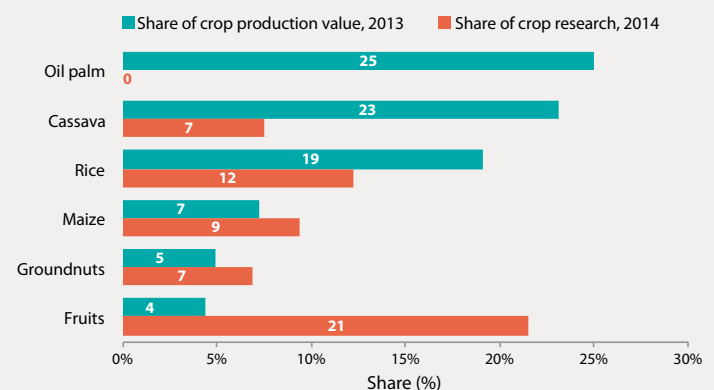
## Guinea's agricultural researchers by area of focus

In 2014, 57 percent of Guinea's agricultural researchers conducted crop research, 14 percent conducted livestock research, and 9 percent conducted fisheries research. Rice is the most researched crop (WAAPP is set to make of IRAG a center of excellence in rice research). Other important crops include maize, cassava, vegetables, groundnuts, and coffee.



## Alignment of research focus with production value, selected crops

Even though oil palm accounts for a quarter of Guinea's total crop production value, none of the country's crop researchers conduct oil palm research. Similarly, cassava and rice are researched less intensively than their crop values would indicate. Fruit, on the other hand, is researched more than its production levels alone would warrant.



Note: Data on research focus are from ASTI; data on production value are from FAO (<http://faostat.fao.org>).

## Resources for Guinea

This factsheet presents recent data on the performance of agricultural research in Guinea, 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](http://www.asti.cgiar.org) and include:



ASTI's **interactive country page** for Guinea 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 Guinea and many other countries.



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

The screenshot shows the ASTI website interface for Guinea. At the top, it says 'ASTI led by IFPRI' and 'AGRICULTURAL SCIENCE AND TECHNOLOGY INDICATORS'. Below this is a navigation bar with tabs for Home, Data, Regions, Publications, Trends, Tools, Partners, and Asti. A 'Country Selection' dropdown is set to 'Guinea'. The main content area features a map of Guinea and three columns of text:

- Reduced in spending:** Agricultural research expenditures fell by 66 percent during 2009–2010, but a considerable base in government funding in 2011 reversed this negative, long-term trend. The additional financial resources enabled staff training and much-needed replacement of research infrastructure after years of neglect. Maintaining these recent increases, Guinea will undoubtedly increase its agricultural research. In 2014, the country spent 0.36 percent of its GDP in agricultural research, well below the 1 percent target recommended by the African Union and the United Nations.
- Increased government support:** During 2009–2010, more than 70 percent of INAG's funding was derived from development banks and donor-funded projects. Guinea's unstable political situation led to a widespread suspension of donor aid in 2009, at which time the government had no choice but to increase its funding of INAG in order to keep it operating. Government funding remained the principal funding source during 2011–2014, giving the country increased autonomy over its research agenda. Since 2013, IFPRI has developed Guinea's rice research capacity through a five-year, US\$6 million grant from Japan.
- Aging researcher pool:** Guinea has the oldest pool of agricultural researchers of any African country. 94 percent of its PhD-qualified researchers are in their 50s or 60s, and large-scale capacity based on retirement are minimal. With substantial support from the governments of Guinea and France, INAG was able to provide relevant training to a variety of fields to a large number of BSc-qualified researchers and technicians between 2011 and 2013. Many of these research and graduates will be involved in IFPRI programs in the near future, as is expected in INAG's new strategic plan.

## 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](http://www.asti.cgiar.org/methodology).

## Acronyms

AgGDP	agricultural gross domestic product
CORAF/WECARD	West and Central African Council for Agricultural Research and Development
ECOWAS	Economic Community of West African States
FAO	Food and Agriculture Organization of the United Nations
FTE(s)	full-time equivalent(s)
IRAG	Guinean Agricultural Research Institute
PPP(s)	purchasing power parity (exchange rates)
R&D	research and development
WAAPP	West Africa Agricultural Productivity Program

## ABOUT ASTI, IFPRI, AND IRAG

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 **Guinean Agricultural Research Institute (IRAG)** is Guinea's principal agricultural research agency. It falls under the Ministry of Agriculture and Livestock and conducts research on a wide range of themes, including crops, livestock, natural resources, postharvest, and agricultural engineering.

ASTI/IFPRI and IRAG 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 IRAG.