BURUNDI

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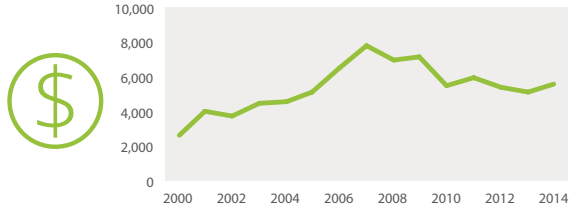
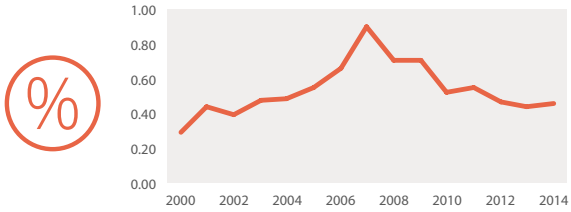
AGRICULTURAL RESEARCH SPENDING



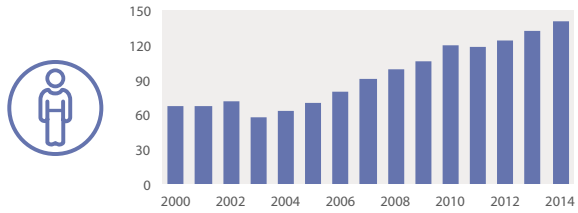
	BURUNDI	DR CONGO	RWANDA	TANZANIA
Million Burundian francs (2011 constant prices)	5,586.7			
Million PPP dollars (2011 constant prices)	13.1	36.5	39.6	103.9

SPENDING INTENSITY



Agricultural research spending as a share of AgGDP	0.46%	0.34%	0.67%	0.29%

AGRICULTURAL RESEARCHERS



Full-time equivalents	141.4	512.8	169.3	857.7
Share of researchers with MSc and PhD degrees	76%	40%	77%	70%

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/Burundi/directory** for an overview of Burundi's agricultural R&D agencies.

Funding volatility

During the years immediately following the country's 2003 peace agreement, donor funding to agricultural research flowed rapidly, prompting increased spending. Growing violence and deepening political corruption in more recent years caused many donors to suspend or cut aid, with negative effects on the country's agricultural research expenditures. As of 2014, Burundi invested 0.46 percent of its AgGDP in agricultural research, well below the minimum investment target recommended by the African Union and the United Nations.

Capacity improvements

The total number of agricultural researchers has risen over time in response to the recruitment of young scientists at ISABU and the return to Burundi of a large number of Burundian professors from universities abroad, prompted by improved salary levels in the higher education sector. Nevertheless, the country's agricultural R&D capacity remains very weak in terms of the number of researchers qualified to the PhD-degree level, especially at ISABU and the other government agencies.

Inequitable remuneration

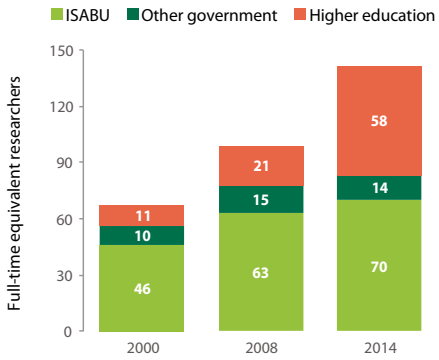
Unlike their university-based counterparts, ISABU's scientists are classified as public servants, not researchers. As a result, their salaries are much lower, creating a challenge for ISABU to attract and retain well-qualified researchers. In addition, the benefits of CAMES membership (francophone Africa's higher education council) further attract researchers away from ISABU to universities. However, based on their academic focus, universities have much weaker linkages with farmers compared with ISABU, which focuses on applied research of relevance to the needs of producers.

Strategic resource use

Given the tremendous constraints to agricultural research agencies in Burundi, government and higher educaton agencies need to pool their scarce resources more efficiently. By collectively identifying research priorities and sharing staff and infrastructure, these agencies could create synergies in the conduct of research, ultimately generating outputs to enhance agricultural production. The government has an important role to play in this regard in terms of providing the necessary policy environment to stimulate cooperation.

Institutional composition of Burundi's agricultural research

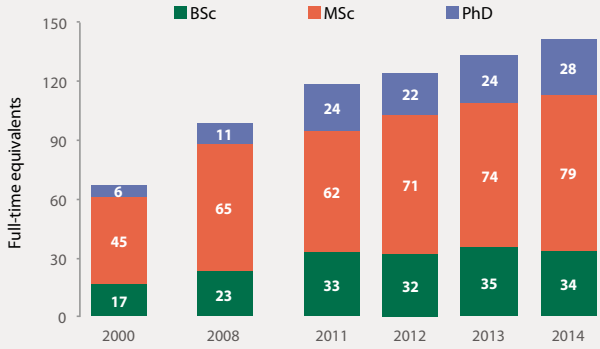
Agricultural researcher numbers in Burundi more than doubled during 2000–2014. In 2000, ISABU accounted for more than two-thirds of the country's agricultural researchers. By 2014, this share had fallen to half. Universities are playing an increasingly important role in agricultural research. As of 2014, they accounted for 41 percent of agricultural researchers.



8 AGENCIES, 2014	
Government	4
Higher education	4

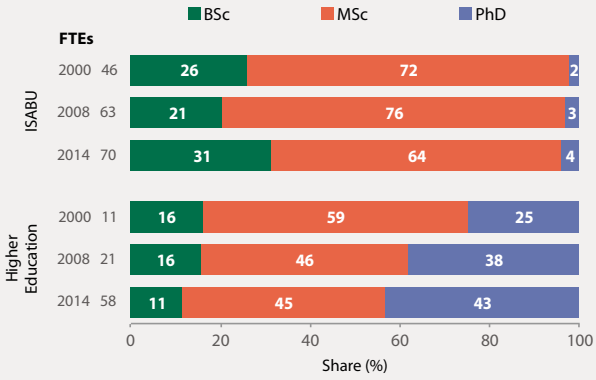
Burundi's agricultural researchers by qualification level

As of 2014, one in five of Burundi's agricultural researchers was PhD-qualified, 56 percent were qualified to the MSc level, and 24 percent were qualified to the BSc level. The number of researchers with PhD degrees has grown over time. In 2014, Burundi employed 28 FTE researchers with PhD degrees, compared with just 6 in 2000.



Burundi's agricultural researchers by sector and qualification level

The salary levels of PhD-qualified researchers employed at the country's universities are up to five times higher than those at ISABU, making it extremely difficult for the institute to attract researchers with doctorate degrees. The bulk of Burundi's PhD-qualified researchers are employed at universities.



Burundi's share of female researchers

As of 2014, 17 percent of Burundi's agricultural researchers were female—a slight decline from the 19 percent share recorded in 2008. On average, women hold lower qualification levels than their male colleagues, and female participation is particularly low at universities compared with ISABU and the other government agencies.

By qualification level, 2014

BSc **37%**	MSc **12%**	PhD **6%**

By institutional category, 2014

ISABU **21%**	Other government **26%**	Higher education **9%**

ISABU's MSc- and PhD-qualified agricultural researchers by discipline

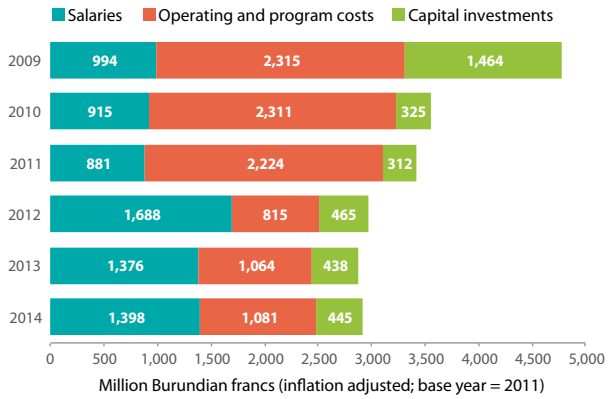
As of 2014, ISABU employed just three PhD-qualified researchers: one plant breeder, one pathologist, and one soil scientist. The main disciplines among MSc-qualified researchers at ISABU include socioeconomics, soil sciences, and seed and other crop sciences. The institute has an acute shortage of scientists in the areas of livestock and fisheries.

Agricultural researchers, 2014	FTEs		Share (%)	
	MSc	PhD	MSc	PhD
Plant breeding/genetics (incl. biotechnology)	2	1	4	33
Plant pathology	1	1	2	33
Plant physiology	3	–	7	–
Botany	2	–	4	–
Seed science and technology	4	–	9	–
Other crop sciences	6	–	13	–
Animal breeding/genetics	1	–	2	–
Animal husbandry	1	–	2	–
Poultry	–	–	–	–
Veterinary medicine	3	–	7	–
Zoology/entomology	–	–	–	–

Agricultural researchers, 2014	FTEs		Share (%)	
	MSc	PhD	MSc	PhD
Other animal and livestock	–	–	–	–
Forestry and agroforestry	2	–	4	–
Fisheries and aquatic resources	–	–	–	–
Soil sciences	4	1	9	33
Natural resources management	–	–	–	–
Water and irrigation management	3	–	7	–
Food sciences and nutrition	3	–	7	–
Socioeconomics (incl. agricultural economics)	6	–	13	–
Other sciences	4	–	9	–
Total	**45**	**3**	**100**	**100**

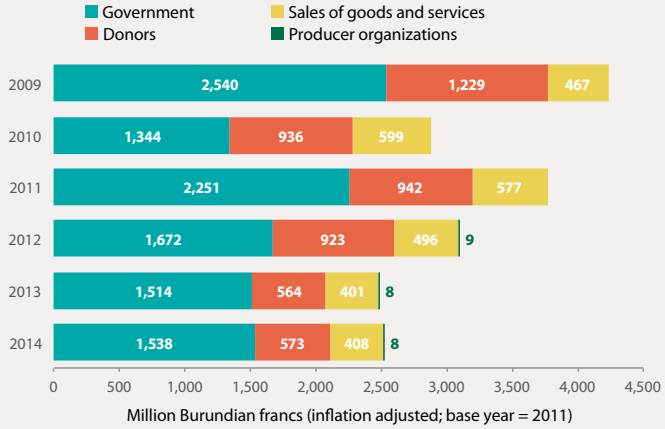
ISABU's spending by cost category

A change in the legal status of its staff facilitated an improvement in ISABU's salary levels as of 2012. As a result, the institute's salary bill rose significantly. In contrast, operating and program costs fell sharply in recent years following cuts in donor funding in response to Burundi's unstable political situation.



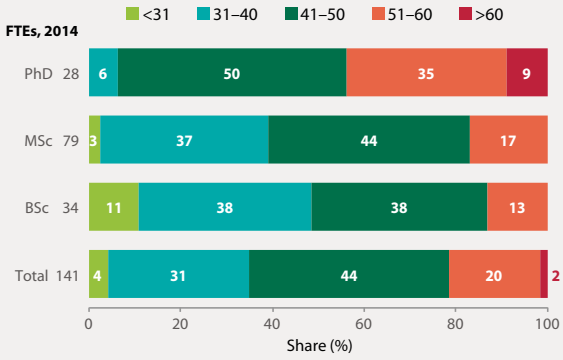
ISABU's funding sources

ISABU's funding is characterized by considerable yearly fluctuations in both government and donor contributions. Internally generated resources through the sale of goods and services accounted for an average of 16 percent of the institute's total funding during 2009–2014.



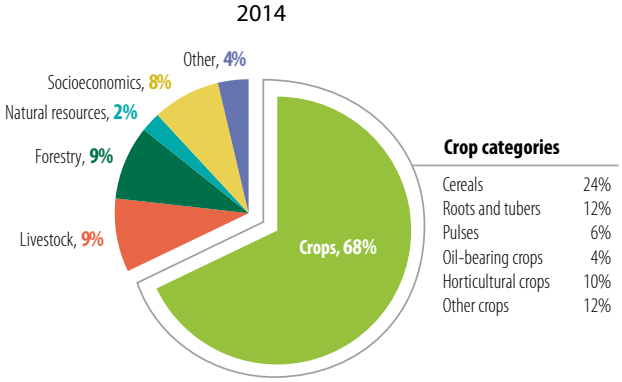
Burundi's agricultural researchers by age bracket

Compared with many other African countries, Burundi has a relatively healthy age distribution of agricultural research staff. In 2014, 22 percent of researchers were older than 51 (the retirement age is 60 for government agencies and 65 for universities). The average age of PhD-qualified researchers is higher than of MSc- and BSc-holders.



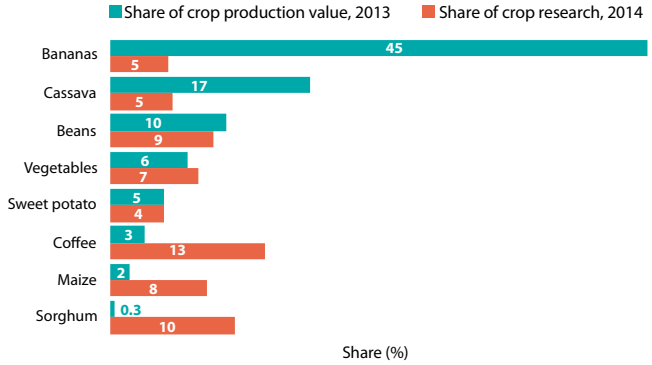
Burundi's agricultural researchers by area of focus

In 2014, 68 percent of the country's FTE researchers conducted crop research. Livestock and forestry research accounted for 9 percent each, and socioeconomic research for 8 percent. Major crops under investigation were coffee, rice, sorghum, beans, maize, potatoes, and vegetables.



Alignment of research focus with production value, selected crops

Although bananas account for nearly half of Burundi's crop production value, just 5 percent of the country's crop researchers conduct banana research. Similarly, cassava is researched less intensively than its production value would indicate. Coffee, maize, and sorghum, in contrast, are researched more than production values alone would warrant.



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

ISABU's recent peer-reviewed publications

ISABU's research outputs are limited. During 2012–2014, the institute released no new crop varieties and just a handful of noncrop-related technologies. ISABU's publication record is also low compared with NARIs in other African countries. ISABU researchers publish just 2.7 journal articles per year on average, none of which in international journals.

Type	Number of publications, 2012–2014 annual average	Per FTE researcher
Journal articles		
International	–	–
Regional	–	–
National	2.7	0.040
Books	–	–
Book chapters	–	–
Total	**2.7**	**0.040**

Resources for Burundi

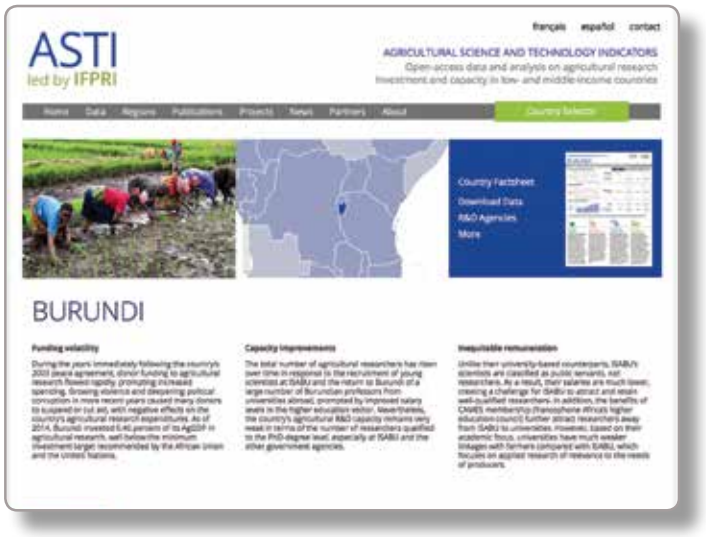
This factsheet presents recent data on the performance of agricultural research in Burundi, primarily focusing on key financial, human resource, institutional, and output indicators, while also highlighting relevant trends, challenges, and institutional changes. Additional resources are available at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

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

ASTI's **agency directory** provides a view of agencies that conduct agricultural research in Burundi, 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
CAMES	African and Malagasy Council for Higher Education
DR Congo	Democratic Republic of Congo
FTE(s)	full-time equivalent(s)
ISABU	Institute of Agricultural Science of Burundi
NARIs	national agricultural research institutes
PPP(s)	purchasing power parity (exchange rates)
R&D	research and development

ABOUT ASTI, IFPRI, AND ISABU

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 **Institute of Agricultural Science of Burundi (ISABU)** is the country's principal agricultural research agency. The institute falls under the Ministry of Agriculture and Livestock and focuses on crop, livestock, farming system, and socioeconomic research.

ASTI/IFPRI and ISABU 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 ISABU.