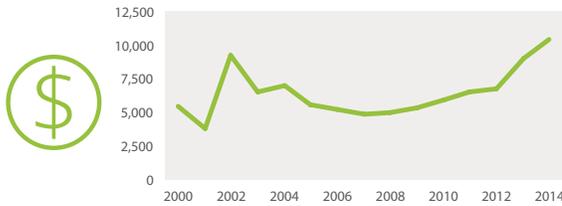


BURKINA FASO

Léa Vicky Magne Domgho, Samuel Neya, and Gert-Jan Stads

AGRICULTURAL RESEARCH SPENDING



Million Congolese francs
(2011 constant prices)

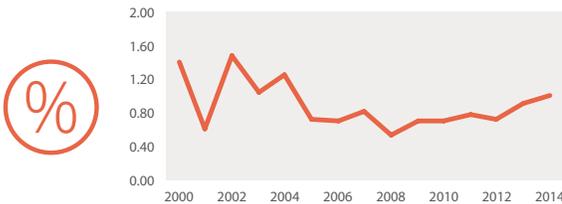
10,353.2

Million PPP dollars
(2011 constant prices)

48.5

	MALI	NIGER	SENEGAL
Million Congolese francs (2011 constant prices)			
Million PPP dollars (2011 constant prices)	37.9	14.5	51.3

SPENDING INTENSITY

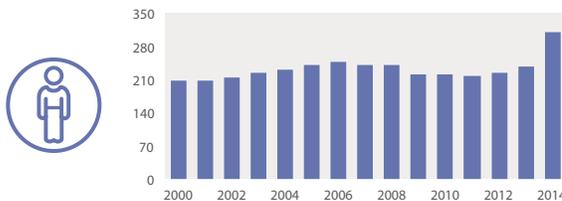


Agricultural research
spending as a share
of AgGDP

1.01%

	MALI	NIGER	SENEGAL
Agricultural research spending as a share of AgGDP	0.38%	0.23%	1.15%

AGRICULTURAL RESEARCHERS



Full-time
equivalents

310.8

Share of researchers with
MSc and PhD degrees

99%

	MALI	NIGER	SENEGAL
Full-time equivalents	285.7	182.0	124.4
Share of researchers with MSc and PhD degrees	96%	89%	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/BurkinaFaso/directory for an overview of Burkina Faso's agricultural R&D agencies.



WAAPP drives spending growth

Burkina Faso's agricultural research expenditures have fluctuated considerably over time, with spending peaks and troughs coinciding with the initiation and completion of large donor-funded projects. The 2012 launch of WAAPP—a five-year US\$16 million project funded by a World Bank grant—drove the latest surge in spending. WAAPP is to transform INERA into West Africa's center of specialization for research on mangoes, onions, and tomatoes. WAAPP addresses training and rehabilitation needs for these commodities, but leaves other critical areas underfunded.



Limited government funding

Burkina Faso is one of the few African countries to reach the African Union and United Nations' minimum agricultural research investment target of 1 percent of AgGDP. Nonetheless, its agricultural research is extremely dependent on donor and development bank funding. In order to enhance the long-term impact of agricultural research, higher and sustained government funding is needed, not just for researcher salaries, but also to operate research programs and maintain infrastructure. Donor funding, in turn, needs to be more closely aligned with government-defined priorities.



Replacing retirees

After a sustained period of recruitment restrictions, the total number of agricultural researchers has increased rapidly in recent years. Recognizing that CNRST institutes (including INERA and IRSAT) will soon face considerable capacity losses due to retirement, the government approved a plan to recruit a large number of young MSc- and PhD-qualified researchers between 2013 and 2017. It will be crucial that these researchers receive appropriate training and mentoring, and that the appropriate conditions and incentives are established to encourage their long-term commitment.

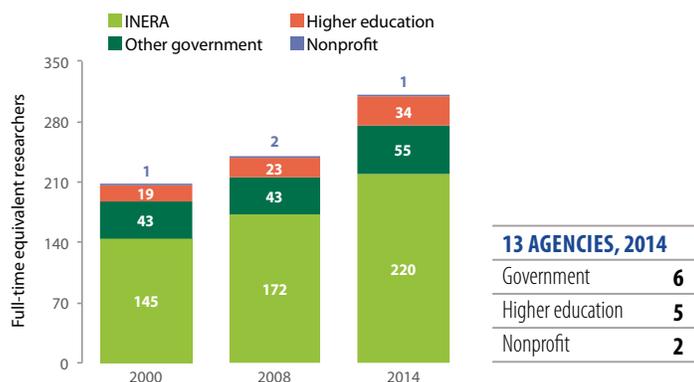


Strengthening extension linkages

Linkages between agricultural research and extension in Burkina Faso are weak and need to be strengthened. Since the 1990s, the number of extension agents has declined continuously with the result that the National Agricultural Extension and Advisory System is no longer effective. Staffing and funding for extension are needed so that INERA's improved varieties and technologies can be disseminated more effectively and adopted by smallholders.

Institutional composition of Burkina Faso's agricultural research

Despite a rapid increase in the total number of agricultural researchers during 2000–2014, the institutional composition of agricultural research has not changed much over time. In 2014, INERA accounted for 71 percent of Burkina Faso's agricultural researchers; other government agencies for 18 percent; and universities for the remaining 11 percent.



Burkina Faso's agricultural researchers by qualification level

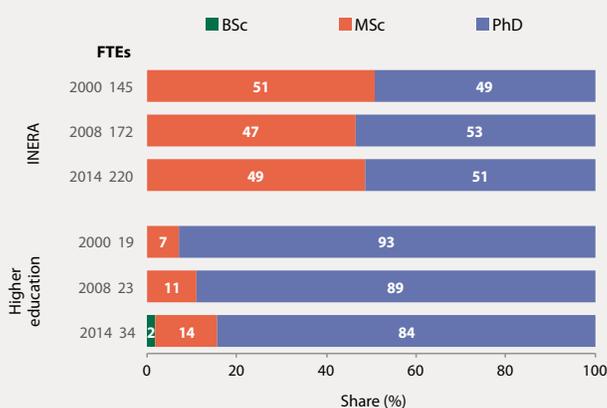
Burkina Faso has rapidly expanded its pool of PhD-qualified agricultural researchers in recent years. As of 2014, the country employed 163 FTEs with PhD degrees, making its pool of PhD-qualified researchers larger than those of similarly sized Sahel countries, such as Chad (18 FTEs), Mali (148 FTEs), Niger (73 FTEs), and Senegal (89 FTEs).



Note: Data exclude BSc-qualified support staff employed at INERA, IRSAT, and CNSF who do not hold official researcher status.

Burkina Faso's agricultural researchers by sector & qualification level

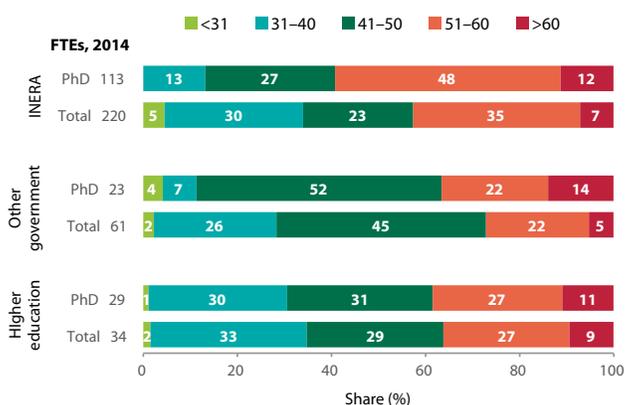
The absolute number of agricultural researchers with PhD degrees has increased considerably in recent years, both at INERA and the higher education agencies. As of 2014, 51 percent of INERA's researchers were PhD-qualified, compared with 84 percent of agricultural researchers at the higher education agencies.



Note: Data exclude BSc-qualified support staff employed at INERA who do not hold official researcher status.

Burkina Faso's agricultural researchers by age bracket

Sixty percent of INERA's PhD-qualified researchers are in their 50s or 60s; researchers at other agencies are younger on average. To counteract capacity losses due to retirement (at between 60 and 65 years), INERA received permission to recruit about 30 MSc- and PhD-qualified researchers per year during 2013–2017.



Burkina Faso's MSc- and PhD-qualified agricultural researchers by discipline

Burkina Faso's agricultural researchers are qualified in a vast range of disciplines. Plant breeding and botany are the strongest disciplines among PhD-qualified researchers. Recent recruitment has addressed the pressing lack of cotton and horticulture breeders with PhD degrees. Socioeconomists are well represented among MSc-qualified researchers.

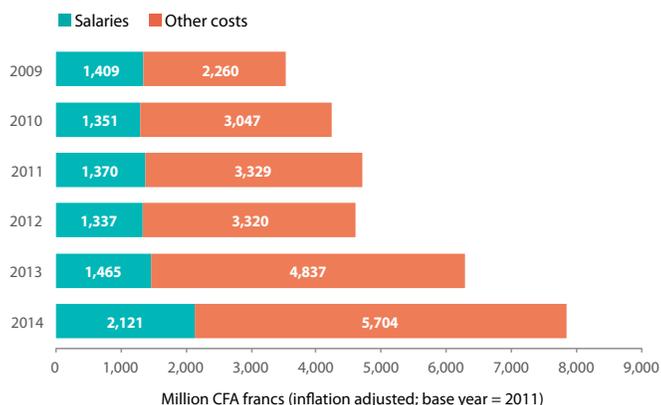
Agricultural researchers, 2014	FTEs		Share (%)	
	MSc	PhD	MSc	PhD
Plant breeding/genetics (incl. biotechnology)	15	21	10	13
Plant pathology	7	15	5	9
Plant physiology	1	2	1	1
Botany	11	17	7	10
Seed science and technology	1	–	1	–
Other crop sciences	0.3	–	0.2	–
Animal breeding/genetics	0.3	2	0.2	1
Animal husbandry	8	6	6	3
Animal nutrition	3	6	2	3
Dairy science	1	1	1	1
Poultry	–	–	–	–
Veterinary medicine	–	3	–	2
Zoology/entomology	4	12	2	7

Agricultural researchers, 2014	FTEs		Share (%)	
	MSc	PhD	MSc	PhD
Forestry and agroforestry	4	4	3	3
Fisheries and aquatic resources	13	5	9	3
Soil sciences	8	13	6	8
Natural resources management	2	2	2	1
Water and irrigation management	–	2	–	1
Ecology	7	12	5	7
Biodiversity conservation	–	1	–	0.5
Food sciences and nutrition	8	7	5	4
Socioeconomics (incl. agricultural economics)	26	6	18	3
Extension and education	2	0.3	2	0.2
Other sciences	23	29	16	18
Total	143	163	100	100

Notes: Data are estimates based on an agency sample representing 95 percent of the total number of FTE researchers in the government and higher education sectors. The nonprofit sector is excluded.

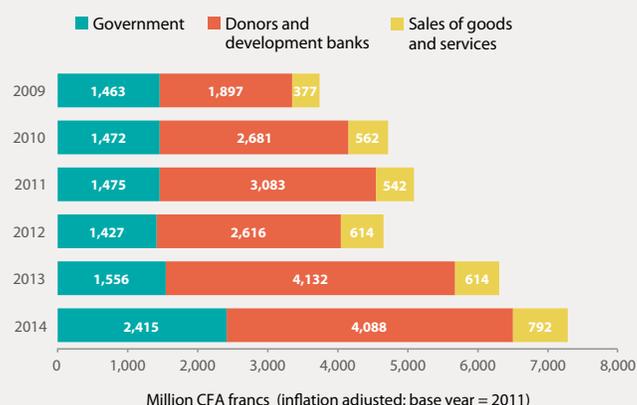
INERA's spending by cost category

INERA's salary bill rose in 2014 in response to the large-scale recruitment of researchers. WAAPP (2012–2017) supported investment in staff training and the rehabilitation of research infrastructure. Funding for research programs is limited under WAAPP but includes a competitive fund for research on maize, rice, groundnuts, shea butter, and cattle.



INERA's funding sources

The large influx of researchers in 2014 necessitated substantially higher government funding for salaries. Daily operations and research infrastructure have remained severely underfunded, however, and almost exclusively dependent on donor contributions. During 2009–2014, INERA generated 11 percent of its funding from the sale of goods and services.



Burkina Faso's share of female researchers

In 2014, 19 percent of Burkina Faso's agricultural researchers were women, a marked increase from the 13 percent share recorded in 2008. Universities employ comparatively fewer female researchers than INERA and the other government agencies. On average, female researchers tend to be younger and less highly qualified than their male colleagues.



By qualification level, 2014

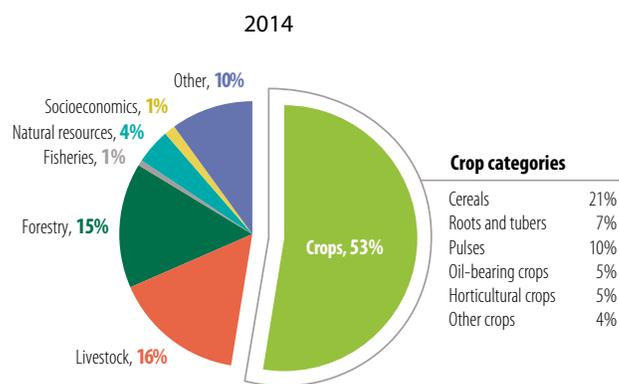
BSc	64%	MSc	25%	PhD	13%
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By age bracket, 2014

< 41	31%	41–50	16%	> 50	11%
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Burkina Faso's agricultural researchers by area of focus

In 2014, more than half of Burkina Faso's agricultural researchers conducted crop research, whereas livestock and fisheries research accounted for 16 percent and 15 percent, respectively. Major crops under investigation were rice, maize, sorghum, sweet potatoes, millet, beans, and vegetables.



Crop categories

Cereals	21%
Roots and tubers	7%
Pulses	10%
Oil-bearing crops	5%
Horticultural crops	5%
Other crops	4%

INERA's recently released crop varieties

During 2012–2014, INERA released 17 new crop varieties, 14 of which were cereals. The institute also released 1 new cotton and 2 new tomato varieties during this period. As INERA is the center of specialization for research on mangoes, onions, and tomatoes under WAAPP, the release of more horticultural varieties is expected in the coming years.

Crop	Number of varieties, 2012–2014
Millet	2
Rice	4
Sorghum	2
Tomatoes	2
Cowpeas	6
Cotton	1
Total	17

INERA's and IRSAT's recent peer-reviewed publications

INERA and IRSAT produced an average of 49 and 20 peer-reviewed publications per year, respectively, during 2012–2014—the vast majority of which were in international journals. IRSAT's rate of publication was, on average, more than double that of INERA.

Type	Number of publications, 2012–2014 annual average		Per FTE researcher	
	INERA	IRSAT	INERA	IRSAT
Journal articles				
International	39.3	13.0	0.228	0.425
Regional	4.3	6.7	0.025	0.218
National	4.0	0.0	0.023	0.000
Books	0.0	0.0	0.000	0.000
Book chapters	1.3	0.0	0.008	0.000
Total	49.0	19.7	0.284	0.643

Resources for Burkina Faso

This factsheet presents recent data on the performance of agricultural research in Burkina Faso, 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 Burkina Faso features national agricultural research investment and capacity data, a data exploration and download tool, as well as access to a variety of country publications.



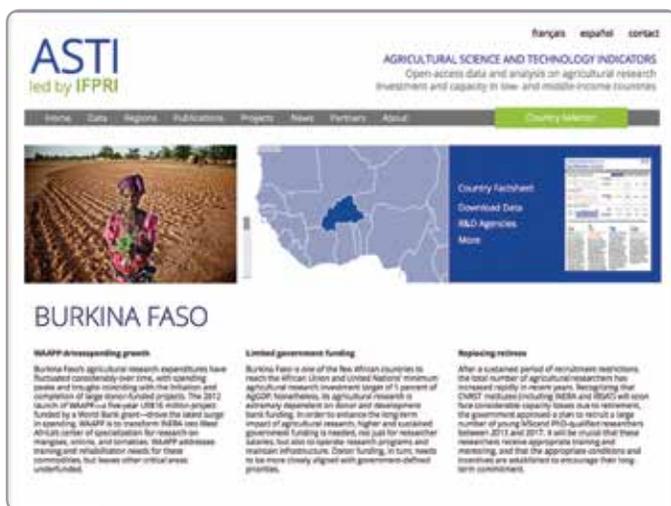
ASTI's **benchmarking tool** allows key agricultural research indicators to be ranked and compared across African countries.



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



ASTI's **agency directory** provides a view of agencies that conduct agricultural research in Burkina Faso, 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
CNRST	National Center of Scientific and Technological Research
CNSF	National Forest Seed Center
FTE(s)	full-time equivalent(s)
INERA	Environment and Agricultural Research Institute
IRSAT	Applied Science and Technology Research Institute
PPP(s)	purchasing power parity (exchange rates)
R&D	research and development
WAAPP	West Africa Agricultural Productivity Program

ABOUT ASTI, IFPRI, AND INERA

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 **Environment and Agricultural Research Institute (INERA)** is Burkina Faso's principal agricultural research agency; its research covers crops, livestock, forestry, natural resources, and socioeconomics.

ASTI/IFPRI and INERA 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 INERA.

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