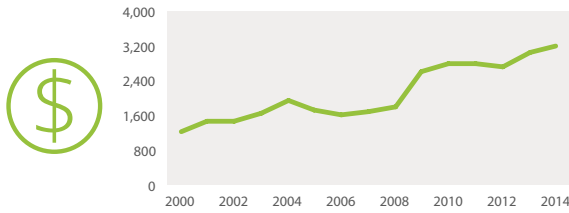




NIGER

Gert-Jan Stads, Biba Yacouba, and Léa Vicky Magne Domgho

AGRICULTURAL RESEARCH SPENDING



Million CFA francs
(2011 constant prices)

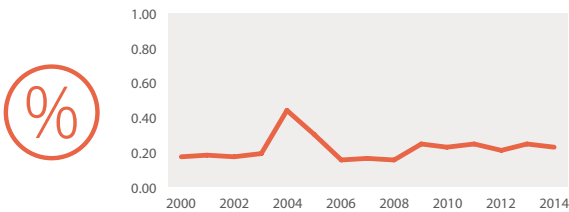
3,216.0

Million PPP dollars
(2011 constant prices)

14.5

	MALI	CHAD	SENEGAL
Million CFA francs (2011 constant prices)			
Million PPP dollars (2011 constant prices)	37.9	12.5	51.3

SPENDING INTENSITY

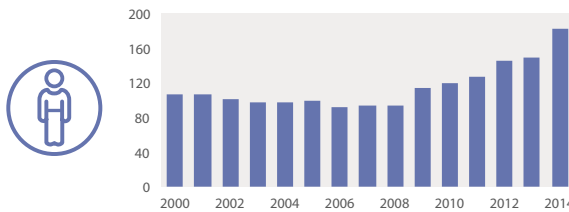


Agricultural research
spending as a share
of AgGDP

0.23%

	MALI	CHAD	SENEGAL
Agricultural research spending as a share of AgGDP	0.38%	0.09%	1.15%

AGRICULTURAL RESEARCHERS



Full-time
equivalents

182.0

Share of researchers with
MSc and PhD degrees

89%

	MALI	CHAD	SENEGAL
Full-time equivalents	285.7	90.7	124.4
Share of researchers with MSc and PhD degrees	96%	98%	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/Niger/directory for an overview of Niger's agricultural R&D agencies.



Slow funding recovery

The completion of the World Bank-funded PNRA in 1998 plunged Niger's agricultural research into severe financial crisis lasting more than a decade. Since 2009, agricultural research capacity and investment levels have gradually begun to recover, in large part due to another World Bank loan-funded project, WAAPP, which is intended to support the country's livestock research; various capacity building initiatives; and the generation, dissemination, and adoption of new technologies.



Ongoing underinvestment

Despite positive growth trends, as of 2014 Niger only invested 0.23 percent of its AgGDP in agricultural research—a fraction of the 1 percent minimum level recommended by the African Union and the United Nations. If agricultural research in Niger is to become more effective, higher levels of funding must be secured. Overreliance on volatile donor and development bank funding needs to be counterbalanced with alternative financing mechanisms, such as innovative alliances with the private sector.



Key staffing challenges

The majority of the country's PhD-qualified agricultural researchers are employed at one of the country's universities. This is primarily due to differences in the official status of government- versus university-based scientists, which prevents INRAN from offering competitive salary packages. Moreover, the official retirement age is much higher at the universities than at INRAN. These key incentive differences make it challenging for INRAN to attract and retain well-qualified research staff.

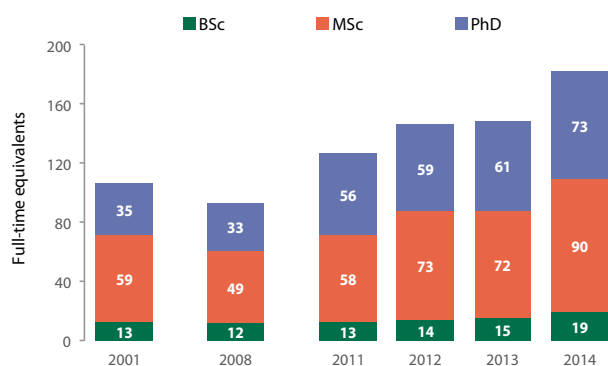


Capacity strengthening needed

The provision of postgraduate training programs at Niger's universities is limited. Most graduates from national universities only hold BSc degrees. Continuing education to the MSc or PhD level generally depends on donor funding, which has become increasingly scarce over time. WAAPP's regional capacity strengthening component addresses this challenge to some degree, but it will be important for the government to maintain a commitment to higher agricultural education to facilitate growth in the number and size of the country's MSc and PhD programs.

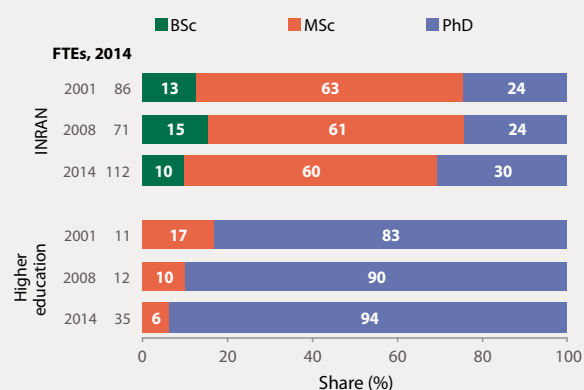
Niger's agricultural researchers by qualification level

Between 2008 and 2014, the total number of agricultural researchers in Niger almost doubled. Growth was predominantly driven by a large influx of PhD- and MSc-qualified researchers.



Niger's agricultural researchers by sector and qualification level

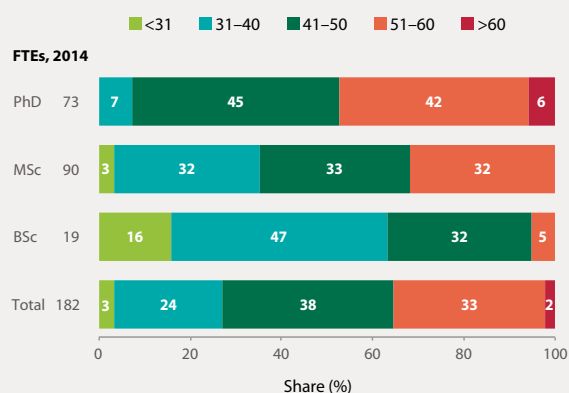
On average, agricultural researchers at Niger's higher education agencies are more highly qualified than those at INRAN. In 2014, 30 percent of INRAN's researchers held PhD degrees, compared with 94 percent of FTE researchers at the universities. Low salary levels make INRAN a less attractive employer for researchers with PhD degrees.



Note: Data exclude other government and nonprofit agencies.

Niger's agricultural researchers by age bracket

As of 2014, about half the PhD-qualified researchers employed at INRAN and the other agricultural research agencies were more than 50 years old; given an official retirement age of 60 years, it is urgent that INRAN expand its pool of PhD-qualified researchers. University-based researchers retire between 60 and 70 years, depending on their grade.



Niger's share of female researchers

Despite a gradual increase in women's participation in agricultural research during 2008–2014, Niger's share of female researchers remains low (15 percent in 2014), especially considering that women account for a sizable share of the agricultural labor force. In general, female researchers are more strongly represented in the lower age bracket.



By qualification level, 2014

BSc	11%	MSc	15%	PhD	16%
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By age bracket, 2014

< 41	18%	41–50	14%	> 50	13%
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Niger's MSc- and PhD-qualified agricultural researchers by discipline

The importance of Niger's livestock sector is reflected in the country's relatively large share of animal breeders (representing 12 percent of agricultural researchers in 2014). Other important disciplines include (agro)forestry, socioeconomics, zoology, seed science and technology, food sciences, and plant breeding.

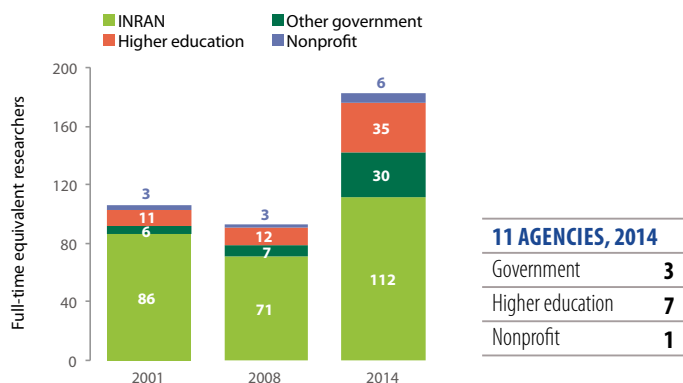
Agricultural researchers, 2014	FTEs		Share (%)	
	MSc	PhD	MSc	PhD
Plant breeding/genetics (incl. biotechnology)	3	5	4	7
Plant pathology	–	4	–	5
Plant physiology	2	4	3	6
Botany	–	0.3	–	0.4
Seed science and technology	3	5	4	7
Other crop sciences	–	3	–	4
Animal breeding/genetics	16	4	18	5
Animal husbandry	1	2	1	2
Animal nutrition	1	4	1	5
Dairy science	1	–	1	–
Poultry	1	–	1	–
Veterinary medicine	2	1	2	2
Zoology/entomology	6	3	6	5
Other animal and livestock	1	1	1	1

Agricultural researchers, 2014	FTEs		Share (%)	
	MSc	PhD	MSc	PhD
Forestry and agroforestry	7	4	8	6
Fisheries and aquatic resources	1	2	1	3
Soil sciences	1	4	1	6
Natural resources management	5	3	5	5
Water and irrigation management	–	1	–	2
Ecology	1	5	1	6
Biodiversity conservation	–	2	–	3
Food sciences and nutrition	7	2	8	2
Socioeconomics (incl. agricultural economics)	5	5	5	7
Extension and education	1	–	1	–
Other sciences	24	9	27	12
Total	90	73	100	100

Note: Data are estimates based on an agency sample representing 88 percent of the total number of FTE researchers.

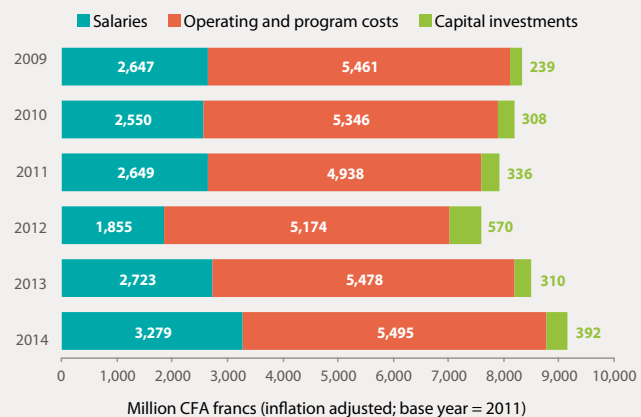
Institutional composition of Niger's agricultural research

INRAN is by far the largest agricultural research agency in Niger, accounting for 61 percent of the country's agricultural researchers in 2014. In recent years, however, other government agencies (CMB-SE and LABOCEL) and universities have begun to play an increasingly important role in agricultural research.



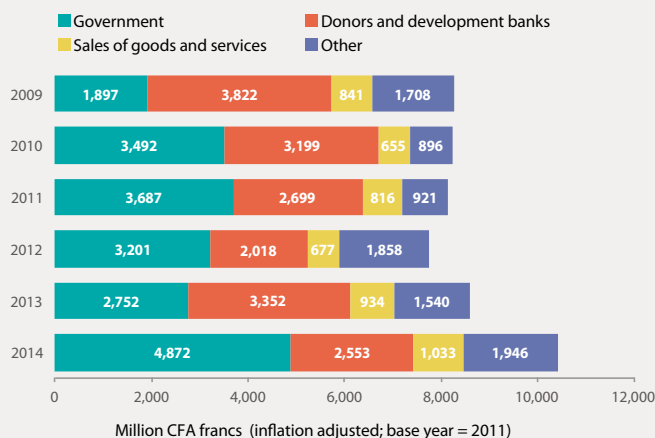
INRAN's spending by cost category

Salaries accounted for 32 percent of Niger's total spending during 2009–2014. Operating and program costs accounted for 64 percent, and capital investments for the remainder. The increase in INRAN's expenditures in recent years was predominantly driven by rising salary costs, following large-scale recruitment of researchers.



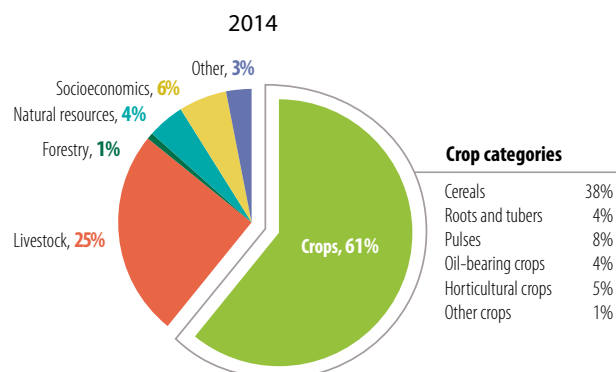
Sources of INRAN's funding

Government funding is only sufficient to cover INRAN's salary bill. Operating and capital costs are mainly funded by donors and development bank loans, and revenues generated internally through seed sales and vehicle and tractor rentals. WAAPP's first phase, which began in 2011, is intended to enhance excellence in Niger's livestock research.



Niger's agricultural researchers by area of focus

In 2014, 61 percent of Niger's agricultural researchers conducted crop research, whereas 25 percent undertook livestock research. Major crops under investigation include the cereals millet, rice, sorghum, and maize, along with beans, groundnuts, and vegetables.



INRAN's recently released crop varieties

INRAN released 16 new crop varieties during 2012–2014, the majority of which were cowpea, sesame, and vegetable varieties. New vegetable varieties included tomatoes and onions.

Crop	Number of varieties, 2012–2014
Cowpeas	4
Sesame	4
Vegetables	4
Potatoes	2
Rice	2
Total	16

INRAN's recent peer-reviewed publications

INRAN researchers published an average of 48 journal articles. The number of journal articles per researcher averaged 0.5 per year, which is comparatively high by African standards.

Type	Number of publications, 2012–2014 annual average	Per FTE researcher
Journal articles		
International	25.0	0.257
Regional	–	–
National	23.0	0.236
Total	48.0	0.493

Resources for Niger

This factsheet presents recent data on the performance of agricultural research in Niger, 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 Niger 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 Niger and many other countries.



ASTI's **agency directory** provides a view of agencies that conduct agricultural research in Niger, 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
CMB-SE	Livestock Multiplication Center
FTE(s)	full-time equivalent(s)
INRAN	Niger National Institute of Agricultural Research
LABOCEL	Central Laboratory for Animal Breeding
PNRA	National Agricultural Research Project
PPP(s)	purchasing power parity (exchange rates)
R&D	research and development
WAAPP	West Africa Agricultural Productivity Program

ABOUT ASTI, IFPRI, AND INRAN

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 **Niger National Institute of Agricultural Research (INRAN)** is Niger's principal agricultural research agency. Administered by the Ministry of Agriculture, INRAN conducts research on crops, livestock, natural resources, socioeconomics, and agricultural engineering.

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