Agricultural R&D Indicators Factsheet Update | September 2018

RWANDA

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Background and Key Trends

- Agricultural R&D spending grew by one-third during 2011–2014, driven be increased donor support to RAB, which declined thereafter.
- Rwanda invested 0.44 percent of its AgGDP in agricultural R&D in 2016. This level well below the 1 percent target recommended by the African Union and the United Nations, but is close to what is estimated to be attainable based on an assessment of countries with similar economic conditions.
- Rwanda's total number of researchers grew during 2011–2013, but sharply declined from 2014 due to a restructuring of RAB's researcher classifications: an MSc degree is now the minimum requirement for scientists to qualify as researchers, so most junior researchers were reclassified as research technicians.

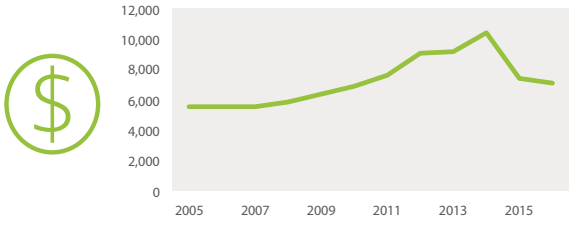
Challenges

- Rwanda has one of the youngest pools of agricultural researchers in Africa. Moreover, the number of researchers with PhD degrees remains low.
- RAB relies on outside sources of funding for its research activities and has been highly successful in establishing a diverse funding portfolio that includes regional and international organizations. Donor funding, however, is mostly ad hoc and project-based, and may not always align with national priorities. Donor funding has declined since 2014, causing RAB's spending to decline commensurately.

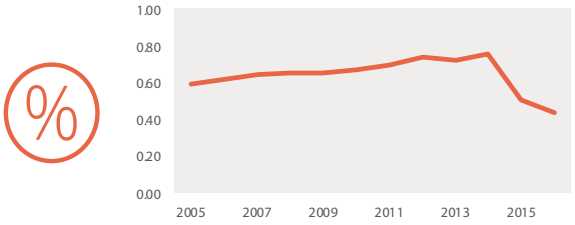
Policy Options

- The government has supported the development of a number of post-graduate agricultural programs at UR-CAVM, together with the hiring of international researchers to mentor young scientists at RAB. Despite positive progress, these strategies have been insufficient to date, so it is important that the government continues to invest in higher education and local postgraduate training programs.
- RAB's revenues from the sale of goods and services doubled between 2014 and 2016, in part offsetting the decline in donor funding. Further diversification of its funding portfolio will be an important strategy to reduce donor dependency.
- Lack of competitive remuneration packages and incentives have led to staff dissatisfaction, so it is important that this issue be promptly addressed.

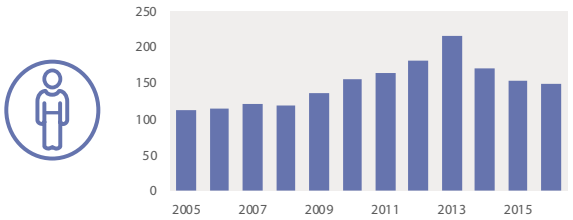
AGRICULTURAL RESEARCH SPENDING



SPENDING INTENSITY



AGRICULTURAL RESEARCHERS

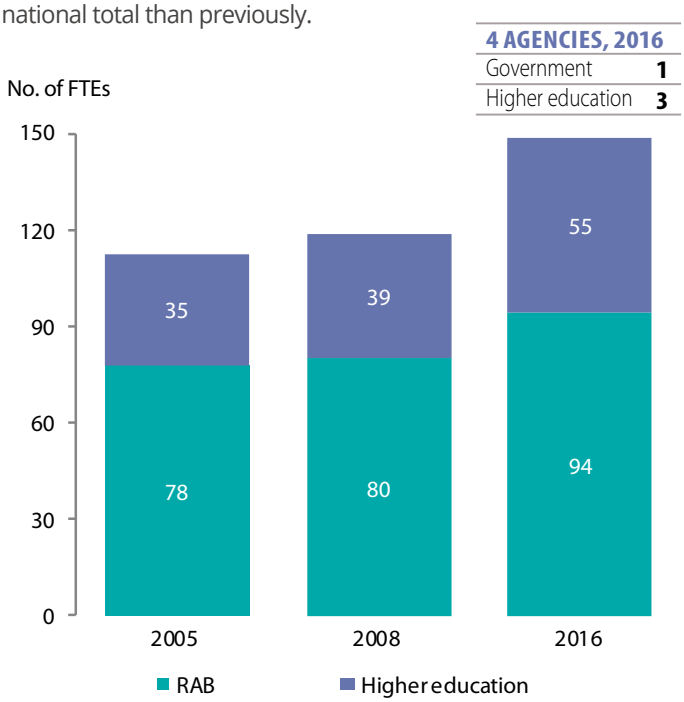


	RWANDA	KENYA	TANZANIA	UGANDA
Million Rwandan francs (2011 constant prices)	7,109.1			
Million PPP dollars (2011 constant prices)	27.3	222.7	68.5	99.4
Agricultural research spending as a share of AgGDP	0.44%	0.48%	0.17%	.62%
Full-time equivalents	148.9	1,157.6	785.0	558.7
Share of researchers with MSc and PhD degrees	96%	85%	77%	81%

Notes: Data in the table above are for 2016. 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/Rwanda/directory** for an overview of Rwanda's agricultural R&D agencies.

Institutional composition of agricultural research

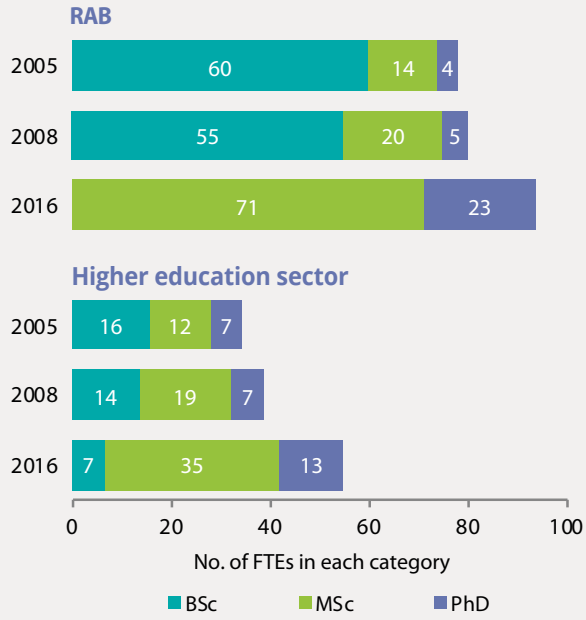
RAB, Rwanda's only government agricultural research agency, employs the majority of the country's researchers. However the higher education sector, led by UR-CAVM, grew significantly from 2005, and and as of 2016 constituted a larger share of the national total than previously.



Note: Recent policy changes mean that BSc-qualified staff at RAB no longer have official researcher status, which has artificially reduced RAB's overall number of researchers.

Agricultural researchers by qualification level

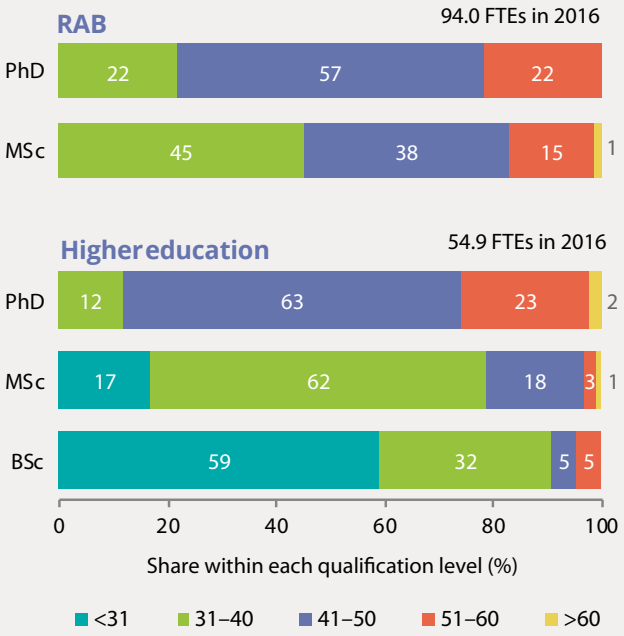
Rwanda's total number of MSc-qualified researchers rose substantially during 2005–2016, both at RAB and within the higher education sector. The number of researchers with PhD degrees at both organizations also increased over time, but remained comparatively small in absolute terms (in FTEs).



Notes: As of 2014, BSc-qualified scientists at RAB no longer hold official researcher status. The government and higher education agencies also employ a number of BSc- and MSc-qualified technical support staff who do not have official researcher status.

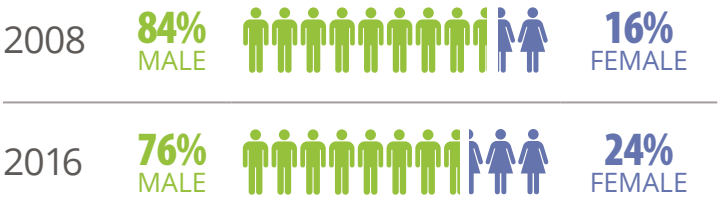
Distribution of agricultural researchers by qualification level and age bracket

Rwanda generally has one of the youngest pools of agricultural researchers in the region. The demographics have been slowly changing, but the majority of researchers still hold MSc degrees and are in their 30s.



Agricultural researchers by gender

Overall, the share of female researchers rose from 16 to 24 percent during 2008–2016. As of 2016, the share of female researchers qualified to the PhD-degree level was comparatively lower than those qualified to the BS-c or MSc-degree level.



Share of women within each qualification level, 2016

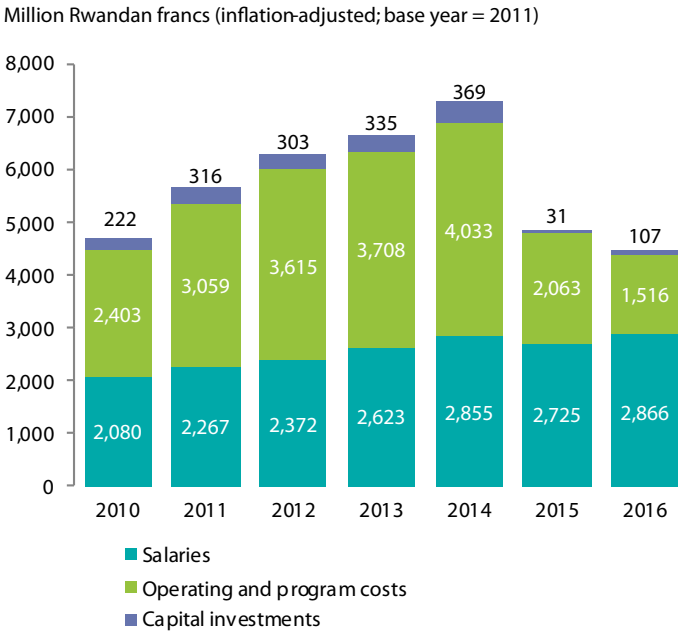
BSc **18%**	MSc **27%**	PhD **15%**

Share of women by age bracket, 2016

< 41 **27%**	41–50 **23%**	> 50 **14%**

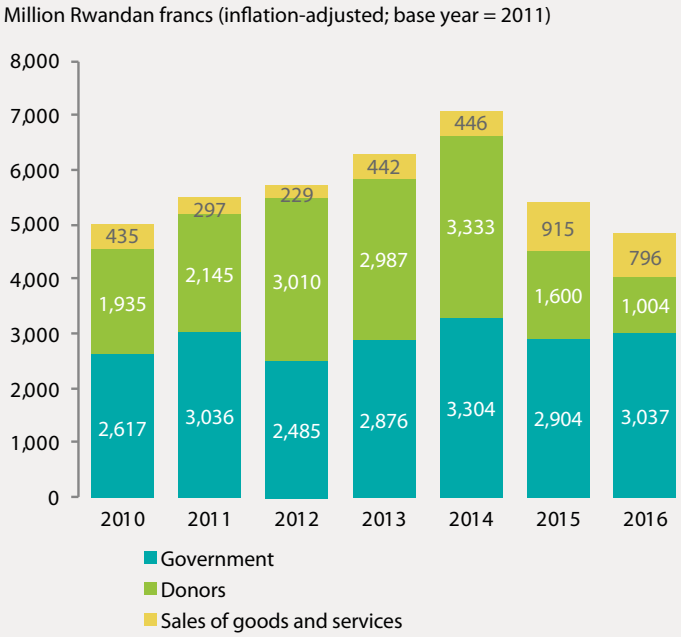
RAB's spending by cost category

Salaries and related expenses accounted for an increasing share of RAB's total agricultural research spending during 2015–2016. Given a decline in donor funding during those years, spending on operating and program costs and capital invesments also declined.



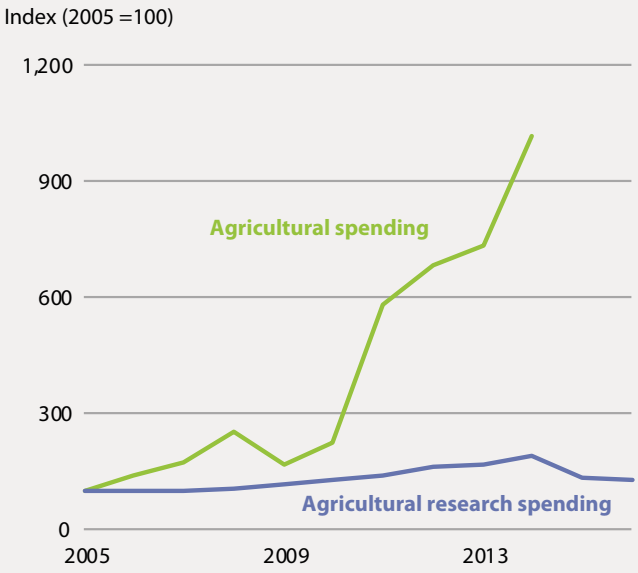
Sources of RAB's funding

The majority of RAB's funding, which is primarily allocated to staff salaries, is provided by the government. Donor funding contracted significantly from 47 percent of total funding in 2014, to 21 percent in 2016. Revenues generated from the sale of goods and services accounted for 16 percent that year.



Spending on agriculture and agricultural research

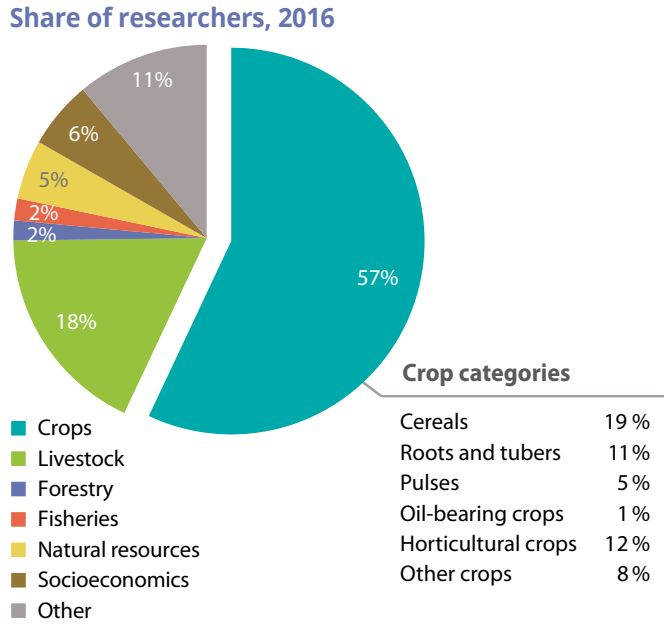
Government investment in the agricultural sector in Rwanda increased at an exponential rate between 2010 and 2014. Although agricultural research spending almost doubled between 2005 and 2014, it rose at a much slower pace and began to decline after 2014.



Notes: Data on agricultural spending are from SPEED 2015 (www.ifpri.org/publication/statistics-public-expenditures-economic-development-speed). Agricultural spending only includes funds derived from national governments; agricultural research spending includes funds derived from governments, donors, development banks, and producer organizations, and revenues generated internally by research agencies.

Agricultural researchers by area of focus

In 2016, 57 percent of the country's FTE researchers conducted crop research, while 18 percent undertook livestock research. Major crops under investigation were the cereals maize, rice, and wheat, along with fruit, coffee, beans, potatoes, cassava, and vegetables.



Resources for Rwanda

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

ASTI's **agency directory** provides a view of agencies that conduct agricultural research in Rwanda, 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 and international organizations is excluded.
- 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
FTE(s)	full-time equivalent(s)
PPP(s)	purchasing power parity (exchange rates)
RAB	Rwanda Agriculture and Animal Resources Development Board
R&D	research and experimental development
UR-CAVM	University of Rwanda, College of Agriculture, Animal Sciences, and Veterinary Medicine

About ASTI, IFPRI, and RAB

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 facilitated 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 **Rwanda Agriculture and Animal Resources Development Board (RAB)**, under the Ministry of Agriculture and Animal Resources, is Rwanda's principal agricultural research agency. RAB conducts research on crops, livestock, forestry, fisheries, agricultural engineering, socioeconomics, and natural resources.

ASTI/IFPRI and RAB 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 RAB.