KENYA

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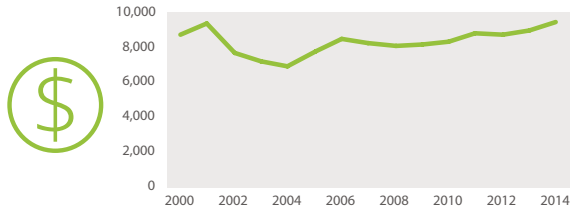
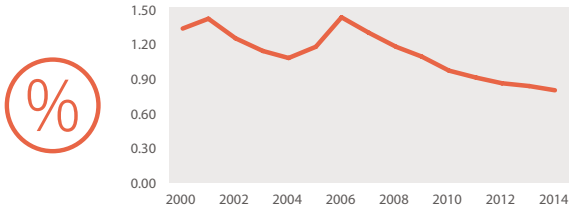
AGRICULTURAL RESEARCH SPENDING



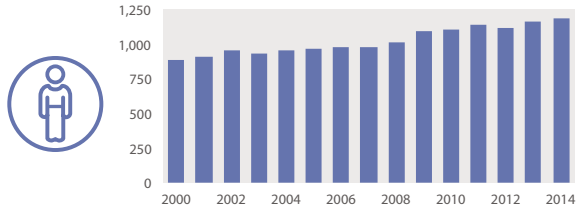
	KENYA	ETHIOPIA	TANZANIA	UGANDA
Million Kenyan shillings (2011 constant prices)	9,400.4			
Million PPP dollars (2011 constant prices)	274.1	127.3	103.9	152.5

SPENDING INTENSITY



Agricultural research spending as a share of AgGDP	0.79%	0.24%	0.29%	0.97%

AGRICULTURAL RESEARCHERS



Full-time equivalents	1,178.5	2,768.5	857.7	477.9
Share of researchers with MSc and PhD degrees	80%	42%	70%	80%

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

Slower overall growth

Growth in agricultural research spending during 2000–2014 mostly stemmed from increased capacity at Kenya's higher education agencies and among government organizations other than KALRO. Contractions in government and donor contributions caused KALRO's spending levels to stagnate during 2011–2013 and decline in 2014. Agricultural research spending as a share of AgGDP fell from 1.33 in 2000 to 0.79 in 2014, reflecting strong agricultural growth, not declining research spending. The total number of agricultural researchers changed little during 2011–2014.

Improved coordination

In efforts to improve the coordination and efficiency of resource use, KARI, KESREF, CRF, and TRFK were merged to form KALRO in 2014. This change—which follows institutional structures in place in other countries, such as Brazil, Mexico, Japan, and India—is expected to improve integration between the government and higher education sectors and encourage closer collaboration among private, regional, and international research organizations in support of a more dynamic, innovative, and efficient agricultural research system.

Declining funding to KALRO

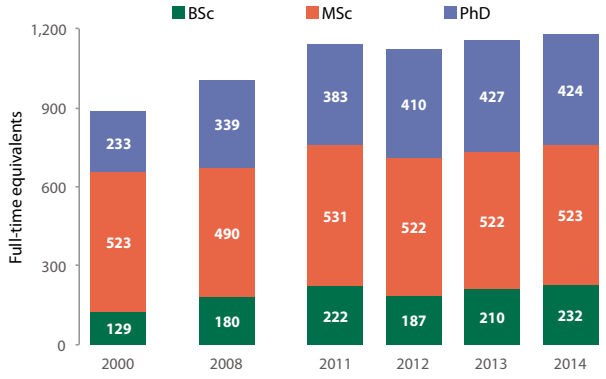
While declining government funding to KALRO and its predecessors from 2011 negatively affected research overall, EAAPP funding strengthened KALRO's human and institutional capacity in the area of dairy research. The recent reallocation of commodity tax revenues to nonresearch-related activities will only exacerbate the funding shortfall KALRO experienced in 2014–2015 as a result of its restructuring. KALRO is endeavoring to address this challenge by promoting the generation of internal revenues through the sale of good and services.

Dwindling capacity at KALRO

An internal evaluation determined that, in order to fulfill its research potential, KALRO would need to increase agricultural researcher numbers by 40 percent. Yet capacity is actually expected to decline in the coming years because a large number of (especially PhD-qualified) researchers are approaching retirement age. By preventing KALRO from replacing departing and retiring staff with young scientists, the ongoing hiring freeze further complicates this challenge, creating a long-term impediment to the conduct and continuity of research.

Kenya's agricultural researchers by qualification level

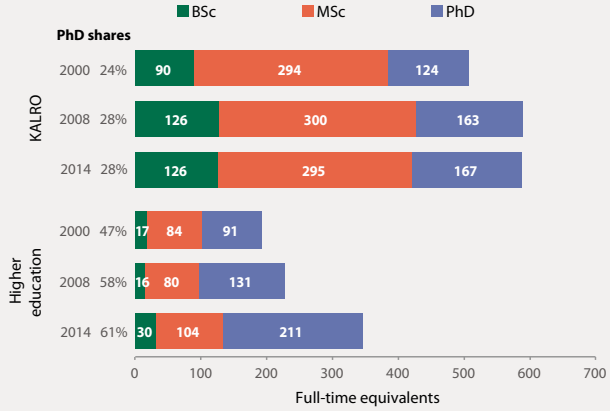
The country's total number of agricultural researchers increased only slightly during 2011–2014, mostly due to growth in the number of PhD-qualified researchers. The number of BSc- and MSc-qualified researchers remained fairly stagnant during this timeframe.



Note: The government and higher education agencies employed a number of technical support staff qualified to the BSc- and MSc-level; these staff members do not have official researcher status.

Kenya's agricultural researchers by sector and qualification level

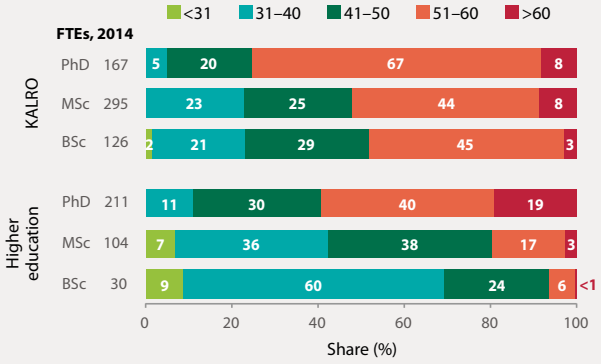
A large number of researchers with PhD degrees left KALRO during 2013–2014 to accept positions with more attractive remuneration at local universities or other agencies. As a result, the number of PhD-qualified FTE researchers employed in the higher education sector has surpassed the number employed at KALRO.



Note: The figure excludes other government agencies.

Kenya's agricultural researchers by age bracket

Large shares of PhD-qualified researchers at most agricultural research agencies in Kenya are in their 50s or 60s. The situation is particularly serious at KALRO: three-quarters of PhD-qualified researchers and about half of all BSc- and MSc-qualified researchers were more than 50 years old as of 2014.



Note: The figure excludes other government agencies.

Kenya's share of female researchers

The country's share of female agricultural researchers increased from 25 percent in 2008 to 29 percent in 2014. As of 2014, female researchers were comparatively younger and less well-qualified than their male colleagues.

By qualification level, 2014

BSc **32%**	MSc **33%**	PhD **23%**

By age bracket, 2014

< 41 **44%**	41–50 **35%**	> 50 **18%**

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

Socioeconomics, veterinary medicine, fisheries/aquatic resources, plant breeding/genetics, and soil sciences are strong disciplines in Kenya accounting for a combined 49 percent of the country's total number of MSc- and PhD-qualified agricultural researchers in 2014.

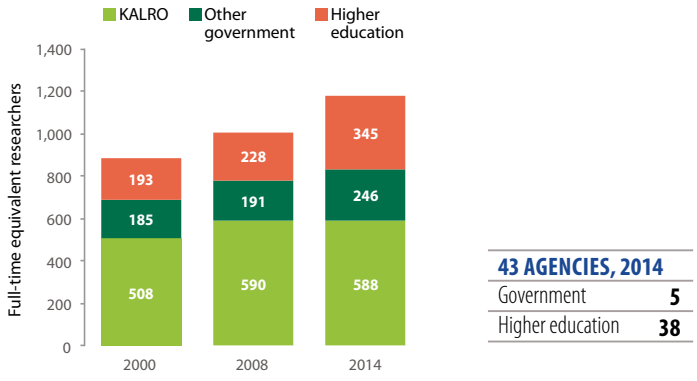
Agricultural researchers, 2014	FTEs		Share (%)	
	MSc	PhD	MSc	PhD
Plant breeding/genetics (incl. biotechnology)	37	41	7	10
Plant pathology	24	25	5	6
Plant physiology	3	10	1	2
Botany	2	4	0.4	1
Seed science and technology	7	5	1	1
Other crop sciences	79	54	15	13
Animal breeding/genetics	7	7	1	2
Animal husbandry	14	4	3	1
Animal nutrition	13	20	2	5
Dairy science	2	4	0.5	1
Poultry	0.3	1	0.1	0.2
Veterinary medicine	40	62	8	15
Zoology/entomology	15	16	3	4
Other animal and livestock	–	–	–	–

Agricultural researchers, 2014	FTEs		Share (%)	
	MSc	PhD	MSc	PhD
Forestry and agroforestry	5	8	1	2
Fisheries and aquatic resources	63	21	12	5
Soil sciences	33	43	6	10
Natural resources management	19	9	4	2
Water and irrigation management	3	1	1	0
Ecology	10	13	2	3
Biodiversity conservation	2	2	0.4	0.5
Food sciences and nutrition	9	9	2	2
Socioeconomics (incl. agricultural economics)	78	47	15	11
Extension and education	13	2	2	0.4
Other sciences	43	18	8	4
Total	**523**	**424**	**100**	**100**

Note: Data are estimates based on an agency sample representing 84 percent of the total number of FTE researchers.

Institutional composition of Kenya's agricultural research

The number of agencies involved in agricultural research and their combined total number of FTE researchers increased in recent years due to expansion in the number and size of public and private universities. KALRO still accounted for half of all FTE researchers in 2014.

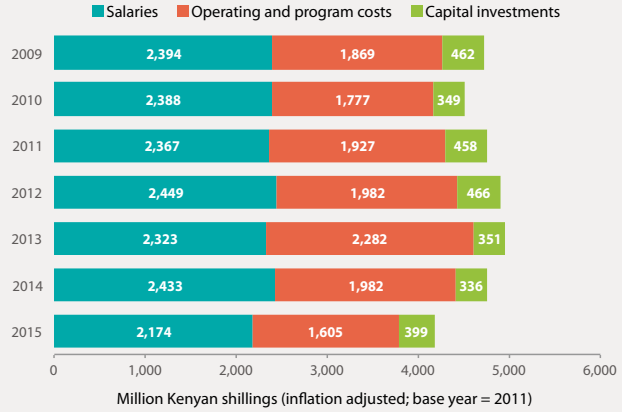


43 AGENCIES, 2014	
Government	5
Higher education	38

Note: KALRO was established in 2014 through the merger of KARI, KESREF, CRF, and TRKF. Pre-2014 data for KALRO presented in this factsheet refer to these four agencies.

KALRO's spending by cost category

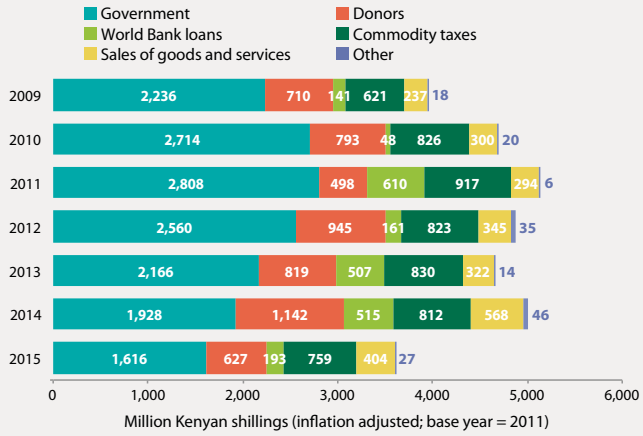
On average, salaries accounted for 50 percent of total spending by KALRO and its former agencies (KARI, KESREF, CRF, TRFK), and remained fairly constant during 2009–2015; however, operating and program costs and capital investments fluctuated from year to year, and decreased substantially in 2015 due to funding contractions associated with the restructuring.



Note: Data for Kenya correlate with financial rather than calendar years; hence, 2012 represents data for the period July 1, 2011 to June 30, 2012, and so on.

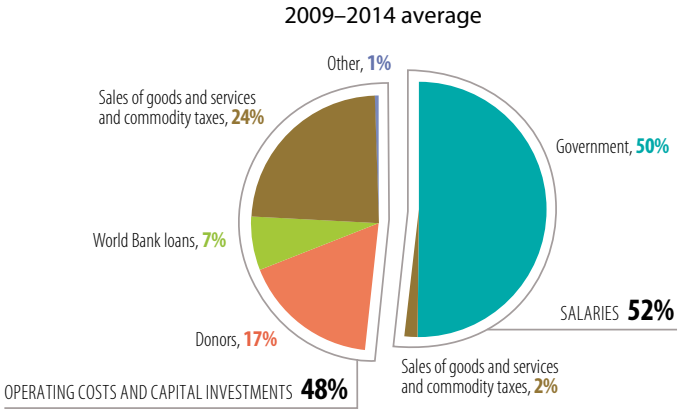
KALRO's funding sources

Government support to KALRO fell in inflation-adjusted terms from 2011, whereas donor contributions—including the World Bank loan associated with EAAPP—almost doubled during 2009–2014. Funding fell considerably in 2015 as part of KALRO's restructuring, and more recently due to the reallocation of commodity tax revenues to nonresearch-related activities.



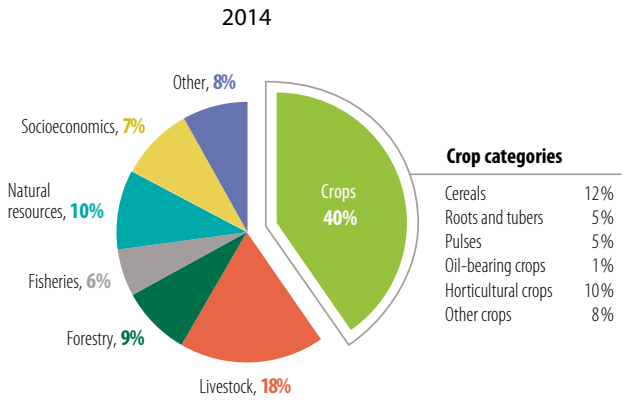
KALRO's funding and spending compared

The government funds salaries, a portion of staff benefits, and a small share of operating and capital expenses. Contract labor and the shortfall in staff benefits are funded through commodity tax and internally generated sales of goods and service revenues. Research-related costs are primarily supported through donor funding and sales of goods and service revenues.



Kenya's agricultural researchers by area of focus

In 2014, 40 percent of the country's FTE researchers conducted crop research, whereas 18 percent undertook livestock research. Major crops under investigation were maize (cereals), fruits, vegetables, beans, sugar, and tea.



KALRO's recently released crop varieties

KALRO–Kenya's main agricultural research agency involved in crop breeding–released eight new sugar varieties and 18 new varieties for other crops during 2014.

Crop	Number of varieties, 2014
Sugar	8
Wheat	3
Maize	3
Beans	3
Tea	3
Barley	2
Millet	2
Sorghum	1
Potatoes	1
Total	**26**

Note: Data on the release of new coffee varieties by CRF were not available.

Resources for Kenya

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

ASTI's **agency directory** provides a view of agencies that conduct agricultural research in Kenya, 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
CRF	Coffee Research Foundation
EAAPP	Eastern Africa Agricultural Productivity Project
FTE(s)	full-time equivalent(s)
KALRO	Kenya Agricultural and Livestock Research Organization
KARI	Kenyan Agricultural Research Institute
KESREF	Kenya Sugar Research Foundation
PPP(s)	purchasing power parity (exchange rates)
R&D	research and development
TRFK	Tea Research Foundation of Kenya

ABOUT ASTI, IFPRI, AND KALRO

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 **Kenya Agricultural and Livestock Research Organization (KALRO)** is Kenya's principal agricultural research agency; the organization brings together research programs in food crops, horticultural and industrial crops, livestock and range management, land and water management, and socioeconomics.

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