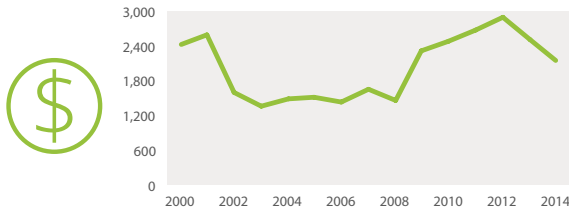




# MALAWI

Nienke Beintema, Kondwani Makoko, and Lang Gao

## AGRICULTURAL RESEARCH SPENDING



Million Malawian kwacha  
(2011 constant prices)

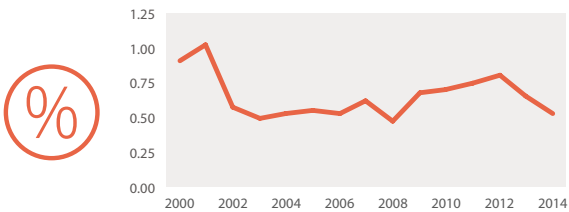
2,139.1

Million PPP dollars  
(2011 constant prices)

28.1

	MALAWI	BOTSWANA	MOZAMBIQUE	ZAMBIA
Million Malawian kwacha (2011 constant prices)	2,139.1			
Million PPP dollars (2011 constant prices)	28.1	21.3	29.3	26.9

## SPENDING INTENSITY

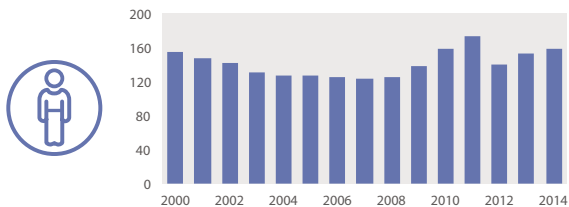


Agricultural research  
spending as a share  
of AgGDP

0.53%

Agricultural research spending as a share of AgGDP	0.53%	2.92%	0.36%	0.51%
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## AGRICULTURAL RESEARCHERS



Full-time  
equivalents

158.3

Share of researchers with  
MSc and PhD degrees

81%

Full-time equivalents	158.3	137.8	308.4	245.6
Share of researchers with MSc and PhD degrees	81%	54%	56%	57%

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/Malawi/directory](http://www.asti.cgiar.org/Malawi/directory) for an overview of Malawi's agricultural R&D agencies.



### Inflation-driven spending decline

Since 2012, Malawi's agricultural research spending has fallen substantially in inflation-adjusted terms in response to slowing economic growth, caused by a currency devaluation and a suspension of donor aid over corruption allegations. The country's agricultural research intensity ratio declined as well; in 2014 agricultural research spending as a share of agricultural GDP was 0.53%, its lowest level since 2008.



### Funding constraints at DARS

Since 2012, government funding to DARS has steadily fallen in inflation-adjusted terms, and is now barely sufficient to cover the cost of staff salaries, electricity, and water. Suspensions of donor aid have exacerbated the financial situation. On a positive note, the World Bank loan under APPSA provided an important source of income for DARS, enabling both capacity strengthening and infrastructure improvements targeting maize research.



### DARS' staff retention challenges

All public service recruitment has been halted since 2011. DARS therefore has longstanding vacancies based on staff turnover and retirement. In addition, some MSc- and PhD-qualified researchers have left DARS for positions in the higher education sector, where salaries and benefits are generally more attractive. Nonetheless, many of DARS' BSc-qualified researchers are undertaking MSc-degree training, mainly supported by the World Bank and IFAD. Opportunities for PhD degree training overseas remain limited, however.

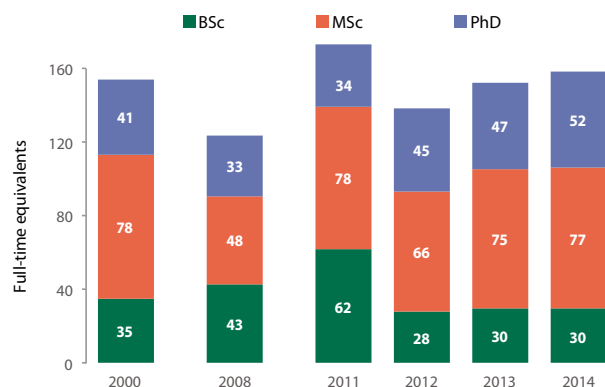


### Restructuring LUANAR

BCA and NRC were merged to form LUANAR in 2012. The new entity comprises five faculties, four of which are based at the Bunda campus and one at the NRC campus. No staff were let go as a result of the merger; in fact, researcher numbers have grown over time. LUANAR's funding from the government is secure, and new buildings and facilities are currently under construction.

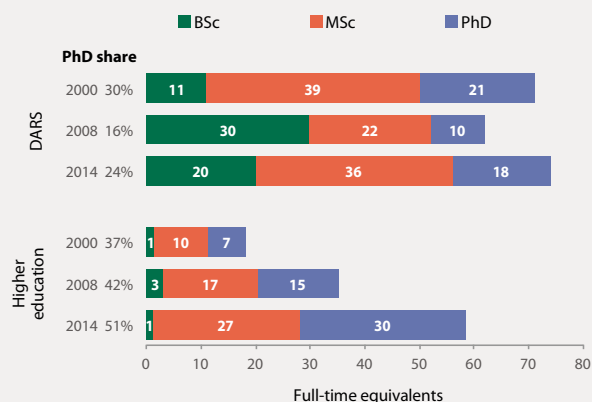
## Malawi's agricultural researchers by qualification level

Malawi's total number of agricultural researchers fell substantially in 2012, primarily among those qualified to the BSc-degree level, but also among those with MSc degrees. In contrast, the number of researchers with PhD degrees increased during 2011–2014.



## Malawi's agricultural researchers by sector and qualification level

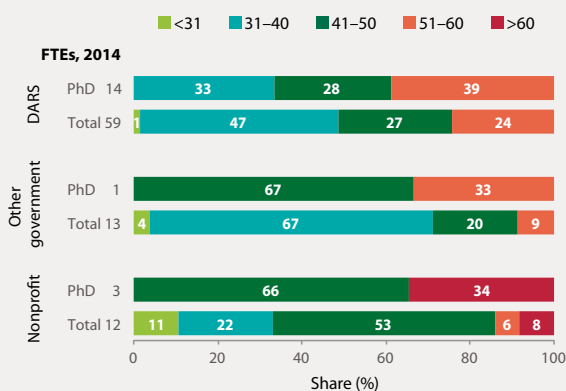
The number of BSc-qualified researchers at DARS declined during 2008–2014 because many of these researchers left to undertake MSc-degree training in recent years. The number of FTE researchers with PhD degrees employed in the higher education sector doubled during 2008–2014.



Note: The figure excludes other government and nonprofit agencies.

## Government- and nonprofit-sector agricultural researchers by age bracket

The majority of the researchers in the government and nonprofit sectors are in their 30s and 40s. As of 2014, 20 percent of all researchers were over 50 years old, and 38 percent of those with PhD degrees were in their 50s or 60s.



Note: Higher education is excluded due to the lack of data availability.

## Malawi's share of female researchers

In 2014, 20 percent of Malawi's agricultural researchers were female. The share at DARS was higher than average shares for either other government agencies or the higher education sector. Overall, female researchers were relatively less well-qualified than their male colleagues.



### By qualification level, 2014

BSc **34%**      MSc **23%**      PhD **10%**

### By institutional category, 2014

DARS **26%**      Other government **2%**      Higher education **16%**

## DARS' MSc- and PhD-qualified agricultural researchers by discipline

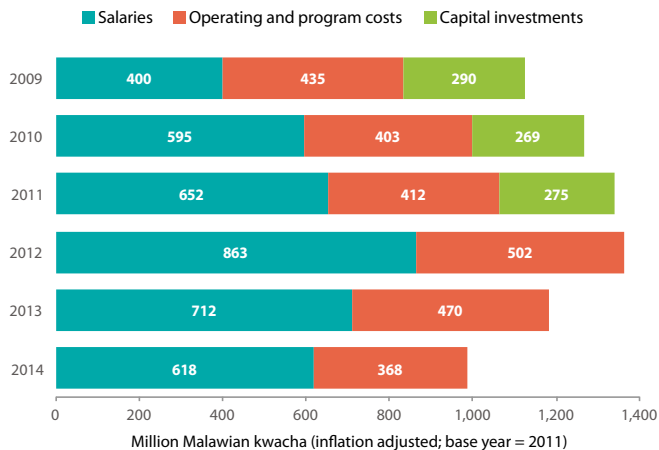
The majority of DARS' MSc- and PhD-qualified researchers are plant breeders and geneticists (43 percent in 2014). Plant physiology and soil science are other strong disciplines (15 and 11 percent in 2014, respectively).

Agricultural researchers, 2014	FTEs		Share (%)	
	MSc	PhD	MSc	PhD
Plant breeding/genetics (incl. biotechnology)	11	7	39	50
Plant pathology	3	–	11	–
Plant physiology	5	2	17	11
Seed science and technology	1	–	3	–
Other crop sciences	–	–	–	–
Animal husbandry	1	1	3	6
Zoology/entomology	–	1	–	6
Other animal and livestock	–	–	–	–
Forestry and agroforestry	1	–	3	–
Fisheries and aquatic resources	–	–	–	–

Agricultural researchers, 2014	FTEs		Share (%)	
	MSc	PhD	MSc	PhD
Soil sciences	2	2	8	17
Natural resources management	–	–	–	–
Water and irrigation management	–	1	–	6
Ecology	–	–	–	–
Biodiversity conservation	–	–	–	–
Food sciences and nutrition	–	1	–	6
Socioeconomics (incl. agricultural economics)	3	–	11	–
Extension and education	2	–	6	–
Other sciences	–	–	–	–
<b>Total</b>	<b>30</b>	<b>14</b>	<b>100</b>	<b>100</b>

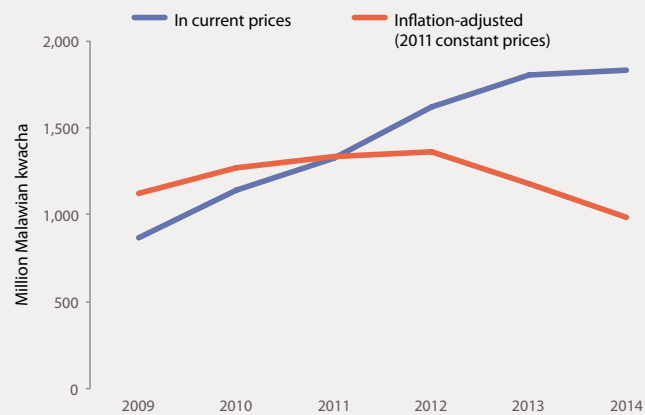
## DARS' spending by cost category

Cuts in donor aid have prompted a severe decline in DARS' capital investments and in its operating budget since 2012. As of 2014, close to two-thirds of the department's expenditures were allocated to salary-related costs.



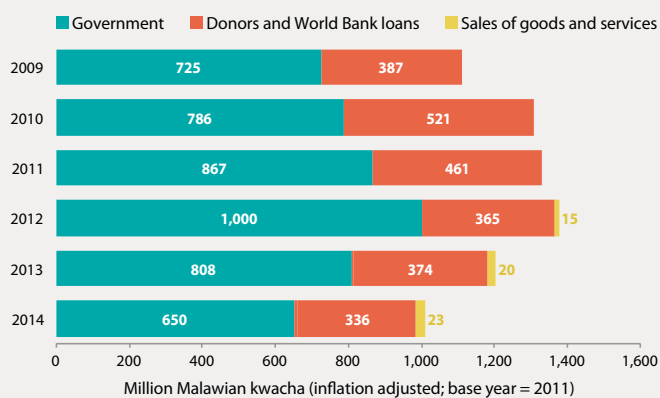
## DARS' actual and inflation-adjusted spending

DARS' spending more than doubled during 2009–2014, when expressed in current kwacha. However, adjustment for Malawi's very high level of inflation paints a different picture. DARS' spending fell by more than a quarter in real terms between 2012–2014.



## DARS' funding sources

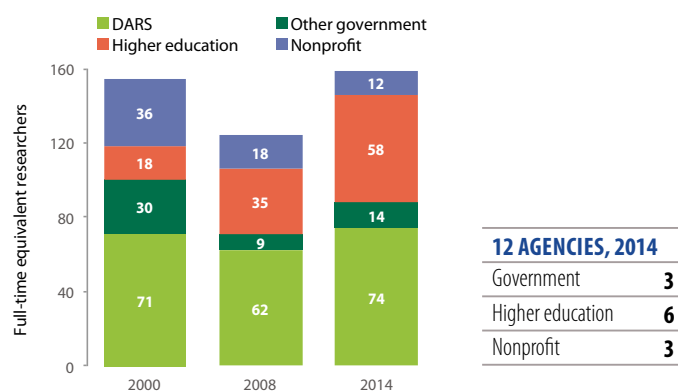
Government funding has fallen in recent years, in inflation-adjusted terms, due to the country's high inflation rates. Nevertheless, DARS continues to receive substantial donor support, including through APPSA—a US\$30 million World Bank project, which focuses on strengthening the department's capacity in the area of maize research.



Note: Donor funding for 2009–2011 also included funding from a World Bank loan supporting ASWAp-SP.

## Institutional composition of Malawi's agricultural research

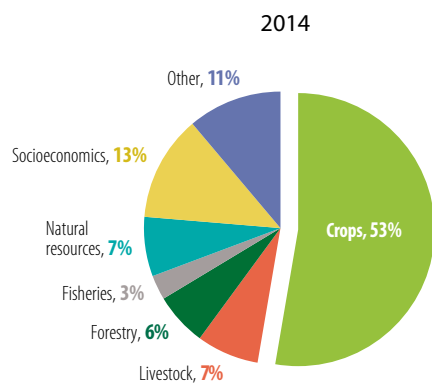
The institutional composition of agricultural research has changed little in Malawi since 2000. Strong growth in the number of researchers employed in the higher education sector, mostly at LUANAR, caused its share to rise from 12 to 41 percent during 2000–2014. In contrast, the number of researchers in the nonprofit sector contracted during the same period.



Note: BCA, traditionally the largest agricultural higher education agency in Malawi, was transformed into LUANAR in 2011 and comprises five faculties involved in agricultural research.

## Malawi's agricultural researchers by area of focus

In 2014, an estimated 53 percent of the country's FTE researchers conducted crop research, whereas 13 percent undertook socioeconomic research. Crop research was more important at DARS (accounting for 86 percent of its agricultural researchers in 2014). In 2014, the major crops being investigated were maize and cotton (35 and 12 percent of all crop researchers).



Note: LUANAR's research focus was estimated using online information on published publications and ongoing research projects.

## DARS' recently released crop varieties

During 2013–2014, DARS released three new varieties of hybrid maize, two varieties of pulses (pigeon peas and cranberry beans), two varieties of vegetables (sweet peppers and tomatoes), and one variety each of rice and cassava.

Crop	Number of varieties, 2013–2014
Maize	3
Pulses	2
Vegetables	2
Cassava	1
Rice	1
<b>Total</b>	<b>9</b>

## Resources for Malawi

This factsheet presents recent data on the performance of agricultural research in Malawi, 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](http://www.asti.cgiar.org) and include:



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



ASTI's **agency directory** provides a view of agencies that conduct agricultural research in Malawi, 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](http://www.asti.cgiar.org/methodology).

## Acronyms

AgGDP	agricultural gross domestic product
APPSA	Agricultural Productivity Program for Southern Africa
ASWAp-SP	Agriculture Sector Wide Approach Support Program
BCA	Bunda College of Agriculture
DARS	Department of Agricultural Research Services
FTE(s)	full-time equivalent(s)
LUANAR	Lilongwe University of Agriculture and Natural Resources
NRC	Natural Resources College
PPP(s)	purchasing power parity (exchange rates)
R&D	research and development

## ABOUT ASTI, IFPRI, AND DARS

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 **Department of Agricultural Research Services (DARS)** is Malawi's principal agricultural research agency. DARS is administered by the Ministry of Agriculture and Food Security, and focuses on both crop and livestock research.

ASTI/IFPRI and DARS 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 DARS.