



# ESWATINI

Kathleen Flaherty, Patricia Carmichael, and Nienke Beintema

## Key Trends

- ▶ Agricultural R&D spending in Eswatini fell significantly between 2009 and 2012 but increased somewhat thereafter, in inflation-adjusted terms.
- ▶ Eswatini invested 0.70 percent of its AgGDP in agricultural research, which is less than the 1 percent minimum level recommended by the African Union and the United Nations. As a small country, unable to take advantage of economies of scale, Eswatini actually requires higher levels of investment than average in order to establish and maintain basic research infrastructure and staffing.
- ▶ Eswatini's national research system is one of the smallest in Africa. It is also unique in that its higher education agency, UNESWA, employs more FTE researchers than its only government research agency, DARSS. UNESWA also employs a comparatively high number of PhD-qualified researchers, whereas DARSS only employed one during 2009–2014.

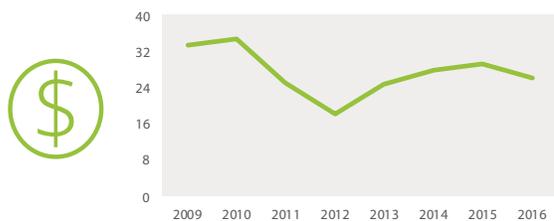
## Current Challenges

- ▶ Government support to DARSS—which was already comparatively small—declined in recent years (in inflation-adjusted terms), so funding levels have only been sufficient to cover staff salaries. Infrastructure and equipment have deteriorated as a result, but DARSS has been successful in securing donor funding for a small number of research projects. Low funding levels remain a key barrier to the conduct of effective research.

## Policy Developments and Options

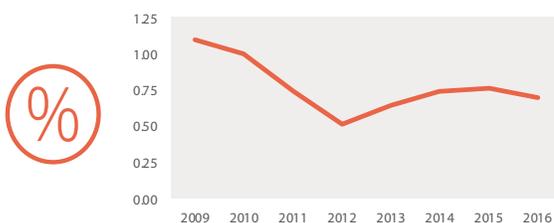
- ▶ The Eswatini National Agricultural Research Authority Bill, proposing the establishment of an agricultural research authority, has passed both houses of Parliament and is currently awaiting endorsement by the King. The bill calls for improved priority setting and recommends that research platforms be established at both national and regional levels. It is intended that such platforms will facilitate interactions among stakeholders to determine a strategic research agenda.

### AGRICULTURAL RESEARCH SPENDING



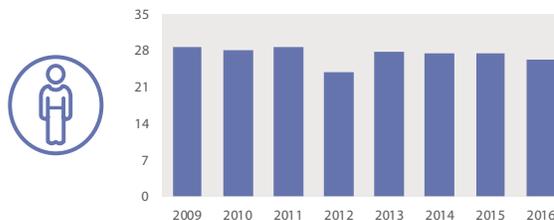
	ESWATINI	BOTSWANA	LESOTHO	MOZAMBIQUE (2014)
Million emalangeni (2011 constant prices)	26.3			
Million PPP dollars (2011 constant prices)	6.7	17.5	2.8	29.3

### SPENDING INTENSITY



Agricultural research spending as a share of AgGDP	0.70%	2.27%	0.94%	0.36%
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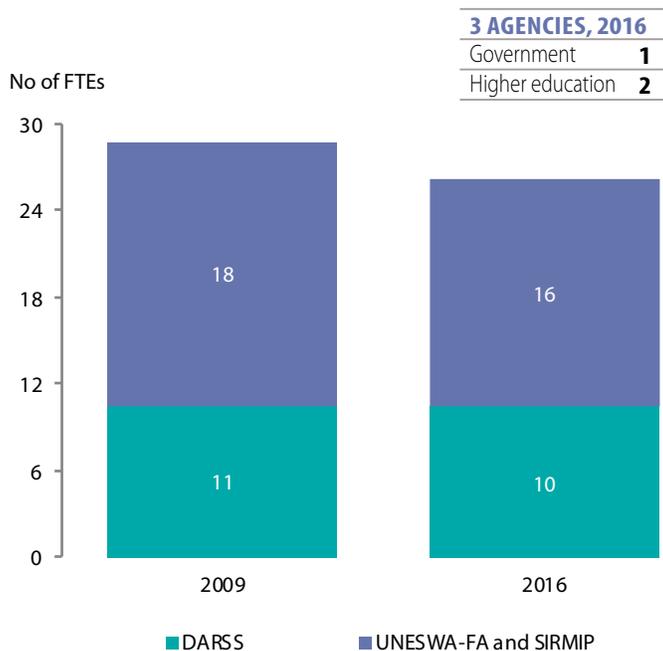
### AGRICULTURAL RESEARCHERS



Full-time equivalents	26.2	116.0	33.2	26.2
Share of researchers with MSc and PhD degrees	87%	66%	43%	87%

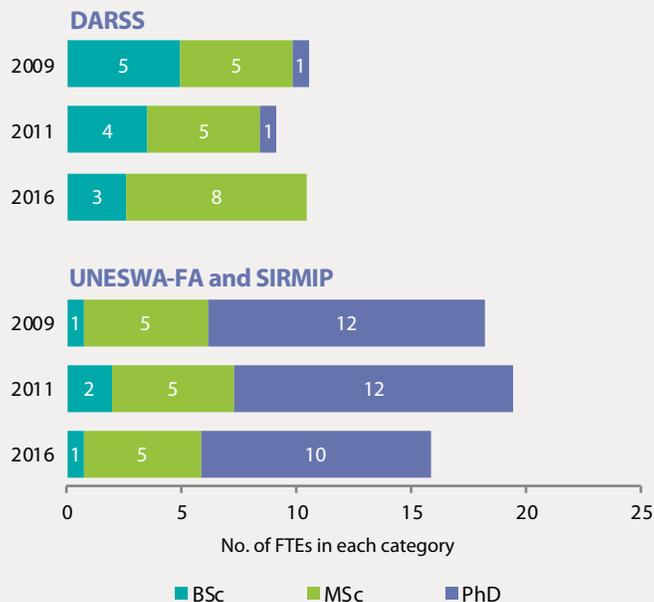
## Institutional composition of agricultural research

Three agencies were involved in agricultural research in Eswatini in 2016: the government agency, DARSS, and two units at UNESWA, the country's main university. In 2016, UNESWA employed 60 percent of the country's agricultural researchers.



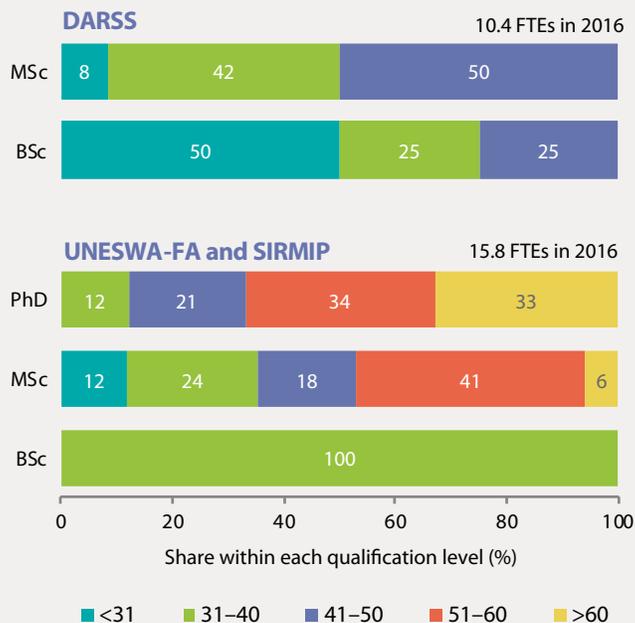
## Agricultural researchers by qualification level

DARSS only employs a small number of researchers, none of whom were qualified to the PhD-degree level in 2016. UNESWA employed 10 PhD-qualified researchers in 2016, but its overall number of agricultural researchers (in FTEs) declined slightly between 2009 and 2016.



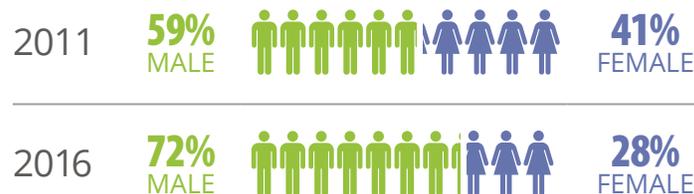
## Distribution of agricultural researchers by qualification level and age bracket

In 2016, 67 percent of UNESWA-FA's PhD-qualified researchers were in their 50s and 60s. Researchers qualified to the BSc and MSc levels and those employed at DARSS were considerably younger.



## Agricultural researchers by gender

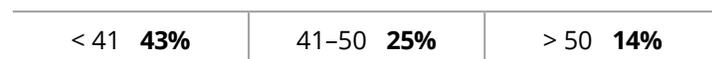
During 2011–2016, the share of female researchers in Eswatini fell in response to a decline in the number of researchers at UNESWA-FA. Note, however, that shifts in shares by qualification level and age bracket equate with only small numbers of FTE researchers.



### Share of women within each qualification level, 2016



### Share of women by age bracket, 2016

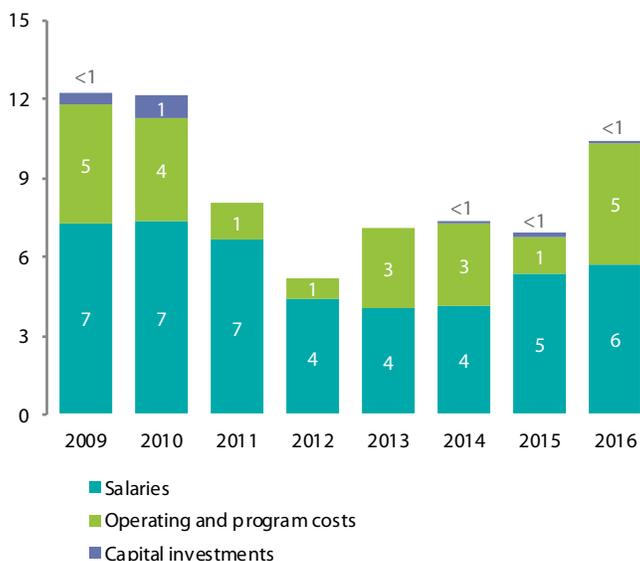


Note: DARSS did not employ any PhD-qualified researchers in 2016.

## DARSS spending by cost category

DARSS' salary-related expenses fell in 2011 but rebounded somewhat in 2015 and 2016 due to staff recruitment. Operating and program costs rose substantially in 2016 due to an increase in donor funding for two national projects on fruit tree and seed potato production.

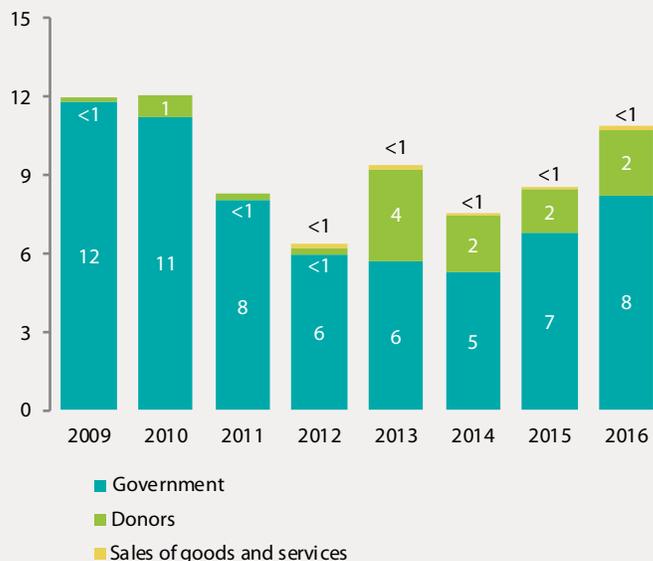
Million emalangenzi (inflation-adjusted; base year = 2011)



## Sources of DARSS funding

Government funding to DARSS contracted during 2011–2014 but increased somewhat in 2015 and 2016. Donor funding rose during 2013–2016 given new donor funding from ICDF for projects on fruit trees and seed potatoes. Revenues from the sale of goods and services were returned to the national Treasury and hence did not affect DARSS' levels.

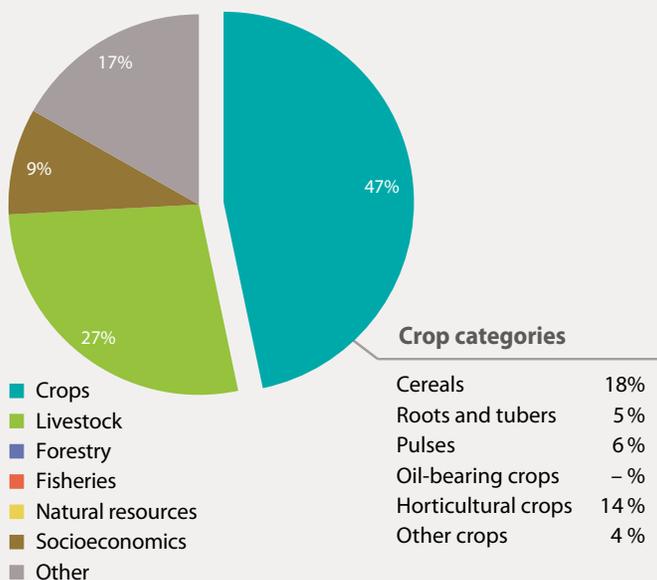
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## Agricultural researchers by area of focus

In 2016, 47 percent of Eswatini's agricultural researchers conducted crop research, and 27 percent undertook livestock research. That same year, 37 and 22 percent of all crop researchers, respectively, focused on maize and vegetable research. Other major crops under investigation were beans and other pulses, and fruit.

### Share of researchers, 2016



### Crop categories

Cereals	18%
Roots and tubers	5%
Pulses	6%
Oil-bearing crops	– %
Horticultural crops	14%
Other crops	4%

## Recent peer-reviewed publications

UNESWA-FA published an average of 29 articles in international journals and 2 articles in national journals per year during 2012–2016. DARSS' publication record was substantially lower. Publications per researcher averaged 0.8 per year.

Type	Number of publications, 2012–2016 yearly average		
	DARSS	UNESWA-FA	Per FTE researcher
Journal articles			
International	0.2	29.2	1.199
Regional	0.4	—	0.016
National	—	1.6	0.065
Books	0.2	—	0.008
Books chapters	—	0.4	0.016
<b>Total</b>	<b>0.8</b>	<b>31.2</b>	<b>1.305</b>

## Resources for Eswatini

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



ASTI's **agency directory** provides a view of agencies that conduct agricultural research in Eswatini, along with their locations and key agency-level indicators.

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**ESWATINI**

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**Current challenges**  
Government support to DARSS—which was already comparatively small—declined in recent years (in inflation-adjusted terms), so funding levels have only been sufficient to cover staff salaries. Infrastructure and equipment have deteriorated as a result, but DARSS has been successful in securing donor funding for a small number of research projects. Low funding levels remain a key barrier to the conduct of effective research.

**Positive policy developments**  
The Eswatini National Agricultural Research Authority Bill, proposing the establishment of an agricultural research authority, has been passed and is awaiting parliamentary debate. The bill calls for improved priority setting and recommends that research platforms be established at both national and regional levels. It is intended that such platforms will facilitate interactions among stakeholders to determine a strategic research agenda.

## 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](http://www.asti.cgiar.org/methodology).

## Acronyms

AgGDP	agricultural gross domestic product
DARSS	Department of Agricultural Research and Specialist Services
FTE(s)	full-time equivalent(s)
TaiwanICDF	Chinese Taipei International Cooperation and Development Fund
PPP(s)	purchasing power parity (exchange rates)
R&D	research and experimental development
UNESWA-SIRMIP	University of Eswatini, Swaziland Institute for Research in Traditional Medicine, Medicinal Plants and Indigenous Food Plants
UNESWA-FA	University of Eswatini, Faculty of Agriculture

## About ASTI, IFPRI, and DARSS

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 **Department of Agricultural Research and Specialist Services (DARSS)**, Eswatini's principal agricultural research agency, falls under the Ministry of Agriculture and is responsible for the development and identification of agricultural production technologies to ensure food security and sustainable growth of the agro-business sector.

ASTI/IFPRI and DARSS 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 DARSS.

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