ASTI IN RETROSPECT 01

The Role of Women in Agricultural Research

Nienke Beintema

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This year marks the 20th anniversary of the inception of ASTI. During this time, governments, donors, and international organizations have used ASTI's evidence to guide agricultural research investment and policy decisions, to assess areas of underinvestment, to identify capacity gaps and training needs, and to demonstrate the returns to agricultural research investment. This series of notes marks this important milestone by focusing on—and updating—some of the key advancements and insights ASTI data have enabled in the past 20 years. This note focuses on the evolution of women's participation in agricultural research.

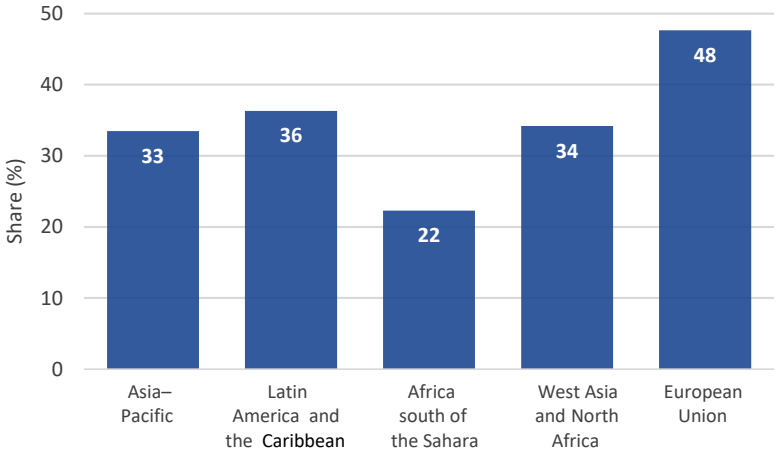
KEY ADVANCEMENT

ASTI's gender-disaggregated data on trends in human resource capacity have allowed decisionmakers to assess staffing levels, set benchmarks, determine future priorities, and monitor progress over time. While the need for gender-disaggregated data on human resource capacity in science in developing countries was recognized 20 years ago, progress toward collecting such data at the national level had been limited. ASTI was an exception, having developed capacity indicators in accordance with international standards to facilitate assessments and comparisons over time and across regions and countries.

RESULTING INSIGHTS

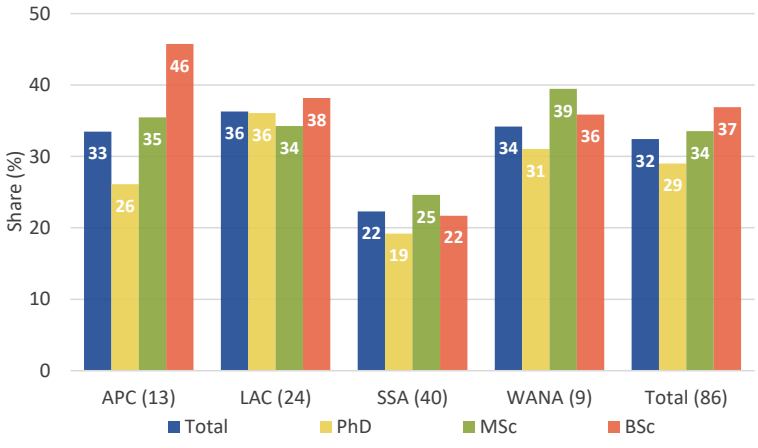
By the mid-2010s, women constituted one-third of the total number of agricultural researchers employed in 86 low- and middle-income countries for which data are available. The average regional share in Africa south of the Sahara (SSA) was considerably lower, at 22 percent (Figure 1). By way of comparison, in the European Union—where many countries have closed the gender gap in agricultural research—women accounted for 48 percent of agricultural researchers on average. ASTI evidence also shows that, although considerable progress has been made over time, female agricultural researchers are often younger, less well-qualified, and less represented in management compared with their male colleagues (see overleaf for details).[1, 2]

1. Share of female agricultural researchers by region, mid-2010s (%)

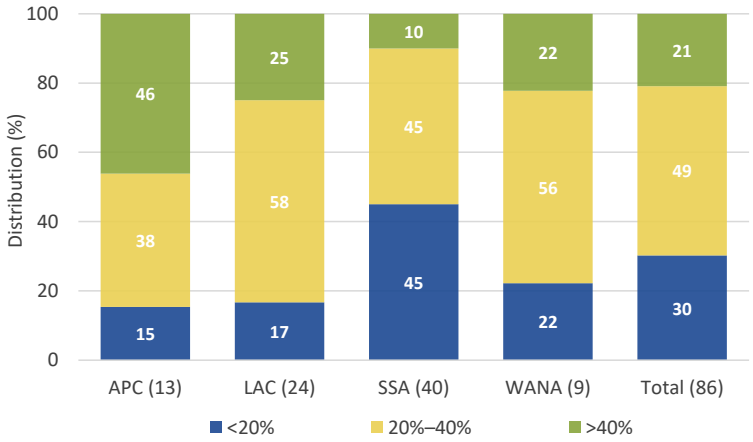


***ASTI's gender-disaggregated** data on agricultural researchers have been used at national, regional, and international levels. The under-representation of women in agricultural research in both Uganda and Democratic Republic of Congo has led to efforts to hire more female researchers at the respective national agricultural research institutes. The World Agroforestry Centre in Kenya used ASTI data in its development of a gender strategy, thereby helping to pave the way for scientists to improve their understanding of underlying issues and facilitate improvements in the quantity and quality of research on gender and equity. African Women in Agricultural Research and Development (AWARD) also uses ASTI data as one of its progress indicators.*

2. Share of female agricultural researchers by region and degree level, mid-2010s (%)



3. Distribution of the share of female agricultural researchers by region and country, mid-2010s (%)



Notes: APC = Asia–Pacific, LAC = Latin America and the Caribbean, SSA = Africa south of the Sahara, and WANA = West Asia and North Africa. Figures in parentheses indicate the number of countries in each category.

OVERVIEW

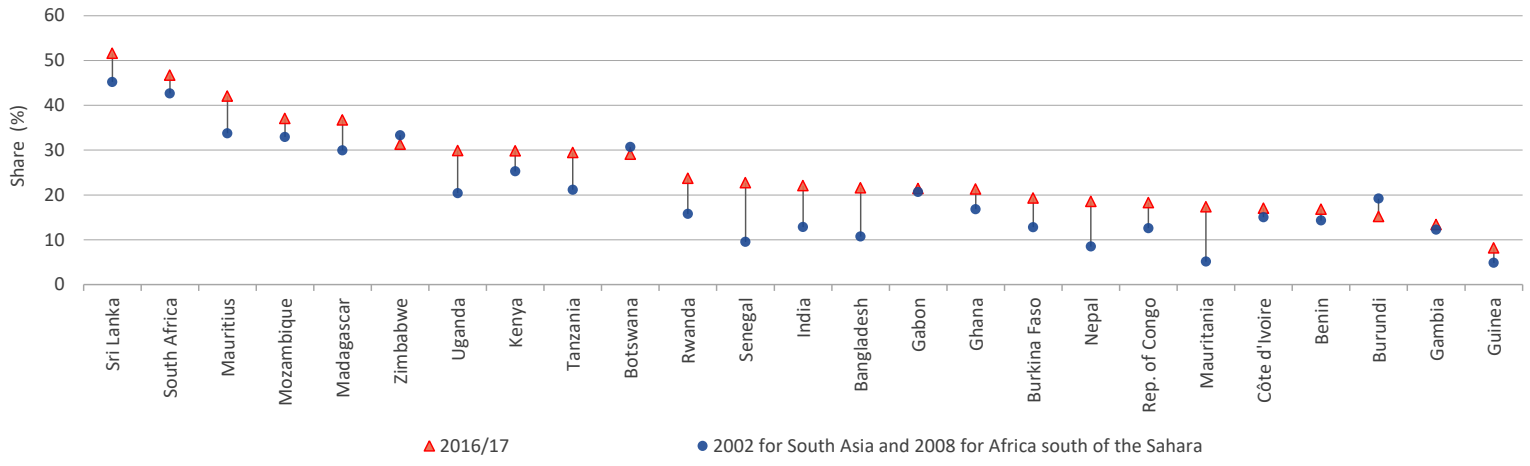
Gender-disaggregated data on the role of women in agricultural research, both over time and by region and country, are necessary for effective policy- and decisionmaking at national, regional, and international levels. ASTI's data on the participation of women in agricultural research covers the government, higher education, and nonprofit sectors for a sample of 86 low- and middle-income countries across four regions. For the sample as a whole, as of the mid-2010s an average of 32 percent of agricultural researchers were female.[2] Average shares by region ranged from 22 percent in SSA to 33, 34, and 36 percent in Asia–Pacific (APC), West Asia and North Africa (WANA), and Latin American and the Caribbean (LAC), respectively (Figure 2). Shares declined, however, as qualification levels rose: an average of 37 percent of researchers with BSc degrees, 34 percent of those with MSc degrees, and 29 percent of those with PhD degrees were female.

The share of women in agricultural research was less than 20 percent for 18 of the 40 SSA countries (Figure 3). Shares were particularly low in Chad, Ethiopia, Guinea, Guinea-Bissau, and Togo (less than 8 percent). In contrast, women represented over 40 percent of agricultural researchers in Lesotho, Mauritius, Namibia, and South Africa. Although the distribution was broader in APC, women constituted more than 40 percent of the agricultural researchers employed in nearly half the sample countries. Nepal and Pakistan were the only countries in APC to report shares below 20 percent. Differences across countries in WANA and LAC were generally less pronounced.

TRENDS OVER TIME

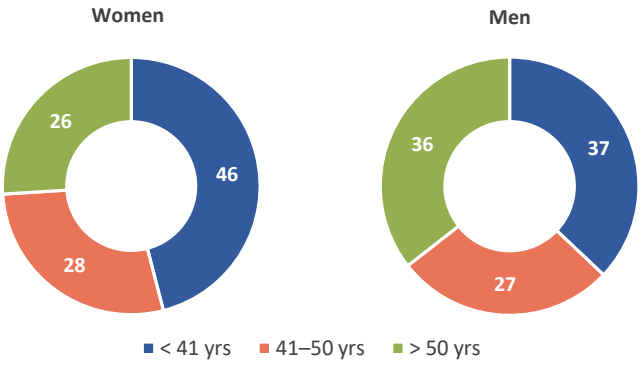
Time-series data (available for 25 SSA and South Asian countries) showed that the share of women in agricultural research in almost all countries increased between the late 2000s and mid-2010s, although shares remained low in some countries (Figure 4). The shares of female agricultural researchers rose from an average of 23 to 28 percent in SSA between 2008 and 2016, and from 12 to 24 percent in South Asia between 2002 and 2016/17 (2018 for India).

4. Change in the share of women in agricultural research over time for selected African and South Asian countries, various years (%)



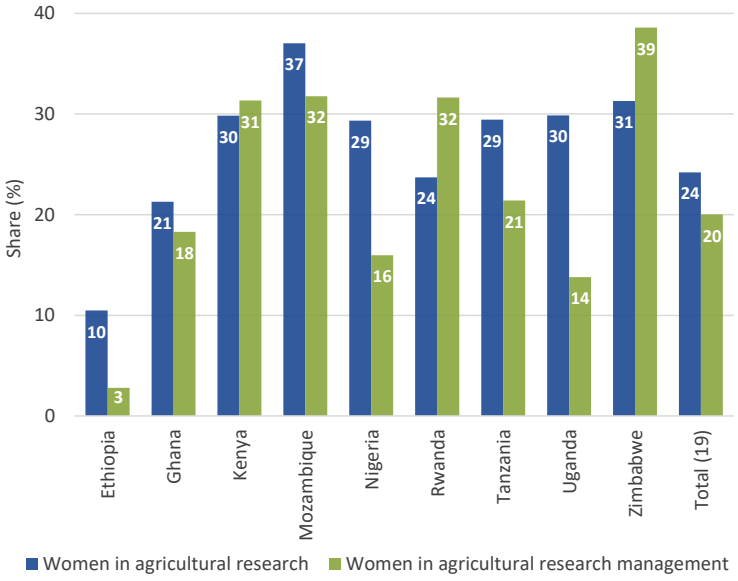
Note: The latest data for India are for 2018.

5. Distribution of men and women in agricultural research by age cohort, 2016/17 (%)



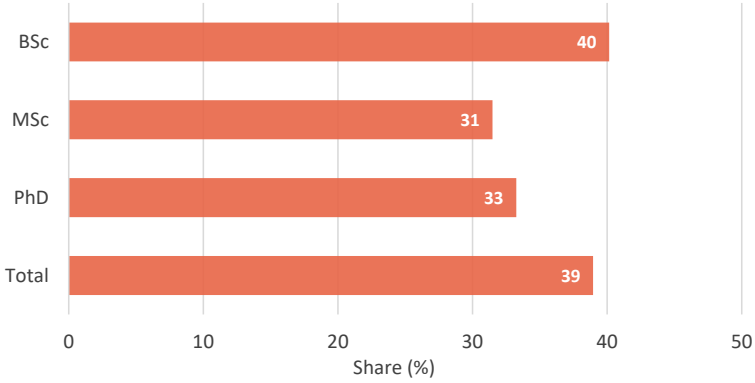
Note: Data are based on 86 developing countries of the Asia–Pacific, Latin America and the Caribbean, Africa south of the Sahara,and West Asia and North Africa.

6. Share of women in agricultural research and in agricultural research management, 2016 (%)



Note: Data are based on a sample of 19 East and Southern Africa countries for which data were available.

7. Share of female students enrolled in higher agricultural education agencies, 2016 average (%)



Note: Data are based on a sample of 52 East and Southern African agricultural higher education agencies for which data were available.

And while shares differed considerably by country, average regional shares increased across all three qualification levels (BSc, MSc, and PhD degrees). The growing shares of professional women employed in agriculture indicate that the gender gap in the agricultural sciences may be narrowing. On average, close to half the female researchers employed in a sample of 86 countries across 4 regions were under 41 years of age as of 2016/17. For men, the comparable share was 37 percent (Figure 5). Although in all four regions, female researchers were younger than their male counterparts on average, differences were significant across countries.

WOMEN IN SENIOR ROLES

Strengthening the agricultural researcher capacity in SSA not only requires increasing the number of female researchers, but also enhancing the number of women in decisionmaking roles. In a subsample of 19 East and Southern African countries, on average, 24 percent of agricultural researchers were female, and 20 percent of management positions were held by women. Women were less well represented in high-level research, management, and decisionmaking positions in such countries as Ethiopia, Nigeria, Tanzania, and Uganda (Figure 6). As a result, women in these countries have less influence in policy- and decisionmaking processes, which potentially leads to biased decisionmaking and priority setting. Gender policies are often not high on decisionmaking agendas, and lack of awareness of the need to address the gender gap remains.

WOMEN PURSUING HIGHER AGRICULTURAL EDUCATION

In order to close the gender gap in agricultural research in developing countries, it is imperative that larger numbers of women undertake higher agricultural education. Significant under-representation of women in degree (and especially postgraduate) programs will continue to translate into gender imbalances at agricultural research and higher education institutions.

On average, of the students enrolled in degree programs at 52 East and Southern African agricultural higher education agencies for which data were available, 39 percent were female as of 2016 (Figure 7). Comparatively more women were enrolled in BSc programs (40 percent) than in MSc and PhD programs (31 and 33 percent, respectively) that year. The average share of women in the total student population—while not yet balanced—was much higher than the shares of female agricultural researchers employed.

CONCLUDING COMMENTS

ASTI's evidence has provided some important insights into the demographics of women's participation in agricultural research. Significant additional quantitative and qualitative data are needed, including analysis of the barriers to women pursuing careers in agricultural research.

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KEY MARKERS OF ASTI'S EVOLUTION

- ✓ ASTI was established as a CGIAR public good in early 2001, led by IFPRI and the former International Service for International Agricultural Research.
- ✓ In those earlier years, ASTI undertook the somewhat daunting task of developing key indicators and statistical methods in alignment with international standards; initiating data-collection activities on an ad hoc, project-driven basis; and forging fledging relationships with potential national partners. And with the creation of its website, ASTI became one of the CGIAR's first sources of open-access data.
- ✓ With consistent funding from the Bill & Melinda Gates Foundation and numerous other supporters, ASTI matured to become a more holistic program, focusing not only on data collection, but also on building its partners' capacity, expanding its analysis and outreach activities, developing a suite of innovative online data tools, and contributing to influential global and regional initiatives and reports.
- ✓ Supplementary funding facilitated the expansion of geographic coverage, the initiation of more in-depth studies, and greater focus on increasing the capacity of ASTI's extensive network of national partners.

AUTHOR'S REFLECTIONS ON 20 YEARS

Twenty years ago—with email still relatively rare and Internet access very limited in developing countries—the only way to get information was to send (and resend) letters, faxes, and telexes, and to visit (and revisit) research institutes in person. Then came the fastidious work of manually entering the data into computer files. Thankfully, much has changed. Greater Internet access paved the way for ASTI to make its data freely available online, becoming one of the CGIAR's first open-access data sources. Technological advancements not only allowed collecting, processing, and sharing data to be done effectively, but also facilitated the development of creative solutions for accessing, presenting, and analyzing data. Fruitful partnerships became possible across national, regional, and international boundaries. Importantly, sustainable funding from the Bill & Melinda Gates Foundation and numerous other donors facilitated the expansion and capacity building of ASTI's network, collaboration with partners to undertake more in-depth analyses of the data's implications, and greater outreach to disseminate the resulting findings.

RELEVANT RESOURCES

ASTI. 2019. ASTI database. International Food Policy Research Institute, Washington, DC.

Beintema, N. 2017. "An Assessment of the Gender Gap in African Agricultural Research Capacities." *Journal of Gender, Agriculture, and Food Security* 2 (1): 1–13.

Beintema, N., and F. Di Marcantonio. 2010. *Female Participation in African Agricultural Research and Higher Education: New Insights. Synthesis of the ASTI–Award Benchmarking Survey on Gender-Disaggregated Capacity Indicators.* IFPRI Discussion Paper 957. Washington, DC: International Food Policy Research Institute and African Women in Agriculture and Rural Development.

Meinzen-Dick, R., A. Quisumbing, J. Behrman, P. Biermayr-Jenzano, V. Wilde, M. Noordeloos, C. Ragasa, and N. Beintema. 2011. *Engendering Agricultural Research, Development, and Extension*. Research Monograph. Washington, DC: International Food Policy Research Institute.

Quisumbing, A., R. Meinzen-Dick, T. Raney, A. Croppenstedt, J. Behrman, A. Peterman. 2014. *Gender in Agriculture: Closing the Knowledge Gap*. Dordrecht, the Netherlands: Springer.

NOTES ON DATA

1. The data presented in this note, by country and available year, can be downloaded via the Data Tool at ASTI's website. The data are also presented visually at the ASTI-AWARD "Women in African Agricultural Research Data Portal."
2. ASTI calculates its human resource data in full-time equivalents (FTEs). This method considers the proportion of time researchers spend on research compared with other nonresearch activities. University employees, for example, spend the bulk of their time on teaching, administration, and student supervision rather than on research. As a result, four faculty members estimated to spend 25 percent of their time on research would individually represent 0.25 FTEs and collectively be counted as 1.0 FTE.

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Nienke Beintema is the former head of ASTI.

This series of notes has been prepared as an ASTI output and has not been peer reviewed; any opinions are those of the author and do not necessarily reflect the policies or opinions of IFPRI. The author acknowledges the Bill & Melinda Gates Foundation and the CGIAR Research Program on Policies, Institutions, and Markets for their generous support of ASTI and, in particular, this series of notes. She also thanks Mary Jane Banks who provided excellent editorial and graphic design support in the preparation of this series.