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Shining a Brighter Light: Comprehensive Evidence on Adoption and Diffusion of CGIAR-Related Innovations in Ethiopia

Standing Panel on Impact Assessment
CGIAR

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Background

The agricultural sector in Ethiopia has seen sustained growth in recent decades, hand-in-hand with economic growth and poverty reduction. Ethiopia is a hotspot of CGIAR research, with almost all CGIAR centers represented in Addis Ababa.

Data and Methodology

Based on interviews with CGIAR research leaders, scientists, government officials, published studies and project documents, SPIA first compiled comprehensive information on the past two decades of CGIAR research activities in Ethiopia. This 'stocktaking' exercise was used to identify the innovations which are potentially disseminated at scale. A sub-set of these innovations were integrated into the Ethiopian Socioeconomic Survey (ESS), a regionally and nationally representative panel survey of households (CSA and WB, 2016 & 2020) in 2015/16 and 2018/19.

In collaboration with the Ethiopian Central Statistics Agency (CSA) and the World Bank Living Standards Measurement Study (LSMS) team, the CGIAR Standing Panel on Impact Assessment (SPIA) has incorporated novel data collection protocols and methods. For example, visual aid protocols for identification of NRM innovations or DNA fingerprinting for crop variety identification for barley, maize, and sorghum.

We document the reach of CGIAR-related agricultural innovations in Ethiopia across the core domains of the CGIAR research portfolio: animal agriculture; crop germplasm improvement; natural resource management; and policy research.

Selected Findings

A Large Number of Innovations Linked to CGIAR Research Efforts

The stocktaking exercise documents 52 agricultural innovations and 26 claims of policy influence. CGIAR scientists and their national partners have generated a plethora of new ideas, many of them leading to agricultural innovations and policy changes.

Between 4.1 and 11.0 Million Ethiopian Households Have Been Reached

Quantitative evidence on the adoption of 18 of these innovations was obtained from the Ethiopian Socioeconomic Survey (ESS). Overall, we find that between 4.1 and 11.0 million Ethiopian households have been reached by agricultural innovations linked to CGIAR research. Our lower bound estimate (4.1 million households) covers only the innovations with clear observable features that can link their adoption back to CGIAR research efforts. The upper-bound figure (11.0 million) should be interpreted as the 'potential reach' of CGIAR in the country: it captures the number of households that in theory could benefit from CGIAR research.

Few Innovations are Reaching Large Numbers of Households

While many innovations are being adopted by some farmers, only a few are reaching large numbers of households. This skewed distribution in the reach of innovations is in line with evidence from investments in other innovation systems and consistent with the inherently uncertain nature of research and adoption pathways.

Number of rural households adopting each CGIAR-related innovation in Ethiopia in 2019 (data from ESS4)*
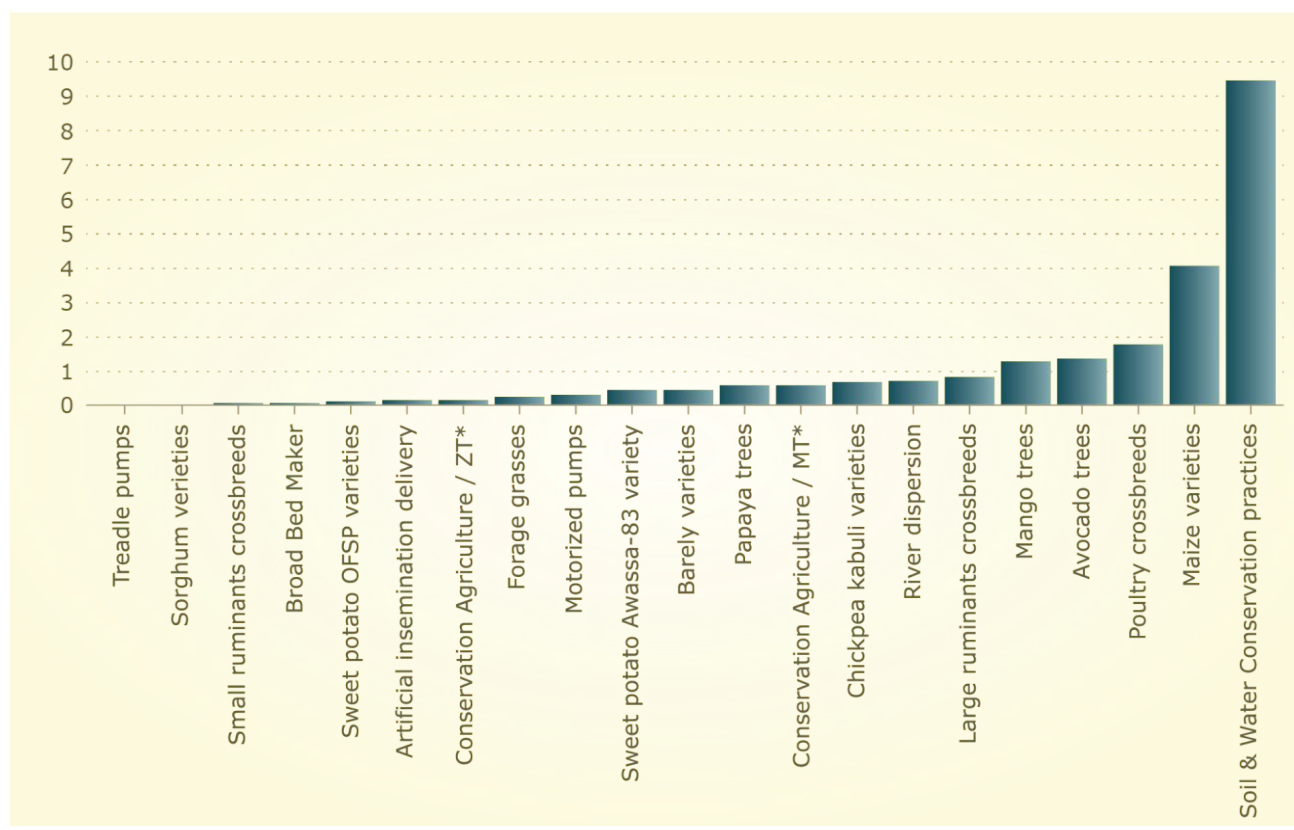
*This graph includes only innovations measured within the ESS surveys. It does not include wheat or beans, for which adoption estimates from other sources are available. ZT = zero tillage; MT = minimum tillage. Y axis in millions of households. (Estimates based on ESS4, with exception of Kabuli chickpea and Broad Bed Maker, which were measured in ESS3).

The three innovations with the largest reach — soil and water conservation practices, improved maize varieties, and crossbred poultry — are the result of different categories of CGIAR research efforts (NRM/policy, crop breeding, and livestock research respectively). Scaling of these innovations can be linked to supportive government policies, which in turn have been influenced by policy research.

Different Types of Households Reached

Piecemeal assessments of diffusion provide an incomplete picture, as different innovations reach different types of farming households and regions. Reaching rural households is an important pre-condition for the intended impacts in CGIAR's five impact areas. Analysis of the socio-economic characteristics of the adopting households shows that innovations often do reach the types of household that CGIAR researchers target, with substantial adoption among smallholders, poor households, and young and female farmers.

There is substantial heterogeneity when comparing across different innovations (farm size, market access, socioeconomic status, gender, age, and region). Diffusion levels for some innovations are lower than expected, and the theories of change for these innovations may need to be revisited.

Value in Generating This Type of Evidence

We have shown that the strategy of bringing improved measurement of agricultural innovations into national surveys can help document the scale and scope of CGIAR's research. With future waves of this panel survey, it will also be possible to study adoption dynamics – to document the "who, where, and how quickly" of adoption and diffusion of innovations. Careful measurement and strong partnerships are at the heart of these efforts.

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Sources

CSA & WB (2016, 2020). Ethiopia Socioeconomic Survey 2015-16 (Wave 3) and 2018-19 (Wave 4) https://www.worldbank.org/en/programs/lsms/initiatives/lsms-ISA#2. Addis Ababa, Ethiopia.