Achieving agricultural resilience and sustainability: the role of extension

What is the role of agricultural extension in sustainable intensification?

In terms of information availability and farmer-capacity enhancement, agricultural extension is a critical service. Information is so important that even when farmers have access to resources but lack the technical information on how best to implement the recommended practices, they might still not use them because they fail to implement them correctly and profitably. One of the most effective ways to scale up CASI for smallholders is to strengthen the ability of the extension systems to support and provide technical backstopping to farmers. Therefore, a high-density network of trainers and extension personnel to interface with farmers at the field level, is critical.

But what are the gaps in mainstreaming conservation agriculture-based sustainable intensification (CASI) in extension programmes?

In most of Africa, extension services have been weak for several decades now. The years of structural adjustment programs led to reductions in public spending on extension systems, whose effects are still being felt to date. At the peak of investments in extension services, the developing country average of extension agent-to-farmer ratio was 1 in 300. This had declined to between 1 in 1500 and 1 in 3000 by 2012. Encouragingly, a new impetus has emerged towards revamping agricultural extension services in many parts of Africa.

What can be done to close these gaps, and what did we learn from SIMLESA work?

All else equal, a policy simulation study found that CASI adoption can be enhanced by programs (such as subsidies) that enable farmers to acquire inputs more cheaply but more critically by increasing the extension-personnel-to-farmer ratio. Generally, the results showed that extension was a strong positive driver of CASI adoption. The chance of CASI adoption in Kenya increased from 4 to 7 percent, when the extension personnel-to-farmer ratio was increased from 10 (observed situation) to 16 for every 10,000 farmers (the ratio observed in Ethiopia and the highest in all of SIMLESA countries).
A similar increase in extension-personnel-to-farmer ratio in Tanzania increased the chance of adoption from 10 to 21 percent. Even in simulations where credit was assumed to be absent, the compensatory effect of extension access was still evident. In these scenarios, the chance of CASI adoption increased from base levels by 13 percent in Malawi, and 9 percent in Tanzania. Therefore, increases in the reach of extension and availability of information can, in some cases, increase adoption even under limited availability of finance.

How can the research lessons be translated into action?

Prioritize CASI promotion as a formal item in agricultural extension programs

Investing in agricultural extension systems is a crucial element in the success of CASI. Broader policy attention should focus on an optimal mix of farmer capacity building complemented by better access to markets and the provision of inclusive finance.

Strengthening farmer capacity will require extensive education and training. This may encompass easily accessible CASI guides and manuals suitable for extensionists, development practitioners and farmers. This is necessary to create a critical mass of actors familiar with CASI. Given its potential to address economy-wide challenges, we propose that CASI be institutionalized by being integrated into the regular program of work of national extension systems, the Ministry of Agriculture and other institutions in the agricultural development space.

About SIMLESA

Since 2010, the Sustainable Intensification of Maize-Legume Cropping Systems for Food Security in Eastern and Southern Africa (SIMLESA) has been implemented in Ethiopia, Kenya, Malawi, Mozambique, Rwanda, Tanzania and Uganda. The project seeks to increase food security, productivity, income levels and resilience to climate change while simultaneously protecting the natural resource base through integrating sustainable intensification technologies and practices in African smallholder farming systems.

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Further readings

For further information on which this brief is based, please visit https://simlesa.cimmyt.org/resources/to access policy briefs, synthesis reports, journal articles, datasets and other information.