



Bioversity International / S. Padulosi

# Mapping the evidence on agricultural innovation programmes

The improvement of agricultural innovations and technologies in low- and middle-income countries is paramount to increasing agricultural production and income sustainability. Although many agricultural technologies are available, adoption remains low among smallholder farmers. In order to identify existing evidence about the effectiveness of agricultural innovation programmes, 3ie produced an evidence gap map (EGM) of relevant completed and ongoing impact evaluations and systematic reviews. The map focuses on the evidence base concerning the effects of these interventions on outcomes related to the productivity and sustainable growth of smallholder farming.

## Highlights

- There is a dearth of evidence on the impact of knowledge transfer programmes;
- Studies on the impacts of agricultural interventions are unevenly concentrated in a few geographies;
- Very few studies conducted further analyses of subpopulations;
- The use of experimental design methodologies is rare; and
- Studies examining social outcomes, such as women’s empowerment and spillover effects, are limited.



Patrick Sheperd / CIFOR

## Main findings

- The largest portion of studies concentrated on interventions that provide inputs and practices to achieve productivity outcomes;
- Many interventions involved some form of education or training. However, few studies measured outcomes related to knowledge transfer;
- There is very limited evidence to indicate the most cost-effective policies. Only 7 impact evaluations out of 308 included cost-effectiveness analyses;
- Propensity score matching was undertaken in 162 impact evaluations and was therefore the most commonly used methodology to measure programme impact. Only 66 studies used randomised controlled trials, and 6 used regression discontinuity designs;
- Most studies were conducted in Sub-Saharan Africa and South Asia (225 impact evaluations). Most studies in Africa (179 impact evaluations) focused on providing inputs and practices. Those in Latin America and the Caribbean (35 impact evaluations) focused primarily on institutional arrangements such as land titles, contract farming and farmer certification;
- Among the included studies, only one third included any kind of subpopulation analysis. Sex disaggregation of farmers was the most common category of analysis across interventions and was particularly salient in programmes with knowledge dissemination components;
- Women's empowerment was not a commonly measured outcome (appearing in only 20 impact evaluations). Most impact evaluations shy away from in-depth gender analysis and only collect sex-disaggregated data, thereby limiting the measurement of empowerment outcomes. This is often due to insufficient time and funding to measure empowerment and other social outcomes, as these effects occur later in the theory of change. Despite this limitation, evaluations should be designed in such a way that allows for qualitative or quantitative measures of women's empowerment to go beyond endline dates for other indicators. More gender-based analysis in the agricultural sector has the potential to improve programmes that are designed to increase smallholder productivity and household income, and to improve women's status, purchasing power and independence within their communities; and
- Only 30 impact evaluations analysed the effects of interventions on environmental outcomes.

## How to read an evidence gap map

3ie evidence gap maps are presented using an interactive online platform that allows users to explore the evidence base of relevant studies. Bubbles appearing at intersections between interventions and outcomes denote the existence of at least one study or review. The

larger the bubble, the greater the volume of evidence in that cell. The colour of each bubble represents the type of evidence and, for a systematic review, a confidence rating (as indicated in the legend). In the online version of the evidence gap map, hovering over a bubble displays a

list of the included studies for that cell. The hyperlinks for these studies lead to user-friendly summaries on the 3ie evidence database. Users can filter the evidence by type of evidence, confidence rating (for systematic reviews), region, country, study design and population.





Swathi Sridharan / ICRISAT

## What is a 3ie evidence gap map?

3ie EGMs are collections of impact evaluation and systematic review evidence for a given sector or policy issue, organised according to the types of programmes evaluated and outcomes measured. They include an

interactive online visualisation of the evidence base, displayed in a framework of relevant interventions and outcomes. They highlight where there are sufficient impact evaluations to support systematic reviews and where more studies

are needed. EGMs help decision makers target their resources to fill these important evidence gaps and avoid duplication. They also facilitate evidence-informed decision-making by making existing research more accessible.

## About this map

This brief is based on *Agricultural innovation: an evidence gap map*, 3ie Evidence Gap Map Report 12 by Diana Lopez-Avila, Safiya Husain, Raag Bhatia, Megha Nath and Raghava Murthy Vinaygyam. The

authors identify, map and describe the evidence base regarding the impacts of agricultural innovations on smallholder farmers' economic development and well-being. The report describes 308 completed

impact evaluations, 6 systematic reviews, and 2 systematic review protocols mapped on a framework of 16 interventions and 15 outcomes spanning across 58 low- and middle-income countries.

The International Initiative for Impact Evaluation (3ie) promotes evidence-informed, equitable, inclusive and sustainable development. We support the generation and effective use of high-quality evidence to inform decision-making and improve the lives of people living in poverty in low- and middle-income countries. We provide guidance and support to produce, synthesise and quality assure evidence of what works, for whom, how, why and at what cost.

For more information on 3ie's evidence gap map, contact [info@3ieimpact.org](mailto:info@3ieimpact.org) or visit our website.

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