

Training, innovation and technology interventions can improve livelihoods for smallholder farmers in Africa, but there are few rigorous studies



Smallholder farmers in Africa are willing and able to participate in training

What is the aim of this review?

This Campbell Systematic Review examines the effects of training, innovation and new technology on the economic outcomes and food security of smallholder farmers in Africa. The review summarises 19 studies that used experimental or quasi-experimental methods.

Interventions that provide training or encourage adoption of new farming technology or practices show potential to improve the livelihoods of smallholder farmers in Africa. For example, supporting farmers to grow orange-fleshed sweet potatoes - a variety of sweet potato high in vitamin A - appears to lead to improved nutrition status. However, few rigorous studies have been conducted to assess the effects of such interventions.

What is this review about?

Many poor people living in Africa depend on their small farms for survival. There has been a lot of interest in trying to reduce poverty in the region by supporting these farmers to produce more and make a profit from their farms. Such interventions include training farmers and introducing them to new farming techniques and products, such as new crop types or fertilisers. Although a substantial amount of money has been invested in these approaches by governments and international donors, the effects of these interventions on food security and economic outcomes are unclear. This review examines the effectiveness of training, innovation and new technology interventions on the economic outcomes and food security of smallholder farmers in Africa.

What studies are included?

To be eligible for inclusion in this review studies were required to: a) be conducted in Africa; b) feature smallholder farmers as the target population; c) evaluate a training programme and/or facilitation of innovation and new technology; d) measure the effects of these interventions on economic outcomes or food security; and e) use experimental or quasi-experimental methods.

The review includes 19 studies: five studies of training programmes and 14 studies of innovation and new technology. Most of the



How up-to-date is this review?

The review authors searched for studies published between 1990 and February 2015; this Campbell Systematic Review was published in September 2015.

What is the Campbell Collaboration?

The Campbell Collaboration is an international, voluntary, non-profit research network that publishes systematic reviews. We summarise and evaluate the quality of evidence about programmes in the social and behavioural sciences. Our aim is to help people make better choices and better policy decisions.

About this summary

This summary was prepared by Ruth Pitt based on the Campbell Systematic Review 2015:16 'The Effects of Training, Innovation and New Technology on African Smallholder Farmers' Economic Outcomes and Food Security: A Systematic Review' by Ruth Stewart, Laurenz Langer, Natalie Rebelo Da Silva, Evans Muchiri, Hazel Zaranyika, Yvonne Erasmus, Nicola Randall, Shannon Rafferty, Marcel Korth, Nolizwe Madinga and Thea de Wet (DOI: 10.4073/csr.2015.16). Tanya Kristiansen redesigned and edited the summary. Financial support from the American Institutes for Research for the production of this summary is gratefully acknowledged.



innovation studies assessed the effects of new agricultural inputs.

What are the main findings of this review?

What are the effects of innovation and technology on smallholder livelihoods?

Interventions that provide smallholders with new biological or chemical inputs, such as fertiliser or crop varieties, improve farmers' income and food security. In particular, introducing farmers to orange-fleshed sweet potato increases their nutritional status. Few high-quality studies have been conducted to assess the effect of interventions to change farming practices, although some evaluations suggest such interventions may increase farmers' income in the short term.

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What are the effects of training on smallholder livelihoods?

Interventions that provide smallholders with training may increase farmers' income, but few high-quality studies are available to evaluate such interventions.

How has this intervention worked?

The positive effects of these interventions suggest that smallholder farmers in Africa are willing and able to participate in training and adopt new agricultural inputs.

What do the findings of this review mean?

Interest has grown in interventions to support smallholder farmers because such interventions have the potential to improve both household income and food security. This review confirms providing smallholders with new biological or chemical inputs, particularly orange-fleshed sweet potato, can lead to improved income and nutrition status. More high-quality studies are needed to assess other types of training, innovation, and new technology interventions. Research is also needed to assess whether such interventions have sustainable, long-term effects and whether they may cause harm to farmers or their communities.