



Smallholder agriculture

Research-based opportunities for improved food and nutrition security



This executive summary presents key insights and results from a synthesis study of the Food & Business Research programme focused on the role of smallholder agriculture in improving food and nutrition security. The full paper 'Smallholders and Food and Nutrition Security. Evidence from the Food & Business Research programme' is published in a series of synthesis articles led by Ellen Lammers and Daniëlle de Winter.



Smallholders as key actors for food security

Smallholder farmer households produce 50 to 80 per cent of the world's food and play a key role in achieving SDG2 on Zero Hunger. Yet, they are among the poorest and most food insecure people in the global South. The synthesis study asks, in what ways can smallholder agriculture contribute to improved food and nutrition security for poor farmers in their rural contexts? It is based on insights from 19 interdisciplinary research projects funded by NWO-WOTRO carried out in nine countries in Sub-Saharan Africa and Vietnam between 2014 and 2019. All projects brought together farmers, researchers, practitioners and business stakeholders.

FAO defines smallholders as “those who work between less than 1 ha up to 10 ha, mainly using family labour, and using part of the production for household consumption”. The synthesis shows, however, that smallholders differ in socioeconomic status, which influences their ability and decisions to adopt research innovations.

Below we summarise the study's insights about smallholders' contributions to four key dimensions of food and nutrition security (FNS): availability, access, utilisation and stability. A separate article in this series will focus on the outcomes achieved.

Food availability

This refers to the presence of enough food through agricultural production, imports and/or food aid. Projects explored options to increase farm productivity through more resilient crop varieties, better disease and pest management, and improving soil health. A project in northern Uganda, for instance, used participatory methods to select high-yielding and drought-tolerant cassava varieties. To stop the fast spread of diseases it simultaneously taught farmers how to identify common cassava diseases and establish multiplication sites for producing disease-free planting material. Research in

Burundi and Uganda led to the development of fertilisers adapted to local soil qualities to replace the generic fertilisers that farmers used. Where farmers in both projects adopted the innovations, yields increased considerably.

The synthesis confirmed that success factors for research uptake, include:

- involving smallholders in research design and knowledge co-creation
- building on farmers' local and indigenous knowledge
- prospects for business opportunities for smallholders

Access to food

This refers to having enough resources to buy or grow food (economic access) and having physical access to food markets. Projects focused on increased market production and including smallholders' in value chains. Research on improved crop varieties and agricultural practices, on reducing post-harvest losses (e.g. by light-diffuse storage of potatoes, or milk cooling), and on new value addition opportunities (e.g. mango drying and cassava chipping) achieved positive results in both

The Food & Business Research programme aims at addressing persistent food security challenges in low and middle income countries. It focuses on the urgent and growing need for adequate knowledge and solutions for regional and local problems related to food security. Food & Business Research consists of two funding instruments: the Food & Business Global Challenges Programme (GCP) and the Food & Business Applied Research Fund (ARF). Both are part of the Food & Business Knowledge Agenda of the Netherlands Ministry of Foreign Affairs.

- The objective of GCP is to promote research-based advanced understanding of emerging key issues in global and regional food security and their impact on local food security and the role of private sector development.
- The objective of ARF is to promote research-supported innovations that contribute to food security and private sector development in the partner countries of Dutch development cooperation.

The projects are all run by a consortium of academic, private sector and NGO partners to promote research uptake by relevant local, national and international stakeholders.

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respects. However, increased access to food based on higher productivity and market integration cannot be taken for granted.

The synthesis showed that:

- organising farmers as part of learning and production and marketing efforts contributed to research adoption
- the extra income gained by market and value chain integration is not necessarily spent on more or better food

Utilisation

This food security dimension is defined as the safety and quality of food, which determines households' nutritional status. Findings from projects that researched nutritious indigenous and neglected foods (e.g. spider plant in Benin, fermented dairy in Zambia and leafy vegetables in Kenya) are discussed in another synthesis article. A project with tree-crop farmers growing cocoa and oil palm (Ghana) and macadamia nuts and avocado (South Africa) found that market-oriented production compromised their dietary diversity as farmers changed to less time-consuming and status foods that were less nutritional than their traditional diets.

The synthesis thus showed that:

- agricultural intensification and increasing market orientation can adversely affect FNS
- indigenous foods carry great potential for improving diets among rural and urban consumers

Stability

The 2020 corona pandemic makes painfully clear how vital it is that FNS is guaranteed over time. People should not lose access to adequate food due to sudden shocks

and stresses. Projects related this stability dimension of FNS to smallholders' land rights (specifically those of women), or farm- and land-management strategies such as agroforestry, to improve long-term tenure, environmental and food security.

Food security is a situation wherein all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life.

The synthesis confirmed that:

- projects that considered different dimensions of smallholder resilience contributed more strongly to sustainable improvements in food access and availability
- investments in agriculture-based food security require tenure security to be sustainable

Key lessons

Smallholders are highly diverse, innovative and resilient. However, many of them suffer from food insecurity due to structural challenges and vulnerability to external shocks like market disruptions or climatic change. Besides the findings on the four FNS dimensions, the synthesis showed that:

1. Interventions aiming to improve smallholders' productivity, market performance and FNS should acknowledge smallholder heterogeneity regarding gender, age, land size, assets and off-farm income.
2. Introducing improved varieties, farming practices and technologies that increase yield, prevent crop diseases and/or enhance soil fertility provide substantial opportunities for greater food availability. Improving smallholders' integration into markets and value chains, however, proved a harder nut to crack.
3. Active farmer engagement in project design, knowledge (co-)creation and project implementation supports the development of practical and relevant solutions and enhances research uptake by smallholders. In several cases, active engagement triggered farmers to share their insights with neighbouring communities, thus reinforcing a project's potential impact.
4. Addressing structural constraints to smallholders' capacities for strategic action can help improve market access and FNS. Priorities are secure land rights, supportive policies (trade laws, climate change policies) and institutional support (e.g. extension services and access to credit).
5. Where farmers succeeded to access markets and improve their productivity, the extra income did not automatically result in improved FNS in the short term. However, spending the extra income on children's education or setting up a business may positively affect FNS in the mid and long term. Further study of the relationship between income and FNS is highly recommended.

Weblinks

- Full paper 'Smallholders and Food and Nutrition Security'
- Food & Business Research programme
- Food & Business Global Challenges Programme project overview
- Food & Business Applied Research Fund project overview
- Food & Business Knowledge Platform

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A way forward

Many national and international policies target smallholders to alleviate rural poverty and improve food security. Differences among smallholders have significant implications for how donors, governments and development agencies should approach them. Moreover, FNS is multi-dimensional and therefore requires an integrated approach. Combining high-yielding crop varieties with cost-efficient farmer-led irrigation, while working on improved tenure security and inclusive value chains, might be one such integrated approach. We recommend that any such approach is rigorously monitored on process and results to enable adaptive programming and learning.

The synthesis study showed that promising answers can be found in locally developed and tested solutions. Yet it also makes clear that partnerships and reliable political support are needed to achieve impact beyond the local level. The Covid-19 crisis, which emerged after the reviewed projects were finalised, generates many new and extremely urgent questions about FNS worldwide.

We call on decision-makers to use the current crisis as an opportunity to design agricultural development and food security policies that guarantee long-term support to smallholders. Given their poverty, they may be disproportionately affected by this crisis, while their importance as local food producers is multiplied.

NWO-WOTRO Science for Global Development, a division of the Dutch Research Council (NWO), programmes, funds and monitors innovative research on global issues, with a focus on sustainable development and poverty reduction. NWO-WOTRO's research projects are realised by interdisciplinary teams of researchers from the North and South and in close collaboration with non-academic stakeholders. These partnerships yield solutions for development challenges and strengthen the bridge between research, policy and practice.