



AgriFoSe2030

Agriculture for Food Security 2030
- Translating science into policy and practice



Livestock interventions in low-income countries: What works and why?

Livestock provide a pathway out of poverty and many livestock interventions have tried to increase productivity for smallholder livestock keepers. But the adoption rates of such interventions are low. This brief is based on a study exploring the reasons behind this, and potential solutions to increase intervention uptake.

Livestock-keeping is an important livelihood strategy in many areas of the world, especially in arid or semi-arid regions where it is difficult to reliably grow food. A critical asset for many rural farmers, livestock is of growing importance in urban settings, where people may not have access to land to grow crops, but still want to produce food, for sale and for their own consumption. The demand for animal source foods (ASF) has rapidly increased over the past decades and remains high in diets in high-income countries, despite negative publicity linking ASF consumption to overweight and associated non-communicable disease. In contrast to the over-nourished, there are still more than one billion people suffering from malnutrition and micronutrient deficiencies. Considering that ASF are highly nutritious and also profitable, they provide an attractive means to address nutritional problems. Development interventions, aiming to improve the health, nutrition and livelihoods of smallholder farmers increasingly target livestock production. The rationale for implementing interventions in livestock keeping in low-income countries is strong. However,

Recommendations to enable better evaluation of livestock interventions:

- To implement more large-scale randomized control trials with sufficient participants
- Projects need to be long-term to allow for impacts to happen
- Account for a time lag between intervention and evaluation to be able to identify sustainable effects

many of these interventions are never able to show any impact or potential to be scaled out to benefit a substantial number of the population.

How do we know which interventions work?

To identify if interventions succeed, their effects must be evaluated, and the evaluation must be rigorous. In addition, for others to learn from previous initiatives, the results from such evaluations need to be published and shared. Non-biased criteria would be appropriate in judging success in outcomes related to livestock interventions, and therefore it is important to use objective measurements that can be compared also between studies.

As an activity under AgriFoSe2030 theme four “Livestock-keeping among smallholders for a nutritious diet and increased food security”, we conducted a systematic literature review with a focus on two scientific databases supplemented by expert opinion. The objectives for the review were to:

1. identify and characterize livestock development interventions;
2. assess the effectiveness of livestock interventions in achieving development outcomes;
3. identify success factors and constraints; and
4. identify evidence gaps and make recommendations for further studies.

We developed a search syntax to guide the identification process. A total of 2,375 publications were found, 70 of these satisfied the inclusion criteria of being a scientific evaluation of a livestock intervention, and were reviewed. An additional 8 high-quality papers were identified by the study’s authors. Among these papers, only 15 were designed in a way where it was possible to link the intervention with the resulting outcomes and impacts. Although this may seem to be a small proportion of the studies originally found, it is quite typical for systematic literature reviews to identify hundreds of papers yet find only handfuls of sufficient quality to allow confident conclusions to be drawn.

Effects of the interventions

Negative findings were only reported in 2 publications, but 63 of the 78 publications reviewed reported positive effects showing improvement on various parameters. Out of the 15 livestock interventions that had used a randomized controlled

Table 1: The benefits reported in publications evaluating livestock interventions.

Livestock intervention: Reported benefits	Number of publications
Improved knowledge of farmers	7
Improved human health	5
Improved animal health	17
Improved animal production	7
Improved consumption of animal source foods	10
Improved livelihood/income	20



trials (RCTs) approach, and were rigorously evaluated, half reported convincing beneficial effects, such as improved animal or human health. It is also typical that very rigorous studies are often less positive than less rigorous studies. Moreover, while half the positive studies had benefits, only 2 out of these 15 interventions were considered to have potential for scalability and sustainability: for example, by providing farmers with tools to manage infectious diseases in cattle and improving poultry management.

Factors identified that could potentially influence success of livestock interventions

The literature review identified that when interventions were successful, they included one, or several, of the following parameters:

- Establishing good partnerships with stakeholders;
- Having champions for interventions;
- Targeting women;
- Including the communities by participatory processes or farmer-led projects;
- Enabling financial sustainability by establishing micro-financing mechanisms or cost-sharing;
- Using integrated approaches with multiple components

Some barriers to the implementation of successful interventions were also identified in this study including: low adoption rates (which in itself may have different contributing factors, such as communities not perceiving the need for the intervention, or financial or cultural constraints to participate), adverse external factors such as droughts, and the difficulties with scaling out, for example, where interventions require financial commitments that are higher than what the farmers are willing to pay.

The adoption rates were low in many studies, except when inputs were provided free or were heavily subsidized. This may be related to there being few incentives and recipients of the intervention not seeing enough added value of changing behaviours or to deep poverty, which makes even small contributions difficult. Providing free inputs often gives a higher adoption rate when introducing a new intervention. However, such economic incentives are often associated with low scalability since the intervention is often dropped after the lifespan of a supporting project, or when economic incentives are removed. Willingness-to-pay studies, in advance of introducing economic incentives, are seldom carried out to assess if the intervention would be affordable when subsidies are removed. Moreover, willingness to pay studies before an intervention consistently overestimate the price people will actually pay. It was common that interventions that were provided freely or subsidized,

ended up having a higher cost than is affordable, or a market chain has never been established and hence the intervention cannot be sustainably continued.

In conclusion, the results of our review show the strong potential of livestock interventions for having positive impacts but also point to the usefulness of participatory approaches when developing interventions to understand the local contexts and constraints that need to change and adapt for a successful implementation of interventions. For an intervention to be successful and scalable we need to understand the needs of the communities, the incentives required for a behaviour change, and what needs to be altered in the community to allow transformational change to happen. When the communities themselves participate in forming interventions, there is a greater ownership and thus potential for a higher motivation to work for transformation, and allow interventions to be successful. At the same time, many successful interventions have been adopted with minimal need for community mobilisation, because the benefits were highly apparent to end users (e.g. mobile phones).

Gaps in the evaluations of interventions

Most livestock interventions found in the literature showed a lack of rigorous evaluations. Even when evaluation was part of the intervention development, it was often carried out with flaws in both methodology and presentation; for example,





they were lacking information about selection of participants and controls, there were difficulties in explaining design and methods, and unclear results. Part of the problem is historical: only recently have the many biases of poorly conducted evaluations been understood. Another issue is cost: randomised controlled trials which are considered the gold standard in research may cost hundreds of thousands of dollars to implement. Nonetheless, development interventions costing billions of dollars are made every year and so substantial investments in making sure these deliver impacts are justified. These limitations could be addressed by better planning and budgeting for more extensive evaluations, already when designing new projects.

This study identifies three limitations for proper evaluations of development and implementation of livestock interventions:

- Most interventions are short-term
- Lack of sufficient participants to draw conclusions
- The period between the introduction of the intervention and its evaluation is too short.

This would allow for appropriate follow-up of projects over time, and proposing funds for continued use of interventions. Here, increased collaboration between development and research organizations, as well as donors for development and research, is necessary. Further, relevant stakeholders need to be sensitized on the need to evaluate interventions and why evaluation considerations are important when identifying what intervention to apply and upscale. There is also a need for a platform to share knowledge and lessons learnt, to facilitate upscaling and further development of new and existing livestock interventions.

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