



guidelines

FARMER FIELD SCHOOLS FOR SMALL-SCALE LIVESTOCK PRODUCERS

A guide for decision makers on improving livelihoods

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Recommended citation

FAO. 2018. *Farmer field schools for small-scale livestock producers – A guide for decision makers on improving livelihoods*. FAO Animal Production and Health Guidelines No. 20. Rome, FAO. 56 pp.

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ISBN 978-92-5-130358-0

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Foreword

The livestock sector accounts for around one third of global agricultural gross domestic product (GDP) and is growing faster than most other agricultural sectors. Livestock's expansion has mostly been driven by a combination of population growth, urbanization and rising incomes in many developing countries, which has raised demand for meat, milk and eggs. Consumption of livestock products is expected to further increase in the coming decades, offering opportunities for the development of the sector, poverty reduction and food security gains. However, the rapid pace of change could further marginalize small-scale producers. The risks to natural resources and human health must also be addressed to ensure sustainability.

The Food and Agriculture Organization of the United Nations (FAO) promotes and facilitates the sustainable development of the livestock sector through actions such as: facilitating the access of small-scale livestock producers, particularly in developing countries, to increasingly competitive markets for livestock commodities; contributing to safeguarding animal and veterinary public health; maintaining animal genetic diversity; and reducing the sector's environmental impact. Within this framework, FAO has, over the past two decades, integrated livestock-focused Farmer Field Schools (FFSs) in several of its projects and programmes and has contributed to building the capacity of many development stakeholders (INGOs, NGOs, research institutes, etc.) on the FFS approach for the benefit of small-scale livestock producers across developing regions.

The FFS approach, originally developed with a focus on crops, has contributed to developing the critical analysis, decision-making and communication skills of small-scale livestock producers in many different contexts and environments, allowing them to build more efficient and sustainable systems. Livestock FFSs have been implemented/supported by FAO and many other development stakeholders, including the International Fund for Agricultural Development (IFAD), the International Livestock Research Institute (ILRI), the World Bank, and numerous NGOs (VSF, Heifer International, etc.). Over the years, the approach has been applied to many different livestock production systems, including pastoralism and agro-pastoralism, dairying, poultry production, integrated rice-duck systems, rabbit production, pig production, beekeeping, beef production, camel production and small ruminant production. Today, FFSs are used for livestock development throughout developing regions, and interest in using the approach is growing among governments, NGOs, the private sector and other stakeholders.

In order to enhance the contribution of Livestock FFSs to improving the livelihoods of small-scale producers, and more broadly to the attainment of the UN's Sustainable Development Goals, decision makers should be provided with information allowing them to better

understand the approach's potential. They should also be helped to appreciate how the FFS approach is applicable to different livestock production systems and conditions. This guide aims to fill these gaps and to serve as a complement to *FAO's Farmer Field School Guidance Document – Planning for quality programmes* (FAO, 2016a).



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Acknowledgements

The first draft of this document was prepared by the Animal Production and Genetics Branch (AGAG) of FAO's Animal Production and Health Division (AGA). The draft was then revised, improved and finalized in February-March 2017 in a writeshop held in Machakos (Kenya), with the participation of experienced Crop and Livestock FFS practitioners. Overall coordination was provided by Giacomo de' Besi, Livestock Development Specialist (AGAG).

We wish to thank all writeshop participants and all those involved in preparation of the document. Special thanks are due to Edwin Adenya (FAO Kenya), Gertrude Buyu (FFS Promotion Services), Deborah Duveskog (FAO Kenya), Marjon Fredrix (Plant Production and Protection division, FAO), Godrick Khisa (FFS Promotion Services), Kathiya Dominic Lokeris (FFS master trainer), Bruno Minjauw (FAO Lebanon), Titus Mutinda (FFS master trainer), Paul Mutungi (FAO Kenya), and Julie Ojango (ILRI).

Our thanks also go to the Livestock FFS practitioners who prepared the case studies: Tharcisse Sebushahu and Gertrude Buyu for Burundi, Bruno Minjauw for Lebanon, Paul Mutungi and Deborah Duveskog for Kenya, and Jam Muhammad Khalid and Shazia Jam for Pakistan.

We wish to acknowledge the several FAO officers who reviewed drafts of the document and provided valuable feedback: Roswitha Baumung, Badi Besbes, Malick Faye, Harinder Makkar, Friederike Mayen, Paul Opio, Olaf Thieme and Markos Tibbo. Useful input was also provided by Francis Anno, Wafaa El Khoury, Alfredo Impiglia, Akiko Kamata, Raffaele Mattioli, Winfred Nalyongo, Suzanne Phillips, Anne Sophie Poisot and Ibrahim Wora Salami.

We also acknowledge the valuable feedback and input received from the two peer reviewers: Katinka deBalogh and William Settle.

Finally, we acknowledge the support of Claudia Ciarlantini, Cristiana Giovannini, Enrico Masci and Ginevra Virgili for graphic design, Christopher Matthews for language editing and Antonella Falcone for administrative support.

Acronyms and abbreviations

AESA	Agro-ecosystem analysis
CAHWs	Community-based animal health workers
FAO	Food and Agriculture Organization of the United Nations
FFS	Farmer Field School
GDP	Gross domestic product
HLPE	High Level Panel of Experts on Food Security and Nutrition of the Committee on World Food Security
IFAD	International Fund for Agricultural Development
ILRI	International Livestock Research Institute
INGO	International non-governmental organization
IPM	Integrated pest management
M&E	Monitoring & evaluation
NGO	Non-governmental organization
PARSE	Livestock Sector Rehabilitation Support Project
SDGs	Sustainable Development Goals
SOFT	Pakistan's Society of Facilitators and Trainers
ToF	Training of facilitators
UN	United Nations
VSF	Vétérinaires Sans Frontières

Glossary

Curriculum

The curriculum summarizes the main learning objectives and topics, and the schedule of a Livestock FFS. It is tailored to the local context and reflects the gaps and priorities of FFS members with regard to the enterprise (see below) selected and other relevant livelihood activities. The FFS curriculum may touch on topics such as animal production and health, crop management, marketing, rangeland and pasture management, water management, climate change adaptation, livelihoods diversification, and human nutrition and health. Topics may be added/modified in the course of an FFS according to changing environmental conditions and other factors (e.g. disease outbreaks) affecting the livestock or plants being studied.

Enterprise

The enterprise is the focal activity, or learning enterprise, of an FFS, e.g. egg production, dairy cattle production, beekeeping, poultry breeding, fodder production and management, rabbit production, lamb fattening, etc.

FFS facilitator

FFS facilitators are not teachers. Their main role is to guide the learning process by creating a space for participants to creatively learn about the selected enterprise, using non-formal adult education approaches. To this end, they help guide activities and group discussions and help groups reach a consensus on the actions needed. Throughout FFS implementation, their tasks include: facilitating exchange of knowledge and experiences; supporting the design of comparative experiments; ensuring that the curriculum reflects local need and opportunities; introducing new ideas; filling knowledge gaps (or inviting experts to do so); enabling consensus-building; and documenting the process and results. Before the start of the FFS, facilitators organize preparatory activities such as community consultations, FFS group formation and organization, selection of the learning activity/enterprise and preparation of the curriculum. Facilitators are usually government staff, NGO extension workers, producer organization staff, community-based animal health workers (CAHWs) or community members. They are trained as facilitators by FFS master trainers in a formal course aimed at developing their technical and facilitation skills, complemented by on-the-job coaching and refresher courses, often throughout a production cycle.

Livestock

“The term ‘livestock’ is used in a broad sense to cover all grown animals regardless of age, location or purpose of breeding. Non-domesticated animals are excluded under this definition unless they are kept or raised in captivity. Domestic animals included are large and small quadrupeds, poultry, insects (bees) and larvae of insects (silkworms).” (FAO, 1994).

Livestock FFS

In this publication, the term Livestock FFS is used to describe FFSs aimed at all types of small-scale livestock producers, including smallholders, pastoralists and agro-pastoralists, and small-scale, intensive livestock producers. Livestock FFSs includes Pastoralist Field Schools (PFSs), Agro-Pastoral Field Schools (APFSs), Livestock Field Schools (LFSs) and Livestock Farmer Field schools (LFFSs).

Introduction

In many countries across the world, livestock are an integral part of poor people's livelihoods, contributing to household income, food security and nutrition. They can provide quality food (meat, milk, and eggs); capital (sale, barter and hire); fertilizer (manure); draught power for cultivation and transport; building materials (fibres and hides); and fuel (manure). In some societies, livestock also have important sociocultural and religious functions (FAO, 2009b).

Efficient and sustainable livestock production relies on good agricultural practices, including appropriate feeding, breeding, and health care as well as a value chain approach and market-oriented production. **In FFSs, small-scale livestock producers test, validate, and adapt good agricultural and marketing practices that assist them in achieving sustainable food production and livelihoods improvements for their families and children.**

FAO developed the FFS approach in 1989. It enabled small-scale rice farmers in South-east Asia to investigate and learn – together in small groups – the skills required for adapting integrated pest management (IPM) practices to their paddy fields. As the approach was shown to be very effective, it was quickly applied to other crop production systems in different developing regions, and adapted to other agricultural subsectors, including livestock production (Groeneweg *et al.*, 2006).

The FFS approach centres on people. It brings together groups of producers and engages their members in a process of hands-on, participatory learning. Groups meet regularly throughout the production cycle to test, validate, and adapt new practices to their local conditions. FFSs groups develop solutions by comparing local practices

Box 1. Key objectives of this guide

This guide was prepared to help decision makers involved in policy formulation and programme planning to:

1. gain basic knowledge of the FFS approach, with emphasis on animal production, health and marketing;
2. learn about the contribution of FFSs to the livelihoods of livestock-dependent communities in various contexts;
3. recognize the conditions required for the successful implementation of Livestock FFSs;
4. comprehend the potential of the FFS approach in a wide range of animal production systems (pastoralist, agro-pastoralist and small-scale farming systems) and socio-economic settings.

with new ideas through trials, observation, critical analysis and discussion. Farmer Field Schools contribute to community development by building skills, trust, competencies and informed decision-making, as well as by enhancing the ability of small-scale producers to work together. Indeed, FFSs often help strengthen existing producer groups or form new groups (both formal and informal).

This guide aims to inform decision makers (e.g. government officials, programme managers) about the potential of Livestock FFSs to develop and support small-scale livestock production in pastoralist, agro-pastoralist and small-scale farming systems. It does not provide information on how to design an FFS project or to set up and implement a Livestock FFS.

LIVESTOCK FFS'S CONTRIBUTION TO THE SUSTAINABLE DEVELOPMENT GOALS

In September 2015, the 193 Member States of the United Nations adopted the 2030 Agenda for Sustainable Development, which is built around 17 new Global Goals. These Sustainable Development Goals (SDGs) are expected to guide the actions of governments, international agencies, civil society and other institutions between 2015 and 2030. The SDGs aim to end poverty and hunger while restoring and sustainably managing natural resources.

The livestock sector can contribute to the attainment of the SDGs by (i) improving the livelihoods of hundreds of millions of poor people who depend on animals for a living; (ii) providing affordable proteins and micronutrients to undernourished people; (iii) improving public health, as most infectious human diseases originate in animals; (iv) helping tackle climate change, as livestock systems can be environmentally friendly; and (v) generating broader benefits for society through consumption and production spillover effects.

FFSs develop the skills and knowledge of livestock producers, thus allowing them to create more efficient and sustainable production systems, and to make an important contribution to the achievement of the SDGs (Figure 1).

FIGURE 1
Main contributions of Livestock FFSs to the SDGs



FFSs improve the livelihoods of poor people through increased productivity and market access, among other benefits.



FFSs promote sustainable agriculture and enhance food and nutrition security through increased, better-quality food production.



FFSs reduce the incidence of zoonotic diseases and other food-borne diseases, for instance by raising awareness about the importance of hygienic practices in livestock production and in the handling of livestock products.



The FFS approach is a form of adult education which supports learning-by-doing and learning how to learn.



FFSs promote gender equality and equity in all activities and roles. Generally, FFS groups are gender-balanced.



FFSs create community employment opportunities and entrepreneurship. They facilitate networking and can result in the formation or strengthening of associations and marketing groups.



The FFS approach is implemented in many countries to promote climate-smart agricultural practices. It supports disaster risk reduction by promoting preparedness, mitigation and adaptation practices.



Core FFS activities revolve around agro-ecosystem analysis to support the understanding and sustainable management of ecosystems. They promote the conservation of ecosystems and genetic diversity, as well as land restoration practices.

Source: Authors' elaboration.

What is a Livestock Farmer Field School?

It is a “school without walls” where a group of 15-25 farmers engage in a process of hands-on, participatory learning over a season/production cycle as a time-bound activity. A consultative process undertaken with the community before and during FFS implementation serves to identify what should be done to enable a specific enterprise – e.g. cattle production, poultry breeding, etc. – to improve livelihoods. FFS groups meet regularly and frequently (weekly in most Livestock FFSs) to learn, test and adapt new concepts and promising interventions for local use. Groups learn by comparing local practices with new ideas through trial, observation, critical analysis and discussion. In the process, group members acquire technical skills, strengthen group cohesion and design strategies for improving livelihoods through better understanding of value chains, while also defining opportunities for business and enterprise development. Moreover, during FFS implementation groups develop community action plans and establish new linkages with service providers and the private sector to strengthen their enterprises and improve their livelihoods.

Box 2. The core principles of the FFS approach

- Empowerment comes from collective action.
- Knowledge is gained through hands-on learning.
- Animals and/or fields/pasturelands are the main learning tools, not books, pictures or other extension materials.
- The curriculum is based on the interests and priorities of the community.
- Focus is on developing skills and competencies rather than assimilating knowledge about new technology options.
- Meetings are carried out regularly and frequently throughout a season/production cycle and follow a systematic training process. The frequency of meetings can vary according to the phases of production and seasons of the year.
- Learning is achieved through a guided process (“facilitation”), not teaching.
- Group members evaluate their FFS and define what follow-up activities are relevant.

Why Livestock Farmer Field Schools?

LIVESTOCK-SECTOR OPPORTUNITIES AND CHALLENGES

Rapid income growth and urbanization, combined with population growth, are driving a significant increase in demand for animal-source foods in many countries. This demand is mostly being met by large-scale livestock production systems supported by technological innovations and structural changes in the sector. However, hundreds of millions of poor people still keep livestock in small-scale systems to support their families' livelihoods and food security.

With world population expected to reach 9.8 billion in 2050, demand for foods of animal origin is projected to continue increasing (Alexandratos and Bruinsma, 2012; UN, 2017). This presents significant opportunities for poverty reduction, food security gains and improved human nutrition. Nonetheless, the rapid pace of change risks further marginalizing small-scale producers and increasing risks to the environment and human health.

THE RELEVANCE OF LIVESTOCK FFSs

The FFS approach enables small-scale livestock producers to learn in different contexts and conditions and is also a valuable tool for building sustainable livestock production systems and rural development. That is because:

- **Livestock producers often face particularly complex, dynamic and location-specific challenges** that cannot be tackled with blanket recommendations and conventional extension methods because they require articulated (i.e. multiple, interconnected, composite) changes in behaviour or practices.
- **Small-scale livestock producers are resistant to changing how they do things just because someone tells them what to change, and how.** As animals are often fundamental to producers' livelihoods and may represent their only assets, recommendations that are not tested, validated and adapted to local conditions may face resistance and disinterest.
- **Many Livestock FFSs result in the formation or strengthening of associations and marketing groups.** It is difficult for a single livestock producer to exert influence, but producer groups have shown they can make their voices heard, contributing to reducing poverty and malnutrition.
- **Livestock FFSs can develop new/strengthened networks among livestock producers, local institutions, service providers and researchers.** Poor access to services, inputs and information is often a key constraint on small-scale livestock producers in developing countries.

- **Livestock FFSs can strengthen links between producers and veterinary services, and facilitate access to treatment, advice and information on disease outbreaks.** They can also act as a network for animal disease surveillance, early warning and response.
- **The FFS approach can be applied to a wide range of livestock species, from cattle to poultry and from small ruminants to insects.** The animals used in livestock production vary across regions and production systems. The FFS approach allows beneficiaries to choose the livestock species they want to focus on and to organize their field school accordingly. Many FFSs, however, work with livestock that have a quick turnover (e.g. poultry and pigs) and rapid returns. In some contexts, FFSs using insects, mainly honey bees, have been set up to diversify incomes and increase crop yields through pollination services.
- **Livestock FFSs have shown themselves to be effective vehicles for women's empowerment and gender equality.** Women play a key role in the management of many livestock systems but often have limited access to resources and extension services, as they are less involved in decision-making than men (FAO, 2011). FFS activities can lead to changes in household gender dynamics and decision-making (Friis-Hansen *et al.*, 2012).
- **Livestock FFSs can be used to introduce livestock to non-livestock communities.** Although Livestock FFSs are usually implemented to support established livestock producers, they can also help introduce livestock as a new income-generating activity for households with no experience of animal husbandry. This helps families to diversify their incomes and to respond to new market opportunities or environmental changes.

FFS – A FLEXIBLE APPROACH FOR DIFFERENT SMALL-SCALE LIVESTOCK SYSTEMS

Over the past two decades, FAO and other development stakeholders have supported small-scale livestock producers through FFSs in many different production systems, including smallholder mixed farming and small-scale, intensive livestock systems in rural, peri-urban and urban areas; and in pastoral, silvo-pastoral and agro-pastoral systems. Over time, the approach acquired different names, depending on the system, e.g. Livestock Farmer Field School, Pastoralist Field School and Agro-Pastoral Field School, but the core principles and activities remained the same.

In **smallholder mixed-farming systems**, crop and livestock production are interlinked. Generally, different livestock species are produced on such farms, with crops providing some of the feed and the animals bringing in additional income and contributing draught power and manure for the crops (HLPE, 2016). Milk, meat and eggs are often produced simultaneously, but they are unlikely to be the main source of income. In this context, the pre-condition surveys/assessments and baseline surveys before the start of a Livestock FFS allow the community and project management to determine if the main focus of the field school should be on livestock or crops, or if a more integrated approach should be taken. However, FFSs not only address a farmer's main livelihood activity but also touch on the interactions between such activities and provide basic knowledge on agricultural economics and management.



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Smallholder mixed-farming systems: a farmer ploughing his field with a mule



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A small-scale intensive poultry producer feeding his broilers

Small-scale intensive livestock systems often consist of a single species (e.g. cattle, poultry, pigs, rabbits) and livestock are generally physically separated from the land (FAO, 2009b). In dealing with such systems, FFS curricula often focus on issues such as improving nutrition and feeding, biosecure housing and sanitary standards, breeding management, good manufacturing and storage practices, and marketing. The FFS course creates opportunities to add value to products, reduce negative environmental impacts and improve financial management.

Pastoralism and agro-pastoralism are agricultural economies based on extensive livestock production. (Agro-) pastoralists raise herds/flocks of animals – including cattle, goats, sheep, camels, yaks, llamas, buffalos and horses – for food, income and services (e.g. transport and traction). They have developed different forms of land tenure and management based on mobility, the use of common resources and livestock's ability to convert local vegetation into food for people (HLPE, 2016). Agro-pastoralism is a form of pastoralism in which livestock raising is associated with crop production (mainly dryland or rainfed).

The factor of mobility should be duly considered in pastoral FFS projects as it bears on aspects such as the frequency and location of meetings. In some cases, FFS activities should be interrupted during pastoral movements while in others the facilitator should follow the field school group during migration. Agro-pastoralists may not always be available to participate in FFS activities as they may spend many hours or days with their livestock in



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A nomadic pastoralist with his sheep

search of water or fodder. Generally, (agro-)pastoral FFSs have a longer cycle than groups focusing on small-scale farming, and flexibility is needed when unforeseen events disrupt learning activities.

Pastoralists and agro-pastoralists often live in conditions of high environmental uncertainty. Accordingly, many (agro-)pastoral FFSs focus on enhancing the resilience of these vulnerable populations. Learning activities can be related to: reducing exposure to hazards, lessening pastoralists' vulnerability, improving pasture, watershed and range management, introducing strategies for conflict resolution, increasing livelihood diversification and improving preparedness and early warning regarding adverse events (FAO, 2013b).

LIVESTOCK FFSs IN POST-DISASTER AND PROTRACTED EMERGENCY SITUATIONS

Livestock-targeted emergency interventions are implemented when livestock producers are confronted with natural or human-made disasters (e.g. earthquakes, droughts, floods and civil conflicts) or serious animal disease outbreaks. Through targeted and rapid responses, such interventions seek to help households survive immediate crises and support communities in rebuilding their livelihoods (FAO, 2016b).

There is growing interest among donors and development practitioners in using the FFS approach in post-emergency recovery as it can effectively restart agricultural activities and promote income generation, food self-sufficiency, and resilience in small-scale production systems. For instance, FFS can contribute to: restoring and securing livelihood assets, peace building and conflict resolution, supporting returnees, improving the use of agricultural inputs, awareness raising, increasing community sharing of natural resources, developing safety nets, and restoring hope (FAO, 2009a).

The FFS approach can also be used to support young people displaced by conflict and living in difficult conditions. In this context, the curriculum includes both life skills (e.g. gender sensitivity, nutrition education, business skills) and agricultural skills (e.g. livestock management, use and conservation of available resources). FFSs targeting vulnerable youth often focus on small livestock such as poultry and rabbits, as they need less inputs and labour, and have a faster turnover (FAO, 2007).

In a post-emergency setting, there are a number of factors that influence the decision on whether an FFS intervention should be implemented or not:

- **Nature of learning.** FFSs can address complex problems that require hands-on and intensive learning for some time. When simple and clear technical solutions built on proven technologies need to be delivered (e.g. introduction of standard practices) it could be more appropriate to use conventional extension or mass media.
- **Availability of local facilitators and master trainers.** When facilitators and/or master trainers are not available locally and rapid implementation is needed, a different type of intervention will normally have to be considered.
- **Cost implications.** The costs of running an FFS may be higher than most conventional emergency interventions distributing agricultural inputs, and the number of beneficiaries may be smaller due to the learning methodology. However, FFSs can make a greater impact on improving the long-term livelihoods and resilience of target ben-

eficiaries. For example, FFS activities can improve the results of restocking or inputs distribution by helping livestock producers to make better use of the animals or tools distributed. The overall cost-effectiveness of the intervention is therefore increased.

- **Livestock and other inputs for FFS activities.** When disaster strikes, livestock may be lost, injured or debilitated and/or supplies of resources and services needed for livestock production may be disrupted. Therefore, to allow the learning-by-doing process in post-emergency conditions, an FFS will usually include assets distribution and/or activities aimed at replacing lost services.

LIVESTOCK FFS'S CONTRIBUTION TO IMPROVING THE LIVELIHOODS OF THE POOR

Livestock are critical to the livelihoods of hundreds of millions of poor people across the world and often represent their sole assets. They form an integral part of mixed farming systems (where they help raise overall farm productivity and provide food and income for households) and are the main source of revenue and food for pastoralists. Livestock play many other important roles in resource-poor households, including: providing employment to household members; storing wealth; offering a form of insurance; contributing to gender equality by generating opportunities for women; recycling waste products and residues from cropping or agro-industries; improving the structure and fertility of soil; and controlling pests and weeds (FAO, 2009b).

Livestock's importance to many of the world's poor, coupled with the proven potential of the FFS approach, makes Livestock FFSs a significant and potent tool for improving poor people's livelihoods. Some of the specific contributions the field schools can make to the livelihoods of small-scale livestock producers are outlined in Table 1.

TABLE 1
Potential benefits of Livestock FFSs to the livelihoods of FFS members

Livelihood capital*	Potential benefits
Human (Skills, knowledge, health and ability to work, etc.)	Improved critical and logical decision-making
	Improved organizational and critical skills
	Improved management and entrepreneurial skills (farming as a business)
	Better understanding of the local ecosystem
	Increased awareness of the community's common challenges
	Improved livestock management practices, including hygiene and sanitation issues
	Improved nutrition through diversification of diets and changes in food consumption patterns
Social (Family relationships, social resources, informal networks, membership of formalized groups, trust, etc.)	Increased awareness of sustainable management of natural resources and the relation to productive and income-generating activities
	Climate change and drought preparedness, adaptation and mitigation
	Increased cohesion among FFS group members and strengthened ability to work together, solve problems and take decisions together
	Creation of informal networks for economies of scale, cooperation between farmers and financial agreement between members
	Increased trust between members and with service providers (e.g. extension services)
	Women's empowerment and gender equality, e.g. increased women's influence and participation, involvement in leadership, access and control over household resources, changes in gender roles and division of labour
	Improved access to basic services (health, education, veterinary, etc.)
Natural (Natural resources such as land, wildlife, soil, water, forests and fisheries)	Resolution of problems such as conflicts and cross-border trade
	Increased status of FFS groups and their members (especially women) within the community
	Strengthened linkages with research, development partners, and other progressive producers
	Improved access to pastures and fodder trees
	Restored soil fertility with compost and manure utilization, and conservation with erosion mitigation techniques and zero tillage
Physical (Basic infrastructure (roads, water & sanitation, etc.), agriculture infrastructure, schools, producer goods including tools, livestock and equipment)	Improved water conservation
	Improved cross-border and regional grazing resource management
	Improved natural resource management including pasture establishment, fodder conservation and reforestation
	Improved livestock infrastructure (milk parlours, sheds, poultry coops, etc.)
	Improved access to adapted genetic resources
Financial (Financial resources including savings, credit, and income from employment, trade and remittances)	Adoption of new technologies and tools
	Increased number of livestock due to reduced mortality and improved fertility
	Increased output of animal products
	Increased income and development of new income-generating activities
	Improved access to financial services and to input and output markets
	Development of saving and credit schemes
	Increased financial responsibility and entrepreneurship

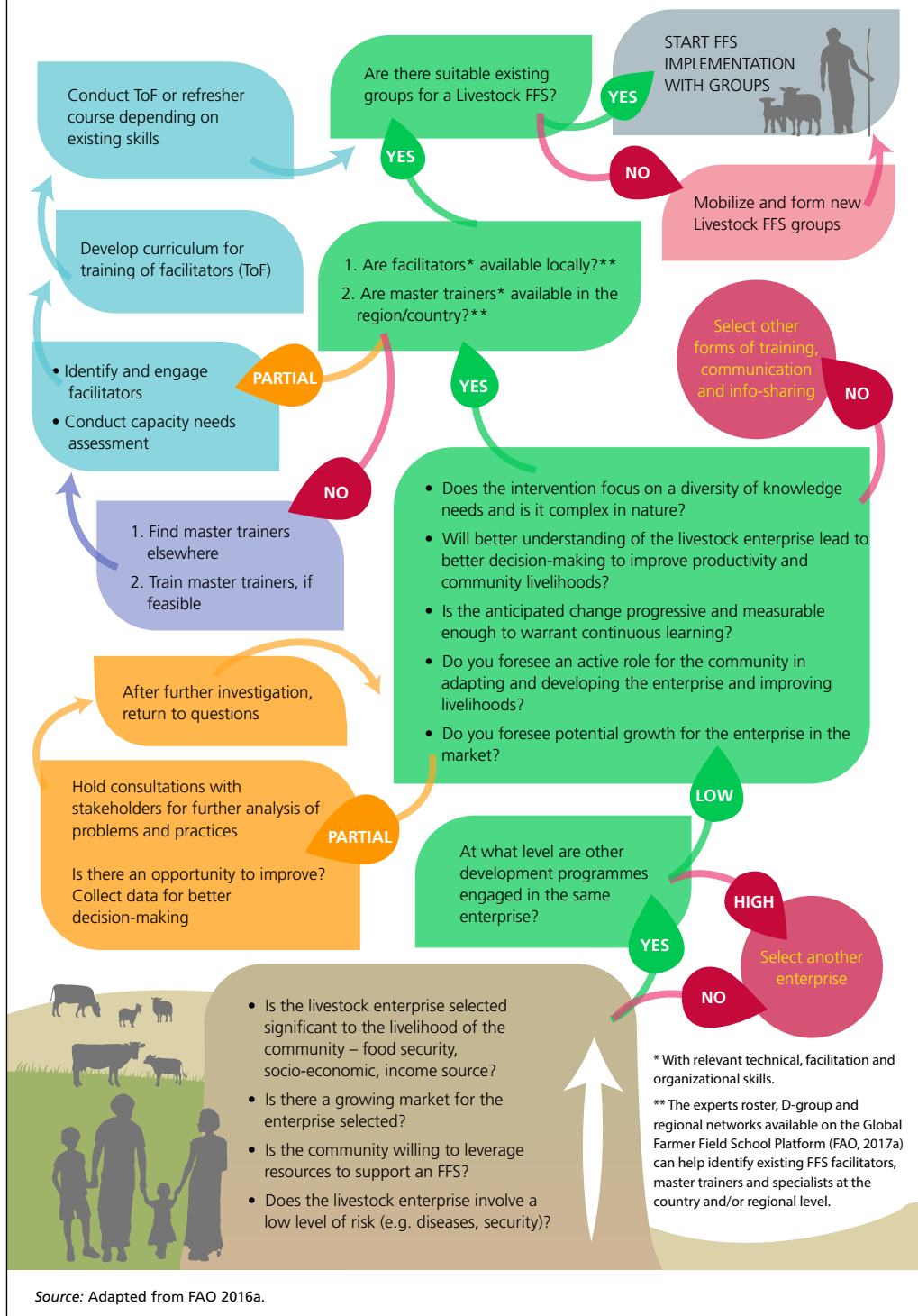
[*] As defined in the Sustainable Livelihood Framework of the UK's Department for International Development, DFID (for more information see: <http://www.eldis.org/vfile/upload/1/document/0901/section2.pdf>).

What are the necessary conditions for successful Livestock FFS implementation?

When designing a livestock project or programme that envisages using the FFS approach, it is important to consider whether this is the most suitable option in the given context. The livestock enterprise selected should be assessed for socio-economic impact at community level, the opportunities to market the product, and the level of associated risks (e.g. disease, security).

The decision tree shown in Figure 2 is useful as a guide for decision makers to assess whether a Livestock FFS can make an impact on the livelihoods of the communities targeted. The human capacity requirements at different levels (from community to implementers) will influence the content and duration of training. Sufficient investment is required in planning and implementation of the FFS project or programme (i.e. time, funds, human resources) to enable communities to increasingly take the lead in developing and expanding their livestock enterprises (FAO, 2016a).

FIGURE 2
Decision tree – considerations for assessing the conditions for Livestock FFS implementation



Implementing a Livestock FFS intervention

LIVESTOCK FARMER FIELD SCHOOLS

Core activities

FFS groups meet at regular intervals during an FFS. Although the frequency and duration of the meetings may vary depending on the enterprise, phases of production, and seasons of the year, every meeting will systematically include the following core activities (Groeneweg *et al.*, 2006; FAO, 2013a; FAO, 2013b):

1. Agro-ecosystem analysis (AESA)

The AESA is a process involving the recording and analysis of the living and non-living factors within a production system. It has four key steps to be repeated at every meeting: (i) in subgroups, the FFS members make observations on the livestock or pastureland/forage field under study; (ii) the subgroups record, analyse and reflect on the observations in order to develop decisions and recommendations; (iii) each subgroup presents the outcomes of step ii to the plenary for feedback and questions; and (iv) the plenary discusses and agrees on actions to be taken.

Objectives

- Improve producers' decision-making skills related to farm management
- Enhance observational skills
- Develop record-keeping skills
- Generate discussions and sharing of experiences
- Develop presentation skills to promote communal decisions



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The AESA can be used to observe the relations between livestock growth/weight/yield and pests, diseases, water and feed availability and weather conditions.



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Comparative experiments can be used, for instance, to improve water management by comparing the milk yield of a dairy cow under different drinking water regimes.

2. Comparative experiments

Comparative experiments are part of a process of collective investigation that compares options and allows producers to choose the solution most suited to local conditions. They integrate local knowledge and skills with conventional solutions and include comparisons of marketing strategies and cost–benefit analyses, using the data recorded during AESA exercises.

Objectives

- Access and ownership of skills, knowledge and results for better livestock and natural resources management
- Strengthen the capacities of livestock producers to choose new technologies
- Encourage the adaptation and adoption of new technologies or practices

3. Group dynamics

Group dynamics are used to create a pleasant learning environment, facilitate learning and make space to reflect and share. They enhance communication, problem solving and leadership skills as well as team building and group cohesion.

Objectives

- Energize participants
- Enhance participation
- Strengthen learning topics
- Strengthen group work and cohesion
- Assist in solving conflicts
- Mind teasing



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Group dynamic exercises include quizzes, role playing, storytelling, dancing, songs and proverbs.



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Invited specialists may cover topics such as deworming, mastitis detection, feed resource management, tick control, milk marketing, milk preservation, farm infrastructure, and routine practices. This exercise should be participatory and include small practical demonstrations.

4. Special topics

Special topics are addressed by inviting a specialist to an FFS meeting or through small experiments, group work and discussion. Topics concern not only technical information but also knowledge about farm economics and marketing. In effect, basic technical information is usually needed before any hands-on activities can be implemented. Certain activities can be hazardous without proper expertise or information, especially when dealing with animal health.

Objectives

- Build on existing knowledge
- Increase access to new information and to new information sources
- Provide an opportunity for facilitators, researchers and/or technical specialists to provide theoretical information concerning activities being carried out
- Enhance producers' technical knowledge and give them the information they need when they need it
- Ensure a demand-driven learning process
- Level out knowledge among participants
- Link producers with service providers and networks

5. Participatory monitoring & evaluation (M&E)

Both the FFS members and the facilitator must be able to continuously assess whether they are achieving the learning objectives. Participatory M&E helps FFS practitioners (mainly project staff, facilitators and participants) actively observe and analyse situations and performance, and understand what they are observing. Information and data collected in the baseline surveys before FFS implementation are also crucial for assessing the performance and impact of FFS.



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At the end of every meeting, the facilitator asks group members questions such as, "Is any progress being made?" or, "Are goals being achieved?"

Objectives

- Track FFS progress and control quality
- Create new insights for corrective measures
- Assess whether the FFS is achieving its specific objectives
- Monitor and evaluate specific FFS meetings for self-evaluation purposes
- Monitor and evaluate a comparative experiment
- Monitor the profitability of the enterprise

In FFS meetings, core activities are generally carried out in the order set out in Table 2.

Implementation stages and duration

Livestock FFSs are structured in the three implementation stages described below:

The **preparatory stage** involves all the activities that must be carried out before FFS meetings can be held (e.g. baseline studies, selection and training of facilitators, awareness-raising meetings with communities and their leaders, design and setup of experiments). It generally requires 1-3 months in countries/areas where master trainers and facilitators exist but may take longer in new environments without sufficient local capacity.

The **production learning stage** begins when the FFS meetings and comparative experiments start taking place. Its duration largely depends on the enterprise type, but its length may be influenced by local physical, climatic and social conditions. Two key factors affecting duration are (i) livestock species: the time needed to carry out comparative experiments and to complete learning activities varies greatly depending on the livestock species under study, due to their different life and production cycles; and (ii) problems to be solved: certain livestock topics, such as breeding, require more time to yield significant results. The production learning stage should last for the entire production cycle (e.g. from “egg to egg” or “kid to kid”) so as to guarantee that FFS meetings can be convened at critical times of the cycle (e.g. when specific treatments must be provided). In general, the longer the production cycle, the longer it will be between meetings. Most FFSs will have at least 12-15 meetings.

TABLE 2
A typical FFS meeting schedule

Activity	Approx. duration (minutes)
Opening: roll call and brief recap	30
Agro-ecosystem analysis (AESA)	30
Presentation of AESA by FFS subgroups and plenary discussion	90
Group dynamics	30
Special topics	60
Participatory M&E, updating of records and planning	20
Closure: roll call and announcements	10

Box 3. Entrepreneurship is a key component of Livestock FFSs

FFSs can help producers to become more entrepreneurial in running their farms. Livestock producers are helped to better leverage market opportunities and produce more for markets and profits. Indeed, a successful Livestock FFS will:

- enable members to exploit economic opportunities created by their improved knowledge, skills and networks;
- facilitate savings, access to micro-credit, marketing, job creation and livelihood diversification;
- create wealth and build resilience.

The **entrepreneurship/marketing learning stage** aims at strengthening the marketing and entrepreneurial skills of FFS members, thereby helping them to better leverage market opportunities. It often overlaps with the production learning stage, although in some cases it may start immediately afterwards.

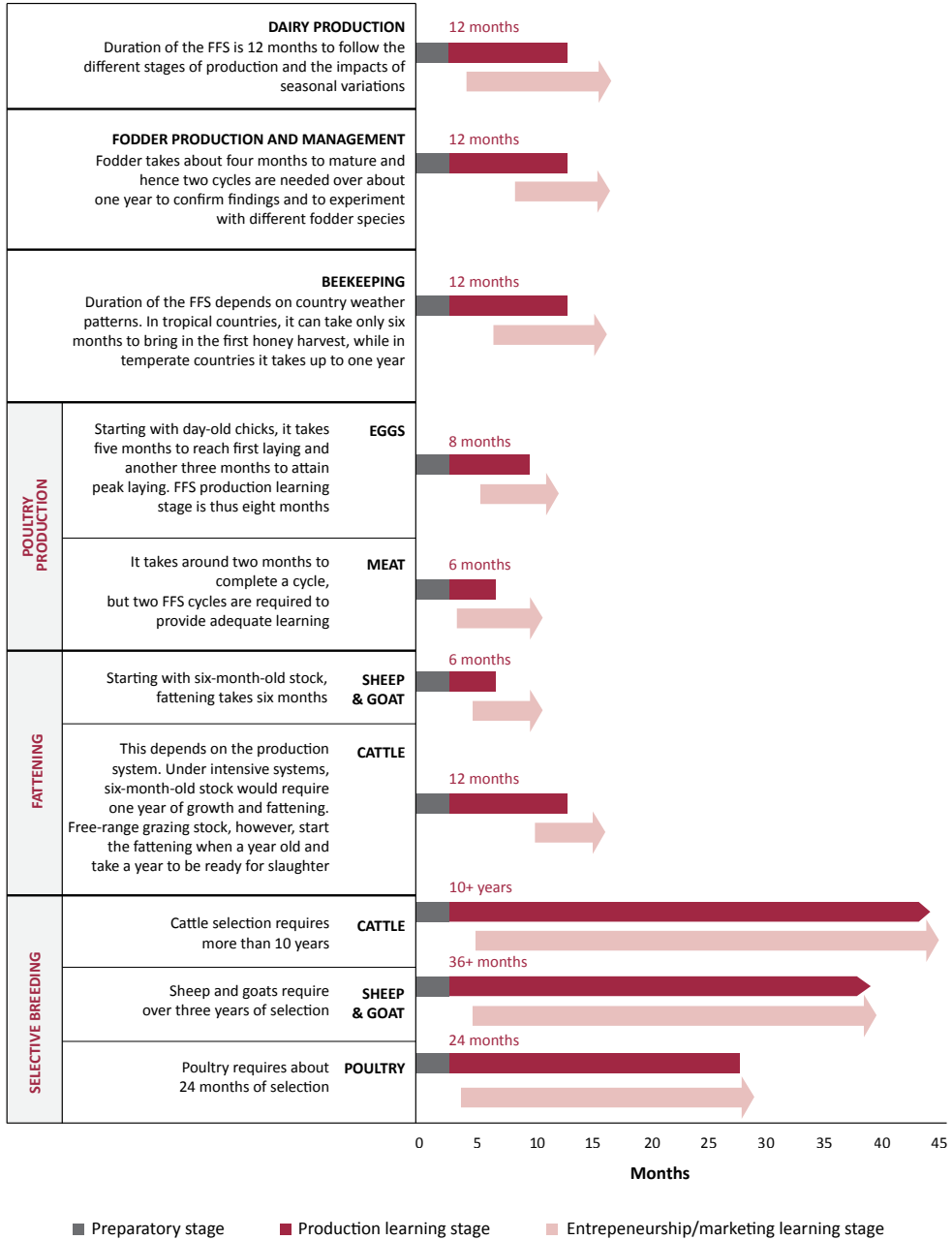
As shown in Figure 3, the duration of Livestock FFS implementation is mainly driven by the type of enterprise being undertaken. While some enterprises may require less than a year (e.g. sheep and goat fattening, poultry meat production), it is advisable to run an FFS for at least a year so as to have ample time for its stages (i.e. preparatory, production, and entrepreneurship/marketing) to be completed, thus enhancing continued learning.

In pastoralist contexts, Livestock FFS implementation may require longer given that pastoralists, being mobile, may not always be able to attend an FFS and often base their livelihoods on livestock, which require a lengthy investment in terms of time (e.g. cattle). Drought cycles and social factors such as insecurity may also lengthen FFS duration for pastoralists.

PROJECT/PROGRAMME PHASES AND DURATION

The phases and activities of a programme or project including a Livestock FFS are closely linked to the FFS implementation stages described in the section “Livestock FFS implementation stages and duration”. The duration of a project/programme is also largely determined by the context, scope and social framework in which it is implemented, as well on capacity on the ground (i.e. the availability of master trainers and facilitators). It is important to keep these considerations in mind so as to guide the project designers in allocating an appropriate amount of time. Figure 4 shows the main activities and recommended duration of each of the phases of a project or programme involving a Livestock FFS.

FIGURE 3
Minimum duration of a Livestock FFS enterprise cycle



Source: Authors' elaboration.

FIGURE 4
Livestock FFS project/programme phases – main activities and duration



Source: Authors' elaboration.

FREQUENTLY ASKED QUESTIONS

Can FFS comparative experiments respond to livestock issues in reasonable time and without risks to animal production and health?

Field comparative experiments, which are the standard tools used in Crop FFSs, compare new or improved practices with traditional ones and involve a test and control group. In Livestock FFSs, they can only be used for low-risk and ethically acceptable experiments that can yield tangible results within the FFS cycle (e.g. measuring the impact of high-protein feed on milk production). Indeed, the use of such experiments in Livestock FFSs is limited by factors such as:

- **Possible irreversible loss of productivity.** Field comparative experiments include changes in practices and behaviour that may have permanent or long-term negative effects on livestock production.
- **Risk implications for animal health and welfare.** Field comparative experiments can affect the health and welfare of the livestock under study.
- **Cost and availability of inputs.** Many of the inputs used in livestock production (e.g. animals, housing, medicines) are expensive, so that small-scale producers may be unwilling to risk wasting them in an experiment. Moreover, some of the inputs may become unavailable in the target area during or after FFS implementation, making FFS practices unsustainable.
- **Limited availability of livestock.** In most comparative field experiments, more than one animal should be included in each test group in order to obtain valid results. These animals should be the same age, have the same health status and be similarly managed. In small-scale production environments, it might not always be possible to comply with these conditions as livestock are generally raised in small numbers.

In Livestock FFSs, novel types of comparative experiments have been developed in order to avoid risks to animal production and health and to reduce costs (Groeneweg *et al.*, 2006). They include:

1. **Comparing ongoing practices within the same production unit.** This type of comparative experiment is used when adapting and adopting a new practice implies high animal health or productivity risks, or high costs. It can also be used in situations where misconceptions have been held for a long time.
2. **Comparing with non-FFS farmers' practices or past experience.** FFS members' animals are given a beneficial treatment (e.g. vaccination or deworming) and results are compared with past experience or with non-FFS livestock producers in the same area who are not using the same treatment.
3. **"Stop and go" trials.** In this experiment, an animal receives a beneficial treatment that is interrupted several times, i.e. the animal is its own control. The experiment can be used to demonstrate the effect of a single treatment which does not affect the health of the animal (e.g. measure the impact of supplementary feeding or of different drinking water regimes on milk production).

Can livestock producers themselves design and implement comparative experiments?

Small-scale livestock producers are continuously experimenting and trying out new practices. They may test and validate new technologies proposed by researchers and extension workers, or try out their own or their neighbours' ideas. However, they often do not consider these activities as experiments or treat them as a scientist would. Similarly, many scientists do not consider producers' experiments to be proper trials having scientific validity.

Comparative experiments do not have to be complicated (e.g. need statistical analysis) or risky to be helpful, and do not necessarily have to be carried out by people with scientific training. Some basic principles of experimentation are, however, important to avoid reaching wrong conclusions or decisions. In fact, the comparative experiments carried out in Livestock FFSs help producers learn how to effectively compare different options. Typically, FFS experiments study a single practice in a uniform situation using replication to confirm the results and employing the traditional practice/control for comparison. FFS facilitators support the producers in the different steps of an experiment, from planning and design to recording and evaluation. It is important that all FFS experiments involving livestock show clear results, as small changes may not be perceived and could prove difficult to compare.

Have any strategies been developed to reduce the costs of running FFS experiments with livestock?

Livestock are expensive, and it is difficult to find similar animals (e.g. age, health status, management) to compare. Several principles of animal production can be demonstrated with cheap and uniform animals like day-old chicks and then applied to more expensive livestock. Alternatively, some experiments can be conducted on a single animal through "stop and go" trials.

It should also be noted, however, that the costs of running experiments with livestock are generally higher than with crops. This aspect will have to be considered in the project and programme budget.

Do experiments on certain livestock enterprises (e.g. selective breeding) take longer?

The length of the FFS cycle largely depends on the enterprise (see the section on Livestock FFS implementation stages and duration), the types of problems to be addressed, and the production system and animal species involved. A Livestock FFS focusing on improving breeding, for example, will last longer than one focusing on intensive fattening practices. As learning by doing is central, an FFS working on an enterprise needing a long time to show results (e.g. breeding) should start with a thorough baseline recording exercise in order to facilitate comparison with the new performance expected over time. Some results can also be demonstrated immediately with animal species, such as poultry, that have a short generation interval.

Do FFSs only benefit FFS members?

The FFS approach is about education and the creation of knowledge and skills. It was not conceived with the aim of disseminating new technologies and practices. Although simple information and practices acquired through Livestock FFSs, such as the improvement of forage and animal genetic resources, is disseminated relatively easily, the diffusion effect is significantly reduced with more complex practices. Diffusion can be increased by developing learning and experimentation activities that touch upon broader community issues (e.g. rangeland management for pastoralists, community-based breeding programmes, water conservation). Also, learning related to activities that are practiced outside the production site (e.g. marketing) has a greater chance of being seen and replicated by non-FFS members than knowledge and practices that are used and show results only at farm level.

Experience has shown that approaching farming as an integrated business, rather than addressing single production issues, can be an important determinant for the success of an FFS, including greater diffusion. Accounting, marketing and value chain interventions can be disseminated more easily and bring benefit to more value chain actors. Finally, successful FFSs often result in the formation of producer associations which can act as service providers for entire communities.

Can facilitators run an FFS on any enterprise?

A good Livestock FFS facilitator does not necessarily have to have extensive knowledge and experience in livestock production and health, but basic understanding is a must. Facilitators' participation in livestock training will ensure that their technical knowledge and skills are adequately reinforced. Under most circumstances, animal production and health specialists can be invited to the FFS for technical inputs and assistance in designing appropriate experiments.

Good facilitators should be available throughout the FFS cycle and have good organizational, communication and methodological skills. Also, they should always be open to the opinions and ideas of the community and able to tailor dynamic solutions to local conditions.

KEY LESSONS LEARNED

Consider project/programme beneficiaries' culture and economic status. FFSs are more likely to be successful where small-scale livestock producers are able, committed and willing to work in teams, and to invest their time in experimental learning activities. The community should have a positive attitude to change, and the local culture should allow for innovations. The FFS approach often works better with poor livestock producers because they are more likely to invest the time and effort needed and to engage in group work.

Consider gender issues and roles. The needs and priorities of, and the constraints on, women and men, both young and old, should be taken into account at every phase of an FFS intervention. Women play a key role in livestock production in many developing countries but often have limited access to land, technology, education and financial services, as well as a lesser say than men in decision-making. Compared to their male counterparts, the number of animals they keep is generally lower and they are more likely to own poultry or small ruminants than larger livestock (FAO, 2013d).

Tailor the FFS to the local context and conditions. The standardization of activities can lead to FFS learning that is not suited to the local context, conditions and needs. A Livestock FFS should be built around the target community, market needs and activities, and learning tools should be adapted to the local sociocultural context and ecosystem.

Encourage the dissemination of FFS innovations and knowledge between farmers. Information on FFS learning should be shared among members and disseminated to other livestock producers in the local community. Exchange visits (educational tours to other FFSs), field days (getting non-FFS members involved in FFS activities), open house days, exhibitions and share fairs should be encouraged.

Facilitate the institutionalization process. Successful institutionalization of FFSs will enhance the sustainability of interventions, improve the quality of FFS learning across countries and regions, and strengthen impact and continuity. The process of institutionalization can occur in different ways, including (i) appropriation (local and community): agricultural producers take ownership of the innovations and decisions regarding their livelihood activities and engage in new activities as a group; (ii) institutionalization (local and national): public institutions, private businesses, civil society organizations and producer organizations create a common vision of the FFS approach and values, integrate them into development interventions and build an enabling environment where FFS projects and programmes, as well as networks, can be successfully established; (iii) harmonization (regional and global): regional and international organizations promote synergies, the sharing of experiences and exchange on FFS-related activities, and mainstream common features and principles for quality FFS programmes across countries and regions (FAO, 2015a).

Ensure availability of quality facilitators. For the success and long-term sustainability of Livestock FFSs, it is essential that qualified facilitators are available on a regular basis throughout the FFS cycle. During the preparatory phase, sufficient time and funds should be invested in capacity building and in identifying potential facilitators. Previously trained Livestock FFS members and CAHWs can often make better facilitators than formal extension workers because they are familiar with the local language, ecosystem and sociocultural conditions, and are already known to the community.

Facilitate networking between FFS practitioners. Experience has shown that networks increase the impact and sustainability of FFS activities. Networks are sustainable and useful tools for sharing information and lessons learned, receiving and providing technical support, supporting the development of existing and new FFSs, undertaking coordination and policy advocacy, etc. FAO has facilitated the establishment of networks to link FFS experts and practitioners at regional and global level. FAO has regional networks for Southern Africa, East Africa, the Near East and North Africa, West/Central Africa, Latin America and the Caribbean, and Asia (FAO, 2017a).

Success stories from the field

DAIRY FFSs IN BURUNDI

Farmers empowered in reconstruction of livestock sector after protracted crisis

Context

Burundi's economy is highly dependent on the agricultural sector, which employs 90 percent of the population (World Bank, 2016). But despite the emergence of some large-scale, intensive livestock farms, the contribution of the livestock sector to GDP is very low. Livestock is present on half of the farms and consumption of livestock products is low. Nonetheless, demand for them is increasing due to the nation's growing population.

Challenge

Various components of the livestock sector needed reconstruction and rehabilitation following the Burundian Civil War of 1993-2005. During the 12 years of war, many farmers and their animals were killed and much livestock equipment and infrastructure was destroyed. At the farm level, thefts and plundering affected both large and small livestock holdings.

FFS activities

The Livestock Sector Rehabilitation Support Project (PARSE), financed by IFAD, was initiated in 2007 to support the rebuilding of the livestock sector in Burundi. It involved a massive livestock restocking programme. Exotic cattle breeds, such as Friesians and Sahiwal, were



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The first generation of FFS master trainers in Burundi

reintroduced to diverse agro-ecological regions in the country where producers were facing complex human health and nutrition challenges. The FFSs focused on providing knowledge and locally tailored strategies for managing cattle under extensive, semi-intensive, and intensive dairy systems.

The project was implemented by introducing the FFS approach and the development and gradual extension of Livestock FFSs in the project area. A total of 200 field schools was the target for the seven-years project.

Training of master trainers. The training of 18 master trainers was conducted in Kenya for six weeks. Trainees were agricultural and livestock extension staff from the NGO ACORD and from PARSE. These master trainers were the ambassadors of the FFS approach in Burundi's livestock sector.

Creation of pilot FFSs. To better understand the methodology, each master trainer set up an FFS and ran weekly sessions. At the end of the implementation cycle, all the master trainers met for a refresher course. This provided an opportunity to discuss experiences gained with the first FFS groups and to evaluate the communication channels used. It was only after the master trainers completed a cycle with an FFS group that they were allowed to train local facilitators.

Training of local facilitators. In each targeted commune, one person was chosen to act as FFS facilitator. Facilitators were trained in four, two-week sessions. The training was carried out by the master trainers with the support of FAO experts.

Implementation of the FFSs. Master trainers supported facilitators in organizing and conducting FFS activities, facilitating exchange workshops, acquiring learning materials for each of the 200 new field schools, and organizing 14 (provincial) coordination meetings.

Impact

More than 200 Livestock FFSs were implemented for almost 7 500 participants, over 65 percent of whom were females. Two out of three FFSs focused on dairy production. Ninety percent of dairy farmers switched from extensive to intensive farming, using supplementary feeding of dairy animals. Producers recognized the suitability of crosses of Sahiwal and Ankole animals for semi-extensive systems and of crosses of Friesians and Ankole for intensive systems.

Milk production increased both in intensive and extensive systems. Members without cows increased their incomes by producing fodder. Yields of food crops also increased with better use of manure and nutrient cycling.



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A Dairy FFS beneficiary

Sustainability

Due to the positive results, the FFS approach was adopted by the Government as the national approach for agriculture and livestock extension.

There is growing willingness from farmers to participate in FFSs given the observable improvements in knowledge and skills they produce.

Replicability/scaling up

IFAD is currently funding a programme for livestock restocking that includes capacity building for beneficiaries of Friesian crossbred heifers. The focus of the intervention is to improve livestock breeds, forage and milk technology through the FFS approach.

“By applying feeding and hygiene practices learned through an FFS, my cow is healthy and produces more milk. Before the FFS, I was not aware about the importance of legume forages or of crop by-products in feeding my cow.”

Moses of Nyarutovu (Gitaramuka), Beneficiary

LIVESTOCK FFSs FOR PASTURE/FODDER PRODUCTION IN PASTORAL ENVIRONMENTS IN KENYA

Fodder/pasture production to enhance fattening of sheep and goats

Context

Turkana County, in Northwestern Kenya, is home to the Turkana community – mainly pastoralists who keep a variety of livestock, including sheep, goats, camels, cattle and donkeys. Sheep and goat production is an important means of livelihood, especially for poor families, women-headed households and those who have had to abandon pastoralism due to livestock rustling. Small ruminant production, which is mostly concentrated along the river Turkwel, provides a welcome source of additional income for pastoralists.

Challenge

During the dry spell, pastoralist communities usually face the problem of feeding their livestock and have to move animals over long distances in search of pasture and fodder. Moving far from their home exposes livestock to the risk of being raided, and also poses health and financial problems. Animals will not put on weight while on the move and afterwards fetch poor prices at market – resulting in less income for households and the community.

FFS activities

Between 2009 and 2012, FAO, in collaboration with VSF-Belgium, set up a Livestock FFS in the Turkwel area of Turkana County. The main aim was to illustrate the benefits of growing pasture and fodder in order to fatten sheep and goats. VSF-Belgium used FAO-trained field school facilitators to start the school and train community-based facilitators. Field school activities centred on growing pasture irrigated from the Turkwel River (local grasses and Napier grass) and on the management aspects of pasture and fodder production. A

second activity was to select livestock for fattening and, after giving them supplementary feeding, comparing their weight and body condition with livestock that had not had feed supplements. Acacia pods were also harvested and mixed with the feed.

Impact

Supplementary feeding produced good results in terms of the growth rate, final weight and body condition of the small ruminants involved, and this translated into good prices at market. Group members also benefited from higher incomes from fodder production, which they sold to other livestock producers along with grass seeds

Sustainability

The fact that group members are seeing their efforts pay off guarantees the sustainability of the project. Sustainability is also bolstered by the use of local labour and locally available inputs such as manure and seeds, which lower production costs.

Replicability/scaling up

Based on the results of this project in Turkana, the concept was taken up and implemented in a wider Regional Initiative in Support of Vulnerable Pastoralists and Agro-Pastoralists in the Horn of Africa (RISPA), a cross-border project undertaken in Ethiopia, Kenya and Uganda. In Mandera Kenya (along the Daua River), farmers in the project achieved good results with pasture establishment for their livestock and grew enough fodder to see the animals through the dry season. The concept has also been scaled up with field school groups along the Tana River under FAO's Improved Community Drought Response and Resilience (ICDRR) project.

"We pastoralists in Turkwel never knew that pasture grasses could be grown and the seeds harvested for future planting. Now that we know, our small herds of sheep and goats need no longer suffer during the dry season, and since water for irrigation is available we can select the best animals for fattening to fetch better prices in markets."

Mary Nacham, Turkwel Livestock FFS facilitator



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Turkwel FFS group fodder/pasture plot



©FAO/PAUL MUTUNGI

Turkwel field school group displaying pasture seed

POULTRY FFSs IN LEBANON¹

Semi-intensive egg production to support the resilience of livelihoods in protracted crisis

Context

The large influx of Syrian refugees into Lebanon (an estimated 1.5 million) constitutes a major challenge in all sectors. The impact on the agriculture sector is particularly worrying, as this is the main source of income for a large part of the population – notably for the poorest and most vulnerable host communities in rural areas. The poultry subsector represents a major economic activity, employing at least 30 000 people. Through the FFS approach, FAO, with the financial support of the United Kingdom, developed a semi-intensive egg production system for Lebanese communities hosting Syrian refugees.

Challenge

The massive influx of Syrian refugees has created a substantial increase in the demand for food, including affordable animal-source protein such as eggs. Surging demand has led to the further deterioration of food security across Lebanon which – coupled with shrinking economic opportunities, more expensive goods and services, and rising insecurity – has put a strain on vulnerable Lebanese households and made it hard for them to meet their most basic food needs.

FFS activities

Since 2014, FAO has set up 25 Poultry FFS groups consisting of a total of 500 members who received 50 laying hens each. Each member then selected two secondary beneficiaries who received 15 hens each in return for help in building the FFS member's poultry coops.

- Facilitators and training. FAO trained 25 facilitators who met regularly with the FFS members (some 600 meetings were held) to discuss, experiment and validate poultry production and disease management techniques suited to the local context. Topics covered included the design and construction of poultry coops compliant with bio-safety and biosecurity requirements. In addition, training activities included accurate bookkeeping, marketing and saving methods for re-investment (feed and new hens).
- Beneficiaries were first trained on a chicken coop built on land owned by a group member. Trained beneficiaries received hens, feed and building materials. Training took place during a full production season so beneficiaries could produce eggs and manage their own chicken coops.

Impact

The support provided has helped generate income for many vulnerable households. In total, 40 000 laying hens and 525 tonnes of feed were distributed. The Poultry FFSs allowed beneficiaries to learn by implementing good poultry husbandry and egg-production practices, including construction of bio-safe and biosecure poultry coops. It is estimated that

¹ Adapted from FAO 2016c.



©FAO LEBANON
 One of the beneficiary farmers of the FFS project



©FAO LEBANON
 A poultry house built through the project

the eggs produced by each set of 50 hens should increase gradually to at least 40 a day. Moreover, all the Poultry FFS households are consuming eggs produced by their own hens, thus increasing their protein intake.

Sustainability

The FFS approach is a participatory and dynamic process that allows members to learn by themselves, using comparative experiments and accurate observation. FFSs also enable producers to better respond to livestock production and health risk as well as crises. After the training period, farmers continue to meet and share information without (or with less) facilitator intervention. The 25 Lebanese Poultry FFS groups visited one another, allowing producers from different regions to exchange knowledge. The project thus catalysed a continuous learning process and exchange of good practices and innovations, enhancing farmers' knowledge, productivity and nutrition. After its start with the FFS, semi-intensive egg production is continuing.

Replicability/scaling up

Building on this project, the Poultry FFS scheme has now been scaled up to reach twice as many beneficiaries through a two-year, EU-funded project (2015-2017). FAO is also teaming up with the World Food Programme (WFP) to implement an electronic voucher system to provide chicken feed. Through this project, FAO further aims to improve the capacity of the Ministry of Agriculture of Lebanon in early detection and response to poultry disease, at central, regional and local levels.

"We attended one meeting a week about poultry rearing, feeding, watering and hen-coop building. We learned all these things given that we had no idea about poultry. In fact, we used to apply the traditional method that consists in keeping two or three chickens in one hen coop. They used to lay eggs for one day and then stop for the next ten days."

Jacques Tayeh, *Beneficiary*

FFS MEMBERS IN PAKISTAN BECOME LIVESTOCK TRAINERS AND LOCAL SERVICE PROVIDERS

A post-FFS success story in Pakistan

Context

Almost 50 percent of Pakistan's population is involved in the agriculture sector making it a mainstay of the country's economy. Livestock contributes over 55 percent of agricultural output, with approximately 35 million people involved (Rehman *et al.*, 2017). There is great potential for livestock development, but growth has been very slow as a result of decades of neglect and underinvestment, a weak policy and regulatory framework, production and productivity problems, marketing issues, etc.

Pakistan is one of the world's five top milk producers (FAO, 2017b), although the dairy sector remains largely informal and is characterized by non-commercial operations and low profit margins. Milk production can become an important source of income for the rural population, however, through effective deployment of resources, the development of backward and forward linkages, and the elimination of supply chain constraints.

Challenge

Considering the critical importance of the livestock sector to Pakistan's economy and population, it is essential that steps are taken to improve the sector's overall efficiency so that incomes can be increased through capacity development and deployment of skilled manpower across the value chain. Today, the country is woefully short of skilled manpower at all levels (i.e. management, supervision and field) in the livestock and dairy sectors.

Success story

Rang Shah, Tehsil Arif Wala, Pak Pattan District – Muhammad Insha is a 39-year-old smallholder who has had only ten years of formal education. He participated in an FFS on IPM in cotton in 2004 and in another on integrated livestock and poultry management in 2012, implemented by Pakistan's Society of Facilitators and Trainers (SOFT).

He recalls, "Before taking part in these FFSs I considered myself useless, I had no aim in life and no interest in doing work." Regarding his experience with livestock he says, "Before FFS training I just had few animals at home, with no idea of proper feed, health management and production requirements."

The FFS allowed Mr Insha to adopt a set of methodologies designed to help smallholders provide better livelihoods for their families and communities. He also strengthened his technical skills in specialized livestock management. In 2011, Mr Insha registered an organization, the "One Welfare Society", with the aim of creating a team of livestock trainers to help livestock producers increase their incomes through guidance and training. Mr Insha explains, "We empower young farmers who already have a few cattle and an interest in wisely using resources to increase productivity and the quality of their products." He has also convinced many farmers with no livestock and scarce resources to enter the livestock business by buying a single goat.

Mr Insha and his team bring together groups of 10-12 members, engaging them in both theoretical and practical activities. With regards to practical work, he says, "We support local



Mr Insha



Practical training on livestock keeping

farmers whenever they need us. If they call on us, my local teams and I visit their farms to identify any problems and to provide them with advice." Progress is monitored with further visits. Moreover, links are established between farmers and local markets to optimize profits and ensure quality.

Trainers are selected from different regions so that they can reach livestock producers in their own home areas. The organization currently has almost 300 trainers working in 14 districts of Punjab and in Azad Jammu and Kashmir provinces. They provide assistance on issues such as animal feeding, management of new-born animals, breed improvement and artificial insemination.

Mr Insha says, "I am enjoying a better livelihood than before with dignity and honour. I have purchased a new house and a car and am providing quality education to my six sons." He gives the credit for this change in his circumstances to FFS training.

Impact

Mr Insha's experience shows that the provision of technical skills and knowledge concerning animal production and health not only improves capacity but also translates into higher incomes and improved living standards. The number of livestock trainers is increasing by the day. Targeted programmes focused on problem solving help add value to the livestock sector while also raising the incomes of the people involved in them. This also has a far-reaching impact in terms of poverty reduction as smallholders become more efficient and get better prices for their products.

Sustainability

FFSs weave into the social fabric to provide direct and indirect benefits to farmers. By building knowledge and skills, smallholders are able to improve their overall livelihoods and escape of poverty. The availability of such capacity-building initiatives ensures a sustainable and steady income stream, without disrupting the social fabric of the community.

Replicability/scaling up

This case study can be scaled up by focusing on livestock communities and providing them with knowledge and technical skills tailored to their local conditions. A customized course

could be developed for scaling up, with due consideration to maintaining intact the social fabric of communities. Communities are generally receptive to new ideas and knowledge if these cause no significant social disruption. Through a process of effective scaling up, a wider range of communities can be impacted, thereby assisting them to develop the livestock sector.

The way forward

The FFS approach has been widely used for crops but there has been less experience in adapting the concept to livestock production. However, the many successful experiences registered in various developing regions have made development stakeholders interested in implementing new Livestock FFS projects. In order to ensure the successful implementation, replication and scaling up of Livestock FFS activities, the following issues should be addressed:

- Facilitation manuals should be made available for each of the different livestock enterprises (especially poultry and small ruminants) and adapted to the needs of livestock producers at global level (with a special focus on risk-mitigation practices).
- Guides for facilitators and master trainers should be produced on effective ways of integrating livestock topics into crop-focused FFSs.
- More documentation should be developed on the best practices and lessons learned regarding the use of the FFS approach for livestock development, including strategies to improve/ensure the cost efficiency of quality Livestock FFSs.
- Case studies, lessons learned, best practices and the material developed during Livestock FFSs (e.g. resource material for facilitators, learning material) should be widely disseminated.
- Solutions should be identified to ensure a minimum level of quality of Livestock FFS projects while allowing country-specific adjustments.
- Frameworks for impact assessment and impact studies should be developed.
- A critical mass of livestock experts should be trained as master trainers to satisfy the demand in countries or regions in need (e.g. West Africa).
- National, regional and global Livestock FFS networks should be established.
- Livestock FFSs should continue to be brought to the attention of policy makers and development stakeholders for inclusion in policies and development programmes.

Within this framework, decision makers have a key role to play in supporting Livestock FFS implementation, development and scaling up. For instance, they can:

- initiate and advocate Livestock FFSs;
- allocate adequate funding for Livestock FFS implementation, capacity building and development;
- support FFS institutionalization;
- develop an enabling environment (e.g. sound policies, laws and regulations).

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Livestock Farmer Field Schools (FFSs) are “schools without walls” where groups of small-scale livestock producers test, validate, and adapt good agricultural and marketing practices that help them increase their production sustainably and to improve their, and their families’, livelihoods. Over the past two decades, Livestock FFSs have been implemented/supported by the Food and Agriculture Organization of the United Nations (FAO) and other development stakeholders in a wide range of environments and livestock production systems including pastoralism and agro-pastoralism, dairying, poultry production, integrated rice-duck systems, rabbit production, pig production, beekeeping, beef production, camel production and small ruminant production. Today, the FFS approach is used to spur livestock growth across developing regions, with governments, NGOs, the private sector and other stakeholders increasingly interested in applying it.

This guidance document was prepared to help decision makers involved in policy formulation and programme planning to: (i) gain a basic knowledge of the FFS approach, with emphasis on animal production, health and marketing; (ii) learn about the contribution of FFSs to the livelihoods of livestock-dependent communities in different contexts; (iii) recognize the conditions required for the successful implementation of Livestock FFSs; and (iv) comprehend the potential of the FFS approach in a wide range of livestock production systems and socio-economic settings.

ISBN 978-92-5-130358-0



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I8655EN/1/02.18