



Food and Agriculture
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United Nations

RESILIENCE
GOOD PRACTICES

NATURAL HAZARDS

Improving pasture management in arid and semi-arid lands in the Horn of Africa through Pastoralist Field Schools

An implementation strategy to support pastoralist communities build resilience against drought



→ Context

Recurrent drought, degraded rangelands and reduced access to traditional grazing lands have left pastoral communities in the Horn of Africa's arid and semi-arid lands (ASALs) more vulnerable and facing severe livestock feed shortages. During dry spells, pastoral communities suffer from food and nutrition insecurity, as well as shrinking incomes occasioned by livestock losses and reduced livestock production. Climate change adds an extra layer of vulnerability to this already fragile ecosystem, exacerbating the underlying causes of poverty and food insecurity.

Over the last ten years, the Horn of Africa has faced seven major drought events, which have killed more than half of the cattle population in the most heavily affected areas and decimated the livelihoods of millions of pastoralists each year. Estimates indicate that during the 2016/2017 drought, over 2 million livestock were lost in Ethiopia's Somali region alone. In these areas, cattle milk production decreased by as much as 80 percent.

During the past two decades, FAO and its partners have conducted Pastoralist Field Schools (PFS) in the Horn of Africa's ASALs to address this challenging context. Specifically, this document describes how their recent experiences with PFS in Kenya and Ethiopia have contributed to restoring the livelihoods of livestock-dependent communities through improved pasture management.

Key facts

Implementing partners →

In Kenya: Agricultural Sector Development Support Programme (ASDSP), local county governments, COOPI NGO.

In Ethiopia: Government of Ethiopia.

Beneficiaries →

Direct: Field school members.

Indirect: Pastoral communities of field school members, and extension and service providers.

Key actors and stakeholders →

Local communities and governments, development stakeholders, the private sector and NGOs.

Gender →

PFS activities bring together men, women and youth and contribute to the fair distribution of roles and benefits.

What are Pastoralist Field Schools and how do they help increase the resilience of livelihoods?



A PFS is a "school without walls", where 25 to 30 pastoralists meet regularly and engage in hands-on experiential and participatory learning over a season/production cycle to improve a specific enterprise. Groups test and adapt good agricultural and marketing practices that assist members in achieving sustainable food production and improved livelihoods for their families.

PFSs help increase the resilience of pastoral communities through developing their critical analysis, decision making and communication skills, as well as the understanding of their agro-ecosystem. PFSs contribute to enhancing livestock production and incomes, thus improving household nutrition, supporting better management of natural resources and reducing the impact of natural hazards and climate change on pastoral households.



PFS is an adaptation building on the Farmer Field School (FFS) approach developed by FAO in Asia in 1989 for integrated pest management, and later adapted to a variety of topics and contexts across more than 90 countries. During the past two decades, the approach has been applied to many other livestock production systems across developing regions, including pastoral and agro-pastoral systems, dairy production, poultry production, integrated rice-duck systems, rabbit production, pig production, beekeeping, beef production, camel production and small ruminant production. Although the names have changed over the years depending on the system (e.g. Pastoralist Field Schools, Agro-Pastoral Field Schools, Livestock Field Schools), their core principles and activities have remained the same. The term Livestock FFS is used to broadly define all livestock-focused FFS.

→ Challenges

Pasture is the main livestock feed source in pastoral environments, essential for both animal production and health.

The PFSs implemented in Ethiopia and Kenya addressed challenges such as:

- **Pasture availability and accessibility** in pastoral regions where increasingly frequent droughts and rangeland degradation are threatening pastoralists' livelihoods, and political and demographic changes are blocking migration routes and reducing access to pastureland;
- **Invasive weeds** such as *Ipomoea* spp., *Prosopis* spp. and *Parthenium* spp., which are accelerating degradation of the rangeland ecosystems; and
- **Competition** over water and pasture, leading to conflicts, which can have severe consequences, including the loss of human and animal life.

→ Methodological approach

The PFSs implemented in the Horn of Africa's ASALs achieved improved pasture production, management and utilization through learning activities aimed at improving the capacity of pastoral communities and at stimulating local innovation while building on local knowledge.

This good practice document focuses on the specific activities and practices implemented in Kenya and Ethiopia whereby pastoralists learned how to:

- Establish and manage pasture (e.g. fencing, chisel ploughing, weeding, irrigation systems);
- Harvest and store pasture seed;
- Harvest (e.g. harvesting time and practices), bale and conserve hay; and
- Identify new sources of income (e.g. through the sale of seed and hay).

As with any PFS (or livestock FFS), field school activities were carried out within the framework of three implementation stages (see next page).

The approach's hands-on, experiential and flexible learning process enables **behavioural change and constraints to be addressed**, such as:

- Unreliable weather conditions/patterns;
- Unavailability of certified pasture seed, and scepticism among community members that grass can also be grown;
- Scarcity of labour, farm machinery and other inputs (e.g. fencing material, quality seeds);
- Non-field school members possibly obstructing field school activities (e.g. allowing animals to graze on restricted pasturelands);
- Cultural barriers in addressing problems through collective and joint effort across gender and social divides;
- Deep rooted perceptions restricting uptake of new practices (e.g. some communities not prone to cut and carry grass but favouring animals to graze on the pastures); and
- Stored pasture destroyed by the vagaries of nature.



1. **Preparatory stage** aimed at setting the stage for the regular PFS learning process, i.e. assessing the local conditions, context and needs; building capacity for PFS; forming and organizing PFS groups; identifying stakeholders; preparing the learning curriculum, etc.;
2. **Production learning stage**, entailing season or yearlong regular PFS learning and experimentation aimed at helping producers test, adapt and adopt appropriate practices and technologies for improved and sustainable production; and
3. **Entrepreneurship/marketing learning stage** aimed at improving the marketing and entrepreneurial skills of pastoralists.

Activities carried out during the PFS learning stages (# 2 and 3):

Fencing and resting of land (implemented in Borena zone, Ethiopia)

Fencing allowed the pasture to rest and recover. Pasturelands were fenced off by clearing non-palatable species and using the same for fencing the land. Following fencing, grass growth was closely monitored and maintained through the removal of invasive species. Livestock grazing in the protected pastureland was restricted and managed. Regular observations enabled comparisons of pasture in the experimental plot with pasture in plots under traditional management (agro-ecosystem analysis - AESA).

Pasture propagation through irrigation practices (implemented in Mandera county, Kenya)

- Identification of experimental plot;
- Land preparation/tilling using human labour;
- Pasture seed planting through broadcast seeding;
- Watering through rainfed or irrigation canal;
- Weekly pasture growth observation (AESA) and necessary actions – e.g. weeding, watering, etc.;
- Observation of pasture past maturity to drying and harvesting of pasture seed (AESA on the texture and colour of leaves, stalk brittleness, seed colour and ease of harvesting);
- Harvesting and packaging of pasture seed;
- Harvesting of pasture and packaging of hay in bales;
- Appropriate storage of baled hay;
- Utilization or sale of baled hay; and
- Use of pasture seed to plant in new areas, or for re-seeding or sale.

Fodder takes around four months to mature. Two production cycles were carried out over a year to confirm findings and experiment with different fodder species.

Removal of invasive weeds, fencing and resting of land (implemented in Kajiado county, Kenya)

- Identification of experimental plot;
- Fencing using available thorny tree twigs and branches;
- Uprooting of invasive weeds and stumps using hand-held hoes;
- Chisel ploughing to break the hard pan in anticipation of rains for natural pasture growth;
- Continuous uprooting of emerging weeds;
- Pasture observation (AESA) on a weekly or fortnightly basis;
- Construction of hay stores;
- Pasture harvesting using available equipment, i.e. sickle, brush cutter manual baler, tractor driven mower, rake and bale;
- Appropriate storage of baled hay;
- Utilization or sale of baled hay; and
- Spreading of animal manure in anticipation of rains.

This process spanned over periods of six months to more than a year, depending on the weather, while livestock were not allowed to access the field.

→ **Impacts**

Pasture management

- Improved pasture availability and restoration of degraded lands;
- Improved livestock body condition and health, and reduced mortality;
- Reduced conflict over natural resources, including water and pasture;
- Development of feed reserves for use during periods of drought; and
- Increased soil seed bank and subsequent seed harvested for pasture establishment (seed bulking).

Enhanced livelihoods

- Empowerment of women and men, and change in gender relations;
- Improved food and nutrition security and incomes; and
- Reduced migration and displacement.

PFSs lead to **better use of natural resources**, livestock and human capital for sustained livestock production and incomes, as well as **increased involvement of women in decision-making processes**.

→ Sustainability

Key elements for the sustainability of PFS in ASALs include:

- Buy-in from local governments;
- Community acceptance and ownership;
- Cost-effective field school practices that motivate farmers to continue applying the practices;
- Benefits from PFS practices and activities that are shared among group members and also gender-balanced;
- Long-term engagement of local governments and private sector with the community;
- Maintenance of approach's quality standards and principles;
- Practices built on local knowledge and use of affordable, locally available inputs instead of completely new practices/inputs; and
- Use of locally available grasses, whenever possible.

→ Replicability and upscaling

PFSs focused on pasture production, management and utilization have already been successfully replicated and scaled-up in different regions in Ethiopia and Kenya.

Below are the key conditions for successful replication and scaling-up:

- Institutionalization of the field school approach in government systems for quality control, coordination and harmonization;
- Clear understanding of the community's sociocultural issues (including gender dynamics);
- Land tenure systems (i.e. individual or community) that allow and enable collective efforts of land management;
- Availability of good field school master trainers, local facilitators and technical backstopping from local subject matter specialists;
- Group mentoring and advisory services to give new ideas to groups or help them get back on track in case of errors;
- Attention to conflict between and within communities; and
- Group cohesion and active participation in weekly field school activities.

PFSs develop the skills and knowledge of pastoralists, enabling them to create more efficient and sustainable pastoral systems and contribute to achieving the United Nations Sustainable Development Goals.

Where was it applied?

In areas where annual precipitation is between 300-600 mm and soils are mainly sandy, but loamy clays are also found.

In Kenya: Mandera and Kajiado counties.

In Ethiopia: Borena zone.

Where can it be replicated?

ASALs in the Horn of Africa, and ASALs prone to drought in other developing regions.

With contributions by

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Testimonial

"Women benefit from the fenced enclosure in many ways. Before, they had to travel very far to bring food to our livestock. But now, thanks to the field school and our enclosure, we can harvest the grass nearby and give it to our livestock. This reduces the burden on women."

Elema Kensa, Borena zone, Ethiopia



→ More information

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- **Deborah Duveskog**, Community Adaptation and Resilience Officer, Resilience Team for Eastern Africa, FAO
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- *Farmer Field Schools For Small-Scale Livestock Producers
A guide for decision makers on improving livelihoods*
www.fao.org/3/I8655EN/i8655en.pdf
- *Pastoralist Field Schools - Training of facilitators manual*
<http://www.fao.org/3/a-bl492e.pdf>
- *Global Livestock Farmer Field School Platform*
www.fao.org/farmer-field-schools/overview/livestock
Farmer-Field-Schools@fao.org

On resilience good practices:

- *KORE - Knowledge Sharing Platform on Resilience*
www.fao.org/in-action/kore/good-practices/en
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- *FAO resilience website*
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