



Ministry of Foreign Affairs of the Netherlands



World Vision



# Sustainable grazing management

Impact brief series





## Background and context

**The size of Ethiopia's livestock herd is one of the largest in Africa, making it a resource with great potential to contribute towards national development and poverty reduction. According to a 2017 livestock sector analysis, Ethiopia's livestock sector directly accounts for 17 percent of GDP and almost 40 percent of agricultural GDP, contributing towards the livelihoods of over 11.3 million rural households.<sup>1</sup>**

With prospects for a larger, increasingly affluent and urbanized population in Ethiopia demanding more high-quality foods, the Food and Agriculture Organization (FAO) predicts massive growth in the demand for livestock products, creating both opportunities and challenges.<sup>2</sup> To close this projected gap in meat consumption requirements, environmental effects will

need to be closely monitored because most smallholder farmers rely on free grazing for livestock production. Pressure to utilize more marginal land further increases the risk of erosion and downstream flooding.

In addition, the lack of market orientation amongst smallholders in the livestock sector also undermines the role it can play in contributing to the national economy.<sup>3</sup>

DryDev helps to support farmers in dryland areas – many of whom are raising livestock – in their transition from subsistence to market-oriented production. DryDev also strengthens the environmentally-sustainable production of livestock. This ensures that livestock-related environmental impacts are minimized, and builds market linkages which support the conversion of production into income, savings and livelihoods.

**It took DryDev staff a year to convince the community in the Agona sub-watershed, Kilte Awulalo, to switch from free grazing to a cut-and-carry approach. Two years later, community members now cut grass three times a year for their stock, and even landless youth now see a future.**

1. Shapiro BI et al. 2017, "Ethiopia livestock sector analysis. ILRI Project Report". Nairobi, Kenya: International Livestock Research Institute (ILRI).

2. FAO. 2010, "Africa Sustainable Livestock 2050: Country Brief – Ethiopia".

3. Azage T, Berhanu G, Hoekstra D. 2010, "Livestock input support and service provision in Ethiopia: Challenges and opportunities for market-oriented development". IPMS of Ethiopian Farmers Project Working Paper 20. ILRI, Nairobi, Kenya. Pp. 48

## What has DryDev already achieved?

By shifting to a sustainable form of grazing, smallholder farmers in dryland areas have been able to reduce the livestock-related drivers of land degradation and reduce the feed gap, thereby increasing their livestock productivity.

**DryDev's sustainable grazing management intervention reduced the livestock feed gap by an average of 82 percent in three representative sub-watersheds.**

Reports suggest that sustainable grazing practices have led to an increase in school attendance, since fewer children are engaged in livestock keeping as before. Livestock encroachment of crops has also stopped.

## How has DryDev made this happen?

Sustainable grazing management has been achieved because of a significant change in the way that livestock is fed – a shift from free-range grazing to restricted grazing or to cut-and-carry systems – and a more plentiful supply of improved grass and water. Depending on the context, a number of 'push' and 'pull' factors helped to achieve this change in behaviour.

### 'Push'

In 2015, Community Action Planning in each of the 29 DryDev sub-watersheds brought awareness to the situation caused by uncontrolled free-grazing. The community recognized that over-grazing had reduced vegetation cover, which made steep slopes more susceptible to soil erosion and downstream flooding. Animals had aided the process of gully formation and their tracks had reduced protection from stream banks. Transmission of animal diseases, pests and weeds was aided through this open-grazing approach. Levels of awareness and knowledge of alternative approaches to grazing management were low and a "whole-of-community" scheme was not being implemented.

Behaviour change was required. DryDev helped the communities to formulate their own 'push' factor: a set of community-developed by-laws to protect the land by excluding animals in certain areas, mostly in the upper catchment.

**"Moisture levels are higher now in the valley – grass areas are more productive and can be cut more frequently – green feed is available year-round."**

– farmer group, Endacherkos sub-watershed,  
Tseada Emba

These by-laws were developed in consultation with all stakeholders including groups of women, men and youth, religious leaders, kebele level government staff, and woreda (or district) level agriculture experts and women's affairs representatives. With oversight by the sub-watershed committee, the by-laws were enforced through fees collected from each household to support guards who could protect these areas, and to fine those who didn't comply.

### 'Pull'

A range of 'pull' factors were also introduced. Raising awareness continued across all community groups making use of government extension and experts. Shifts in attitudes were observed as the community members were engaged in capacity-building events and exposure visits to other areas that had by-laws in place.

Several new improved grasses (Rhodes grass, Elephant grass), local drought-resistant grasses (Desho) and forages (Sesbania, vetch) were introduced. Communities were mobilized to plant trees into their sub-watersheds – a total of 2 million trees were planted to enrich the sloping areas and reverse degradation (over 50 trees per hectare). At the same time, efforts by the community to integrate rainwater harvesting structures (such as deep trenches) in these same livestock-exclusion areas allowed the catchment to retain water for longer. This contributed to a rise in the downstream water table. Pasture lands in the valley became more productive as the soil became more moist; farmers indicated they could then over-sow with new grasses, allowing them to cut grass several times rather than just once per year.

In Jarso, management of the formerly open-grazing land was handed to the bee-keeping groups who were landless or unemployed youth. These groups cut and sell grass or hay from within the area on a pre-agreed price.

**"We used to graze our herds like everyone else and we didn't use our resources efficiently. Now the time has come to use our resources wisely and change our lives."**

– Girmay Hagos, farmer in Kilde Awulalo



**Table I: Scale and new types of sustainable grazing activities in three representative sub-watersheds**

Sub-watershed and district	Grazing area, ha	No. of livestock	No. of farmers benefiting	New activities introduced by DryDev
Maago, Kilte Awulalo	26	651	465 (245 women) in 1 group	<ul style="list-style-type: none"> <li>• Protection through by-laws</li> <li>• Deep trenches in grazing land</li> <li>• Gully reshaping</li> <li>• Improved forage</li> <li>• Cut-and-carry system</li> </ul>
Endacherkos, Tseada Emba	51	3219 cattle, 7484 sheep/goats	215 (99 women) in 10 groups	<ul style="list-style-type: none"> <li>• Access to improved seeds, sowing by ploughing</li> <li>• Community by-laws with penalty system</li> <li>• Follow-up, feedback and action-learning to compare two systems</li> </ul>
Mudi, Jarso	50	900 cattle, 3000 sheep/goats	521 (115 women) in 5 groups	<ul style="list-style-type: none"> <li>• Rainwater harvesting structures integrated with grazing management</li> <li>• Over-sowing of grasses</li> <li>• By-law development</li> <li>• Zero-grazing or cut-and-carry system</li> </ul>





**Table 2: Change in livestock feed gap according to farmer focus groups in three representative sub-watersheds**

Sub-watershed and district	Livestock feed gap before DryDev, months	Livestock feed gap after DryDev, months	Change %
Maago, Kilte Awulalo	10	2.5	75%
Endacherkos, Tseada Emba	8	0	100%
Mudi, Jarso	10	2	70%



Goat producer group, Jarso, with DryDev field staff.

Mudi sub-watershed in Jarso district is a mountainous area without road access. Some women in the area had experience in raising goats and selling to brokers because of their lack of access to market. DryDev helped organize a goat producer group of 33 members in 2015 to expand their goat-raising business and increase their income.

Group secretary, Memoona Abdul Saleem, said the programme linked

the group to a buyer, who would pick-up 75 goats each week, at a location close to their village.

This high demand made the women think how to further expand their production. They took out a 50,000 Ethiopian birr (USD 2,300) loan from a microfinance institution to increase their herd size. They are confident now that they can contribute significantly to their household economy.

## Can this be scaled up?

**Focus groups from three representative sub-watersheds indicated that the lessons gained through the DryDev programme, and focusing on sustainable grazing management, are being taken up by those living near their areas. District and kebele extension staff and experts are sharing these lessons elsewhere in their district. Across all 29 sub-watersheds, over 3,500 hectares of communal grazing and pasture land are now being managed by the improved grazing approach.**

In Jarso, local government staff are now taking the integrated approach rolled out by DryDev in 50 hectares of the Mudi sub-watershed to 500 hectares in nearby catchments. In Tseada Emba, five communities are now using DryDev's Endacherkos sub-watershed as a learning centre for sustainable grazing. Similarly, communities in Kilde Awulalo are adopting the practices in their two grazing areas.

## Points to consider for scaling up

- A holistic integrated approach is required to create sustainable grazing management with three pillars: (1) build a community governance framework to create and enforce community-developed by-laws to manage communal grazing land and pasture areas; (2) intensify the production of quality grasses and forage to enable successful livestock-raising through cut-and-carry or restricted access; (3) connect and link livestock production groups with nearby markets to highlight demand and improve prices at the farm.
- When the added time and care needed for cut-and-carry or stalled livestock-raising is outweighed by the increased gain in production, households will be motivated to change their behaviour.
- Landscape restoration should be integrated with efforts to improve grazing management. A reduced depth of groundwater allows pasture areas to recover and remain green for longer.

**In Dimelo sub-watershed, Tseada Emba, farmers cut a total of 813 tonnes of grass hay in 2016 – a severe drought year – reflecting the effectiveness of the restoration measures.**



**Community by-laws work properly when the following elements are in place:**

- The whole community participates in their development and commits to them, including revising over time.
- By-laws are registered with and approved by the local government.
- Training in how to care for stalled livestock is provided.
- Improved grasses and forages are planted into the area.
- Benefits of sustainable grazing management are rapidly seen and observed by the community members.

**DryDev is a six-year initiative implemented by the World Agroforestry Centre (ICRAF) with funding from the Ministry of Foreign Affairs (DGIS) of the Netherlands and a substantial contribution from World Vision Australia. The programme seeks to support smallholder farmers in dryland areas of the Sahel and Horn of Africa, to transition from subsistence farming and emergency aid to sustainable rural development.**