

Climate-Resilient Pasture Management in the Ethiopian Highlands

In the Ethiopian highlands, overgrazing accounts for 20 percent of the country's annual soil erosion [1], and vital plant species are disappearing from pastures mainly because of open-access grazing. Efforts to better manage access to communal pastures can support biodiversity conservation and increase communities' resilience to climate change.

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Village in the Ethiopian highlands showing hay stocks at the bottom right (M. Wurzinger)

While many communities in the Ethiopian highlands permit open-access pasture grazing, the Kuwalla community in northern Ethiopia's Amhara region uses a rotational grazing system to manage its communal pastures. The community developed this system after recognizing the negative impacts of the open-access system, which they had practised until 1990. Soil erosion was severe and gully formation led to loss of grazing land. Pastures were seriously degraded and the shrinking number of plant species no longer provided adequate nutrition for oxen, a crucial asset needed for ploughing soils.

Three main factors enabled the community to reverse the negative trend. First, traditional leaders saw the need for change and mobilized the community, building on their skills, knowledge and authority as "fathers of the herders". Second, a local institution was created that allowed community members to discuss and revise the rules governing access to and use of communal pastures. The rules were adapted based on experimentation, with enclosures ensuring the regeneration of pastures. Third, the community collaborated with government agencies, securing their support to enforce rules – e.g. barring cattle from neighbouring villages – while safeguarding local autonomy. These measures helped to reduce grazing pressure and enabled the pastures to regenerate.



The case shows that effective community-based pasture management can enable valuable fodder species to regrow, ensuring adequate supplies of feed for oxen and cows (see Table 5.1) especially during critical times of the year. Proper rules can also help farming communities to cope with climate variability [2] and climate change, since pasture access is determined based on rainfall patterns. This enables targeted use of pastures depending on stages of regrowth or growth and levels of species mix.



Traditional threshing of harvested crops with cattle (M. Wurzinger)

Before enclosure		After enclosure	
Type of species	Feed value	Type of species	Feed value
<i>Snowdenia polystachya</i> (Muja)	Low	<i>Cynodon dactylon</i> (Serdo)	High
<i>Sporobolus natalensis</i> (Murng)	Low	<i>Snowdenia polystachya</i> (Muja)	High
<i>Trifolium</i> spp. (Wajima)	Medium	<i>Andropogon abyssinicus</i> (Gaja)	High
		<i>Medicago polymorpha</i> (Mesobei)	High
		<i>Sporobolus natalensis</i> (Murng)	High
		<i>Trifolium</i> spp. (Wajima)	High
		<i>Eleusine floccifolia</i> (Arma)	Medium
		NI (Armetmato)	Medium
		<i>Pennisetum</i> sp.	High
		<i>Cyperus rigidifolius</i> (Engecha)	High
		<i>Hyparrhenia dregeana</i> (Zeba)	Medium
		<i>Lanceolata minor</i> (Gorteb)	Medium
		<i>Arthraxon prionodes</i> (Yekok Sar)	Medium

NI: Scientific name of the species not identified. Local names in brackets. Source: [4]

Table 5.1. Plant species that regenerated thanks to introduction of a rotational grazing system, and the value of these species as fodder (according to the community)

Farmers' perception of climate change, Ethiopian highlands

"Lately we are experiencing rainfall variability. The *kiremt* rains, our main growing season, used to begin in early July and stop in early October; and it rained every day or every other day. These days, we never know. Some years, it comes early in June and stops in early September; other years, it comes in late July and continues to the end of October. Sometimes the rain ceases in the middle of the rainy season, for one or two weeks. So the rain has become unreliable."

Elderly man in focus group discussion, October 2012



Farmer visiting his fodder tree plantation, Ethiopia (M. Würzinger)

While pasture management has improved, gender equity has not: Women are excluded from the institution governing pastures. So their preferences are not taken into consideration. They have also been banned from harvesting specific grass species used to craft traditional plates for serving or storing food. This clearly restricts women and also harms the species mix in pastures as certain species become too abundant and displace other species that animals prefer to graze [3].

Flexible pasture management

"When we have low production of crops due to less rain, we run out of crop residues which we use as fodder and must open the communal pasture for grazing a bit earlier than normal in order to feed our oxen and cows."

Member of pasture-management committee, October 2012

Lessons learned

- Empowering communities by encouraging leadership and use of local knowledge, and by promoting platforms that enable learning and collective action can ensure more sustainable use of common resources and increase resilience to climate change.
- Women are still neglected in pasture management. Including them in decision-making on this topic would strengthen communities' ability to adapt effectively in times of uncertainty, and would enhance social justice.



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