



Report on management objectives prioritization in communal grasslands in Menz, Ethiopia



RESEARCH PROGRAM ON Livestock

Report on management objectives prioritization in communal grasslands in Menz, Ethiopia

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Executive summary

Sustainable use of communal grazing lands for feed sources can be successful through community grazing land management. Improving management of grazing lands can increase the productivity of the mixed crop-livestock production system.

In the project of the CGIAR Research Program on Livestock (Livestock CRP) Environment Flagship), International Livestock Research Institute (ILRI's) work focuses on community-based natural resource management particularly on communal grassland management. The project aimed to develop a grazing plan protocol to create an initial management plan that was based largely on the existing management system with grassland user groups. Participatory prioritization of management objectives was done for 10 communal grasslands in Menz, Ethiopia.

The resources of communal grasslands in Menz are herbaceous vegetation, minerals, water sources, woody trees and spices plants, of which herbaceous vegetation and minerals were found across the assessed communal grasslands and these resources were the most used relative to other resources.

Feed shortage, degradation of land and animal diseases were the most discussed problems within the community and these shortages were the cause of other problems such as declining livestock production and grass biomass. Though it varies across communal grasslands, the communities prioritized cattle and sheep as important livestock species, and female animals were prioritized around most of the communal grasslands. Most of the prioritized animals, except male cattle, were targeted more for market development.

The respondents listed options for the improvement of grazing lands for selected livestock species including short rest for pastures, rotational grazing and basic seasonal grazing across the communal grasslands. But where communal grasslands were large and had many users, there was resistance to the improvement ideas among the respondents. This may be the result of the community focus on only grazing on available resources lack of management, and absence of ownership structures in these grasslands. Hence, where the objectives of livestock production include improving marketing, and where feed shortage and land degradation are apparent, proper management of communal grassland should be considered to ensure their effective use. This process will require the inclusion and participation of the whole community and all stakeholders.

Introduction

In the highlands of Ethiopia, community grazing land management can contribute to sustainable use of grazing lands and alleviation of feed shortage problems. But this is more effective in communities with large areas, and that are far from markets (Benina and Penderb 2002).

Thus, an appropriate development pathway may be to increase the productivity of the mixed crop-livestock system by improving management of grazing lands with integration of other land uses. Improved institutions for managing communal grazing lands may be critical to increasing productivity of mixed crop-livestock systems (Jabbar et al. 2000). In addition, consideration of well-performing informal policy institutions and proper interventions is essential to maximize the benefits of communal grazing lands to improve the livelihoods of users (Yami et al. 2011). These are important considerations in prioritizing the objectives of communal grassland resources management.

Under the Environment Flagship project of the Livestock CRP, ILRI is working on community-based natural resource management with a focus on communal grassland management. In Menz, one of the study areas of the project, participatory prioritization of management objectives was done for 10 communal grasslands. A tool was developed for this purpose and the result will be a grazing planning protocol that will be finalized for use with grassland user groups to create an initial management plan, which will be based on the existing management system.

Objectives

The goal of this tool was to generate a list of potential management objectives by the community that can improve management of the community's grassland. Management objectives may focus on any of the resources that come from the grassland.

Methods

Study area description

The study was conducted in Menz, which is in the Central Highlands (1,669–3,563 metres above sea level) of North Shewa Zone of Amhara Region, Ethiopia. In this area agriculture is characterized mainly by mixed crop-livestock production systems (Gebre 2009). The mean temperature ranges from 6.7°C to 17°C and mean annual rainfall is 896 mm. In the higher altitude zones, despite enduring efforts, intensive crop production has been constrained by frost, poor soil fertility and unreliable rainfall (Gebre 2009). This, in fact, has shaped the degree of dependency on livestock and crop enterprises. In the study area, farmers are limited to barley production and sheep farming. Sheep is the major component of livestock herd composition in the Menz Gera and Menz Mama. The research unit was ‘communal grassland’ and users and 10 communal grasslands were selected namely, communal grassland in 07 kebele (CG-07), communal grassland in 021 kebele (CG-021), communal grassland in 021 kebele village Gerar Gebriel (CG-021g), communal grassland in 08k kebele (CG-08k), communal grassland in 08g kebele (CG-08g), communal grassland in 016 kebele (CG-016), communal grassland in 02 kebele (CG-02), communal grassland in 011w kebele (CG-011w), communal grassland in 011t kebele (CG-011t) and communal grassland in 04 kebele (CG-04) (see Table 1).

Table 1: Communal grassland units sampled in Menz

Communal grassland unit sampled	Kebele/village where communal grassland found	Woreda	Estimated communal grassland (ha)	Priority livelihood strategy	Households using the communal grassland (n)	Number of villages used communal grassland	Certification of ownership (yes/no)
Communal grassland in 011t kebele (CG-011t)	011 kebele village Teteramba	Menz Gera	4	Crop	41	1	No
Communal grassland in 021 kebele (CG-021)	021 kebele Girar Meda village	Menz Gera	3	Crop	15	1	No
Communal grassland in 021 kebele village Gerar Gebriel (CG-021g)	021 kebele Gerar Gebriel village	Menz Gera	6	mixed	42	2	Yes
Communal grassland in 02 kebele (CG-02)	02 kebele	Menz Gera	4	Mixed	10	1	No
Communal grassland in 08k kebele (CG-08k)	08 kebele Kuri village	Menz Gera	200	Livestock	600	At kebele level	No
Communal grassland in 016 kebele (CG-016)	016 kebele	Menz Gera	25	Livestock	100	Many villages	No
Communal grassland in 07 kebele (CG-07)	07 kebele	Menz Gera	2	Crop	18	1	No
Communal grassland in 011w kebele (CG-011w)	011 kebele Worase village	Menz Gera	4	Crop	21	1	No
Communal grassland in 08g kebele (CG-08g)	08 kebele Gowel village	Menz Gera	75	Livestock	400	Many villages	No
Communal grassland in 04 kebele (CG-04)	04 kebele	Menz Mama	2.5	Mixed	17	One village	Yes

Methods of data collection

Data was collected from 10 communal grasslands in eight kebeles based on the availability of communal grasslands in Menz Mama and Menz Gera woredas. From Menz Gera, nine communal grasslands were selected that encompassed users of one village to four kebeles; whereas from Menz Mama, one communal grassland was selected that was used by the community of one village. In Menz Mama, the availability of communal grassland was rare because almost all of the communal grasslands were under watershed programs. In almost all the communal grasslands, except three, 95% of the users participated in the grassland management objective prioritization. Across the communal grasslands, 11–28 participants were involved in the study. Data collected was based on the tool developed for management objectives prioritization. For each question, the participant suggested for inclusion, ideas for enhancing the prioritization tool. For all the questions, participants nominated about three important ideas from the lists depending on the objective of the question. Then once the ideas were listed, the participants voted by raising their hands for each idea and ranked them as first, second, and third by comparing the idea's importance for each targeted question.

Results

Resources across communal grasslands

Most of the resources in communal grasslands were feed sources for grazing, minerals (e.g. stones and clay soil), woody harvest (especially eucalyptus trees), dung, spices plants and water sources. Grazing and minerals were found across the communal grasslands that were assessed. These resources were used by all users without distinction.

Table 2: Resources found ('x' = present) in communal grasslands

List of resources	Communal grasslands (CG)									
	CG-07	CG-021	CG-021g	CG-08k	CG-08g	CG-016	CG-02	CG-011w	CG-011t	CG-04
Feed sources for grazing	x	x	x	x	x	x	x	x	x	x
Mineral/stones/clay	x	x	x	x	x	x	x	x	x	x
Wood		x	x	x		x			x	x
Dung	x	x	x		x	x	x		x	
Plant medicines, spices			x	x	x	x	x			
Water				x	x	x				

Important resources in the communal grasslands

In all communal grasslands, grazing ranked first as the most important resource used by the communities. Because of the feed shortages and competition between different land uses (e.g. cultivation and tree planting) communal grasslands are used for grazing livestock regardless of the availability of pastures. Minerals/stones and fuel wood harvesting was the second most important resources across the communal grasslands in terms of priority. This was because the youth used the communal grasslands resources for job creation by forming cooperative for cultivation and mining minerals. However, this use case raises the question of how to sustainably harmonize the improvement of feed base with employment creation for youth on these resources and minimize impacts on the environment. Perhaps one way of harmonizing the job creation for youth and feed base improvement and ensuring effective management of these resources is basing the economic activities in the grasslands primarily on livestock-related production activities rather than other land uses.

Table 3: Ranks for important resources used by the community in the communal grasslands ranks (from most important [1] to least important [3])

List of resources	Communal grasslands (CG)/rank										Number of ranks		
	CG-07	CG-021	CG-021g	CG-08k	CG-08g	CG-016	CG-02	CG-011w	CG-011t	CG-04	1 st	2 nd	3 rd
Grazing	1	1	1	1	1	1	1	1	1	1	10	0	0
Mineral/stone	3	2	3	3	3	3	2	3	2	3	0	3	7
Wood harvest			2			2				2	0	3	0
Fodder/cut and carry	2										0	1	0
Dung		3						2	3		0	1	2
Water				2	2						0	2	0
Plants like spices							3				0	0	1

Problems facing the community in communal grasslands

The main problems experienced by communities were the same across the communal grasslands except weeds and invasive plants. Livestock death due to feed scarcity ranked first in six communal grasslands and was second in two communal grasslands. The respondents reasoned that sufficient feed availability is useful in ensuring healthy livestock and reducing disease incidences, and hence feed shortages can lead to other problems in livestock production. Major land degradation was the challenge ranked first in the four communal grasslands, second in three communal grasslands and third in two communal grasslands. Declining forage biomass production (loss of grass biomass) and livestock disease were ranked second in one communal grassland and third in three communal grasslands. Thus, the feed shortage, degradation of land and disease were the problems most discussed in the community and these problems were the causes of the other problems such as declining livestock production and loss of grass biomass. Around all communal grasslands, sheep were the most vulnerable to feed scarcity followed by cattle as indicated by the respondents.

Table 4. Ranks of problems facing the community in the communal grasslands (from most important [1] to least important [3])

List of problems	Communal grasslands (CG)/rank											Total ranks across grasslands		
	CG-07	CG-021	CG-021g	CG-08k	CG-08g	CG-016	CG-02	CG-011w	CG-011t	CG-04	1 st	2 nd	3 rd	
Livestock death due to forage scarcity	1	1			2	1	1	1	2	1	6	2	0	
Declining livestock production	3								3		0	0	2	
Major land degradation, such as gullies and other erosion	2		1	1	1	3	3	2	1	2	4	3	2	
Declining forage biomass production (loss of grass biomass)			2	3	3					3	0	1	3	
Declining forage quality (loss of good grasses)				2							0	1	0	
Water scarcity		2									0	1	0	
Livestock disease		3	3			2		3			0	1	3	
Grazing area shortage							2				0	1	0	

Important livestock species across the communal grasslands

Cattle and sheep were equally ranked the first and second most important livestock species in five communal grasslands. This indicated that the communities in these grasslands focused on both cattle and sheep based on their importance. The third ranked livestock species were donkeys around nearly all communal grasslands. This may indicate that grazing management is the central point for planning the communal grassland management for improvement of feed base for these livestock species.

Table 5. Ranks for livestock species based on their importance across the communal grasslands (from most important [1] to least important [3])

List of livestock species	Communal grasslands (CG)/rank										Number of ranks		
	CG-07	CG-021	CG-021g	CG-08k	CG-08g	CG-016	CG-02	CG-011w	CG-011t	CG-04	1 st	2 nd	3 rd
Cattle	2	1	1	2	1	1	1	2	2	2	5	5	0
Sheep	1	2	2	1	2	2	2	1	1	1	5	5	0
Goats			3								0	0	1
Donkeys	3	3		3	3	3	3	3	3	3	0	0	9

Except around two communal grasslands, the participants ranked first female animals as important based on sex regardless of species types, and only in two communal grasslands were male cattle prioritized first (CG-016 and CG-02). This was because of at these communal grasslands, more crop production was practiced and the participants need oxen for use in cultivation.

As shown in Table 6, though there was differences across the communal grasslands, in some communal grasslands the respondents said that female sheep were more preferred at two years of age (age ranges 1–3 years) whereas the male sheep were preferred at three years of age (age ranges from 1–4 years). And at some communal grasslands respondents said that female cattle were more preferred at the age of four years (age ranges from 4–6 years) whereas male cattle were preferred at age of six years (age ranges from 3–7 years) (Table 7), but there were differences across the communal grasslands. These findings may also give directions for proper planning of communal grassland as far as improving the feed base is concerned to address feed shortages.

Table 6: Ranks for sheep importance based on age and sex across the communal grasslands (from most important [1] to least important [3])

Communal grasslands	Female sheep age (year)/rank							Male sheep age (year)/rank								
	1	1.5	2	2.5	3	3.5	5	1	1.5	2	2.5	3	4	5	6	8
CG-07				1	2	3				3	2	1				
CG-021			3	2	1						3	2	1			
CG-021g			3		1	2					3		1		2	
CG-08k			1		2	3				3	2		1			
CG-08g	3				1		2	3				1		2		
CG-016	2				1		3					1			2	3
CG-02	3		1			2		3				1			2	
CG-011w	2		1				3	2		1				3		
CG-011t	2		1				3	2		1				3		
CG-04		1	2	3					1		3	2				
Total rank	1=0	1=1	1=4	1=1	1=4	1=0	1=0	1=0	1=1	1=2	1=0	1=5	1=2	1=0	1=0	1=0
	2=3	2=0	2=1	2=1	2=2	2=2	2=1	2=2	2=2	2=0	2=1	2=2	2=0	2=1	2=3	2=0
	3=2	3=0	3=2	3=1	3=0	3=2	3=3	3=2	3=1	3=1	3=3	3=0	3=0	3=2	3=0	3=1

The livestock and livestock products/services that the respondents were using were milk, meat, wool, hides, skins and calf breeding/raising and draught animals etc. Around almost all the communal grasslands that were assessed, the sheep and female cattle use/benefit that was ranked first was for sale/market, but the cattle male use ranked first was for household consumption. This indicates that the respondents prioritized livestock production for market. This means that adequate planning and improving feed resources are critical for ensuring these producers have livestock that is suitable for market. Though communal grasslands have become important sources of feed in crop-livestock systems, their size is dwindling and their productivity is falling over time. Addressing these challenges requires proper planning based on the objectives of the users whose priorities may differ.

Table 8. Rank for important livestock species based on sex and benefits across the sites (from most important [1] to least important [3])

Species with sex	Uses	Types of benefits. Used for:	Communal grasslands (CG)/Rank										Total rank across sites			For which market (local/regional/national/market)
			CG-04	CG-07	CG-021	CG-021g	CG-08k	CG-08g	CG-016	CG-02	CG-011w	CG-011t	1 st	2 nd	3 rd	
Female sheep	Wool, meat, kid, skin	Market	1	1	1	1	1	1	1	1	2	1	9	1	0	Local=woreda
		Household consumption	3	2	2	2	2	2	2	2	1	2	1	8	1	
		Both	2	3	3	3	3	3	3	3	3	3	0	1	9	
Male sheep	Wool, meat, breeding, skin	Market	1	1	1	1	1	1	1	1	1	1	10	0	0	Local=woreda
		Household consumption	2	2	2	2	2	2	2	2	2	2	0	10	0	
		Both	3	3	3	3	3	3	3	3	3	3	0	0	10	
Female cattle	Milk, meat, hides, calf, butter	Market	1	1	1	1	1	1	1	2	2	1	8	2	0	Local=woreda
		Household consumption	2	2	2	2	2	2	2	1	1	2	2	8	0	
		Both	3	3	3	3	3	3	3	3	3	3	0	0	10	
Male cattle	For cultivation, meat, hides, breeding	Market	2	2	2	2	2	2	2	2	2	2	0	10	0	
		Household consumption	1	1	1	1	1	1	1	1	1	1	10	0	0	
		Both	3	3	3	3	3	3	3	3	3	3	0	0	10	

Improvement options for communal grasslands by respondents

The improvement of communal grasslands may have to take different option across the areas depending on the characteristics (biophysical status, users' number, size of the grazing land, existing institutions and tenure status, etc.) of the particular grassland. Accordingly, respondents suggested different options for improving the grasslands, but all users did not agree with some of the options suggested for improving for some grasslands, especially where the grasslands were large in size and which had different users and user interests. The improvement of grasslands for selected livestock species, such as by providing short rest, rotational grazing and basic seasonal grazing were selected as option across the communal grasslands by the respondents (Table 9).

Table 9. Prioritized grassland resources use, prioritized livestock species, possible ideas for improvement of grassland, and selected option for plan across the communal grasslands

Description	Communal grasslands (CG)									
	CG-04	CG-07	CG-021	CG-021g	CG-08k	CG-08g	CG-016	CG-02	CG-011w	CG-011t
Prioritized grassland resources use	Grazing	Grazing	Grazing	Grazing	Grazing	grazing	Grazing	Grazing	Grazing	Grazing
Prioritized livestock species	Sheep	Sheep	Cattle	Cattle	Sheep	Sheep	Cattle	Cattle	Sheep	Sheep
Possible ideas by community to improve grazing land	Over sowing/ reseeded	High resistance among the participants for ideas for option of improvement- the area is small in size	Gully rehabilitation Short resting Basic seasonal grazing	Enclosure Rotation grazing Short rest Basic seasonal grazing	Gully rehabilitation Rotation grazing, Over sowing Enclosure	Rotation grazing Short rest Enclosure	Over sowing/ reseeded Enclosure	Manure application Gully rehabilitation Basic seasonal grazing Short rest Woody planting	Rotation grazing Over sowing/ reseeded Gully rehabilitation Invasive species removal	Enclosure Over sowing/ reseeded Rotation grazing
Selected from the lists of option for plan	Basic seasonal grazing Reseeding/ over sowing Short resting	-short rest -basic seasonal - rotation grazing	Rotation grazing Short resting Gully rehabilitation	Short rest Gully rehabilitation Basic seasonal grazing Rotation grazing	Rotation grazing Basic seasonal grazing Gully rehabilitation	Rotation grazing Basic seasonal grazing Short rest Gully rehabilitation	Rotation grazing Basic seasonal grazing Over sowing/ reseeded	Short rest Basic seasonal grazing Rotation grazing	Short rest Basic seasonal grazing Over sowing/ reseeded Invasive species removal	Rotational grazing Basic seasonal grazing Reseeding/ over sowing
Remark	Agreed for improvement	Agreed for improvement, Because of small area and Issues of land not secured, high resistance	Agreed for improvement	Agreed for improvement	Agreed for improvement, but high resistance because of many people are using this land, under kebele/woreda	Agreed for improvement, but High resistance because of land not secured for users as it is managed at kebele/ woreda	Agreed for improvement	Agreed for improvement	Agreed for improvement	Agreed for improvement

Discussion

The livestock feed resource types, livestock species and their importance across the assessed communal grasslands were similar. This implies that the grasslands have similar characteristics in terms of their purpose and use. Around the communal grasslands, livestock death due to forage scarcity and major communal grassland degradation (loss of vegetation and soil) were indicated as key challenges by respondents. The degradation of grazing land may be due to the communal grasslands predominantly being used for grazing without rest throughout the year by all livestock species. In all the assessed communal grasslands, grazing was prioritized in terms usage and in about 60% of communal grasslands sheep were prioritized in terms livestock type. This implies that interventions geared towards improving these resources need to understand their purpose by capturing the views of, and involving, the communities that use them. Where cattle were prioritized, the participants were focused on crop cultivation and these were in areas that favour such production. This finding may mean that specific planning on the management for each communal grassland is also important. There could be different interests, for example, around some communal grasslands where the communities need to plant trees for sale and/or privatization for crop farming. Interventions should not assume that communal grasslands have benefited the communities that use them in obvious ways only.

Though most communities do not have a proper management plan for these grasslands, their importance in livestock production is clear. For example, the users have prioritized the marketing benefits of keeping sheep and cows. This implies that market-targeted production management offers an opportunity to improve these resources and increase their productivity. Also, since most of the users have market-based livestock production as an important goal, there is need for planning for the available resources of communal grasslands to meet the targeted objective of prioritization and overcome the problems of livestock production in these areas. At the moment, most of the assessed communal grasslands are degraded resulting in feed shortage. All participants have ideas for how to stop this degradation and improve the communal grasslands (e.g. through rotational grazing, gully rehabilitation, providing rest periods and over sowing). However, they did not in some communal grasslands there was resistance from the participants towards the use of some of these ideas during discussion to agree on management plans. Large number of users, size of communal grassland, status of ownership and their synergies were key factors in limiting the acceptance of some of the proposed options. For example, where many numbers of users (many kebeles) use one communal grassland, which lacks defined ownership, the improvement and management plan was resisted by participants wanted to only use the available resources in these grasslands for grazing. In the relatively smaller grasslands, the users had limited options to prevent overgrazing and provide rest periods because they needed to use what was in many cases the only available resource for their livestock throughout regardless of availability of grasses. These findings show the need for robust participation of the community and all stakeholders in grasslands management planning right from the start to ensure buy-in and willingness of community/users exists for sustainable management and use of communal grasslands.

Conclusion

The users of the communal grasslands prioritized them for grazing for livestock production (especially, sheep and cattle) that targeted market demand. Hence, the management of grasslands that achieves this objective needs to be prioritized, though currently no management plan was assessed in the communal grasslands in Menz. In addition, the local development experts from the village to woreda level need to give proper consideration to management of communal grassland to ensure they fulfil the various user needs and priorities and to prevent conversion of these resources for other uses such as planting of trees and cultivation that go against the goals indicated by the majority of the community/users. Therefore, since feed shortages exist in the area and communal grassland is one of the main sources of feed for sheep production targeted for market in the region, having the proper management plan for the communal grasslands that incorporates the options listed by the communities should be part of development interventions in the region.

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