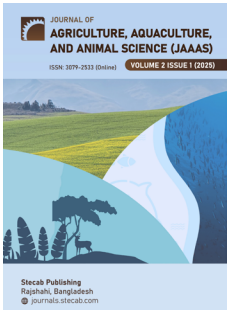

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Research Article

Socio Economic Dynamics and Traditional Livestock Feed Management Practices in Degahbour Woreda, Somali Region, Ethiopia

[1]Muna Ahmed Hassan, *[1]Kader Ahmed Abdulahi, [1]Nima Ahmed Yusuf

About Article

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About Author

[1] Department of Rural Development, Agricultural Extension, College of Dryland Agriculture, Jigjiga University, P.O. Box, 1020, Jigjiga, Ethiopia

Contact @ Kader Ahmed Abdulahi
abnima2021@gmail.com

ABSTRACT

This study assessed socioeconomic dynamics and traditional livestock management practices in the Degahbour district of Ethiopia's Somali region. A cross-sectional survey design was employed, utilizing both qualitative and quantitative methods. Data was collected from 156 respondents across four kebeles through focus group discussions, in-depth interviews, and a simple random sampling technique. The primary sources of income were livestock sales and products. Households possessed various livestock species, with goats being the most prevalent. Traditional livestock management practices included free grazing, cut and carry, and crop residues, while improved forage was not practiced. Work patterns were characterized by long hours and a seven-day work week, with women balancing domestic duties and income-generating activities. Income control and decision-making were increasingly collaborative between spouses, with women taking a leading role in day-to-day financial management. Savings practices were primarily informal, with money saved used for household necessities and emergencies. The findings highlight the need for interventions to improve livestock management techniques, enhance financial literacy, and support evolving gender roles within these communities.

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1. INTRODUCTION

Ethiopia has a large livestock population and is ranked 10th in the world and 1st in Africa (CSA, 2017; FAO, 2015). The livestock sector serves as a major source of currency earnings and delivers important products and services (FAO, 2017) and thus makes an enormous contribution to the national economy and livelihood of many Ethiopians. The demand for livestock products is globally projected to increase to approximately 70 % by 2050, to be forced by growing world population, increasing prosperity, and urbanization (FAO, 2014). There are opportunities to boost production to meet escalating demand, especially in developing countries, and enhance farm income (Mayberry et al., 2017).

However, livestock feed is often cited as a prime constraint to improving productivity for smallholder farms (ILRI, 2014). In Ethiopia, feed resources are classified as natural pasture, crop residues, hay, agro-industrial by products, improved forage, and other feeds (CSA, 2017); which are 54.59, 31.06, 6.81, 1.53, 0.31 and 5.11 % of the total livestock feed supply of the country, respectively (CSA, 2017). Natural pasture is the primary feed resource throughout the wet season, while crop residues play a substantial role during dry season (Gelayenew et al., 2016). Natural pastures account for about 25 % of total land mass of the country (Ulfina et al., 2013). However, the productivity of grazing lands in most parts of Ethiopia is extremely low (Ulfina et al., 2013), due to seasonal fluctuations in rainfall, poor pasture management, and conversion of natural pasture into crop lands (Kebede et al., 2016; Nigus, 2017).

In the agro-pastoral system, where households have a permanent home base, a common situation is for some household members to remain at the homebase to cultivate crops, whereas others migrate with part or all of their herd. Herds of mixed species, mainly camels, cattle, sheep, and goats, are typically maintained, with herd size and species composition varying spatially and temporarily. The maintenance of mixed-species herds has a number of advantages, including allowing for different types of vegetation to be utilized, livelihood risk reduction, balancing short-term gain with longer-term security, and the production of different types of livestock products (Catley et al. 2013).

In the Somali region, approximately 65% of the population is engaged in the livestock sector, which is the mainstay of the economy (Marshall et al., 2016). Pastoralists manage their lands according to locally devised rules designed to conserve key resources such as pastures and water sources (Nelson, 2012). Traditional rangeland management strategies include burning and mobility, although burning has not been practiced since 1974/75 (Solomon et al., 2006). Livestock herding is categorized into home-based herding and satellite herding, with different animals managed based on their age and purpose (Solomon et al., 2006).

However, these traditional practices are under pressure owing to various socioeconomic factors. Drought has emerged as a significant challenge, causing severe economic hardship and stress to farmers and local economies (Bogale & Erena, 2022). Between 1990 and 2000, drought-related animal death rates in the Somali region increased by 60-80% of the entire cattle population (Bogale & Erena, 2022). This has led to a decline in livestock holdings over time, with the average household (Solomon et al., 2006).

A previous study from Ethiopia demonstrated that the quality and quantity of available livestock feed resources declined drastically during the dry season owing to frequent drought occurrences and climate change (Chufa et al, 2022). Similarly, in the Degahbour district, where this study was conducted, there is a lack of comprehensive information on feed resource availability, nutritional values of major feeds, status, and opportunities for livestock feed production. Thus, understanding the existing livestock feed management practices of pastoral and agro-pastoral communities is imperative for improving livestock feed production and utilization practices. Therefore, the objectives of the present study were to assess the socioeconomic dynamics and traditional livestock management practices of Degahbour Woreda.

2. LITERATURE REVIEW

2.1. Livestock Management in Ethiopia

Ethiopia holds the largest livestock population in Africa, with an estimated 70.3 million cattle, 42.9 million sheep, 52.5 million goats, 8.2 million camels, and 49 million chickens (CSA, 2021). Despite this vast resource, livestock production in Ethiopia is largely traditional, relying predominantly on native breeds and low-input systems. The productivity of the livestock sector is significantly constrained by several interrelated factors, including low genetic potential, poor reproductive performance, inadequate feed quality and availability, a high prevalence of diseases and parasites, and limited access to veterinary services, markets, and essential inputs (Entity, 2012). Livestock management in Ethiopia is mainly organized into three systems: mixed crop–livestock, pastoral, and agropastoral systems. Among these, mixed crop–livestock farming is the most widespread, particularly in the highland areas, while pastoral and agropastoral systems dominate the southern and eastern lowlands of the country. These latter systems are characterized as extensive livestock management systems, typically marked by low levels of input and correspondingly low productivity (FAO, 2018).

2.2. Traditional Livestock Feed Resources in Sub-Saharan Africa

Agriculture remains the dominant livelihood and primary source of income for rural households in Sub-Saharan Africa (SSA) (Davis et al., 2017). Within this agricultural framework, livestock play multifaceted and vital roles, particularly for smallholder farmers. Beyond providing meat, milk, and other animal products for consumption and sale, livestock contribute manure for crop production, serve as a form of savings and investment, and are central to various socio-cultural functions (Herrero, 2013).

The crop–livestock system is the predominant farming model across SSA, responsible for producing approximately 75% of dairy, 60% of meat, and up to 50% of cereal crops globally (Herrero et al., 2010). In East and Central Africa, two-thirds of smallholder farmers rely on this mixed crop–livestock system as their primary means of subsistence and income generation (Davis et al., 2017).

Despite the significant livestock population and their crucial economic and social roles, productivity remains low in

countries like Ethiopia. This low productivity is largely due to a combination of constraints, including feed scarcity, widespread livestock diseases and parasites, low genetic potential of indigenous breeds, limited veterinary services, restricted access to credit, land shortages, and poor management practices (Dawit et al., 2013; Selamawit et al., 2017; Welay et al., 2018). Among these, inadequate and poor-quality feed supply—particularly during the dry season—is frequently identified as a primary limiting factor for livestock productivity (Adugna et al., 2012).

Feed scarcity is exacerbated by the continuous decline of natural grazing lands, rapid population growth, and the expansion of crop cultivation at the expense of pastures. Additionally, land degradation has rendered large areas unsuitable for either crop or pasture production. Traditional livestock feed resources in the region include natural pastures, crop residues, roadside grasses, and various non-conventional feed materials (Duguma & Janssens, 2021). However, these feed sources are characterized by significant seasonal fluctuations in both availability and nutritional quality, a challenge consistently reported across many developing countries, including Ethiopia (Duguma & Janssens, 2021).

3. MATERIALS AND METHODS

2.1. Description of the study area

In Ethiopia, the Somali Regional State (SRS) ranks as the second largest region, surpassed only by the Oromia Regional State. Encompassing 350,000 km2, SRS shares borders with Djibouti to the north, Somalia to the east and northeast, and Kenya to the south. Its western boundary adjoins the Oromia region, whereas the Afar region lies to the northwest. SRS is divided into 11 administrative zones: Fafan, Jarar, Sitti, Nogob, Erer, Doollo, Shabelle, Korahea, Afder, Dawa, and Liban.

This research was conducted in Degahbour Woreda, one of the 93 districts within the Somali Regional State, under the administration of the Jarar Zone. Situated in the eastern agro-pastoral region of Somali State, Degahbour Woreda is bordered by Ararso to the north, Birqod to the south, Bilcil Buur to the west, Gunagado to the southeast, and Yoale and Aware Woredas to the east.

The 2007 National Census report from the Central Statistics Agency (CSA, 2007) indicated that Woreda has a population of 115,555 people, comprising 65,081 males and 50,474 females. The majority (74.015% or 85,528) resided in rural areas, whereas 25.985% (30,027) were urban inhabitants. The study area has an average household size of 6.8. The total population of the 16 kebeles in the studied woreda was 16993. The overall sample size was calculated using the government census report (2007).

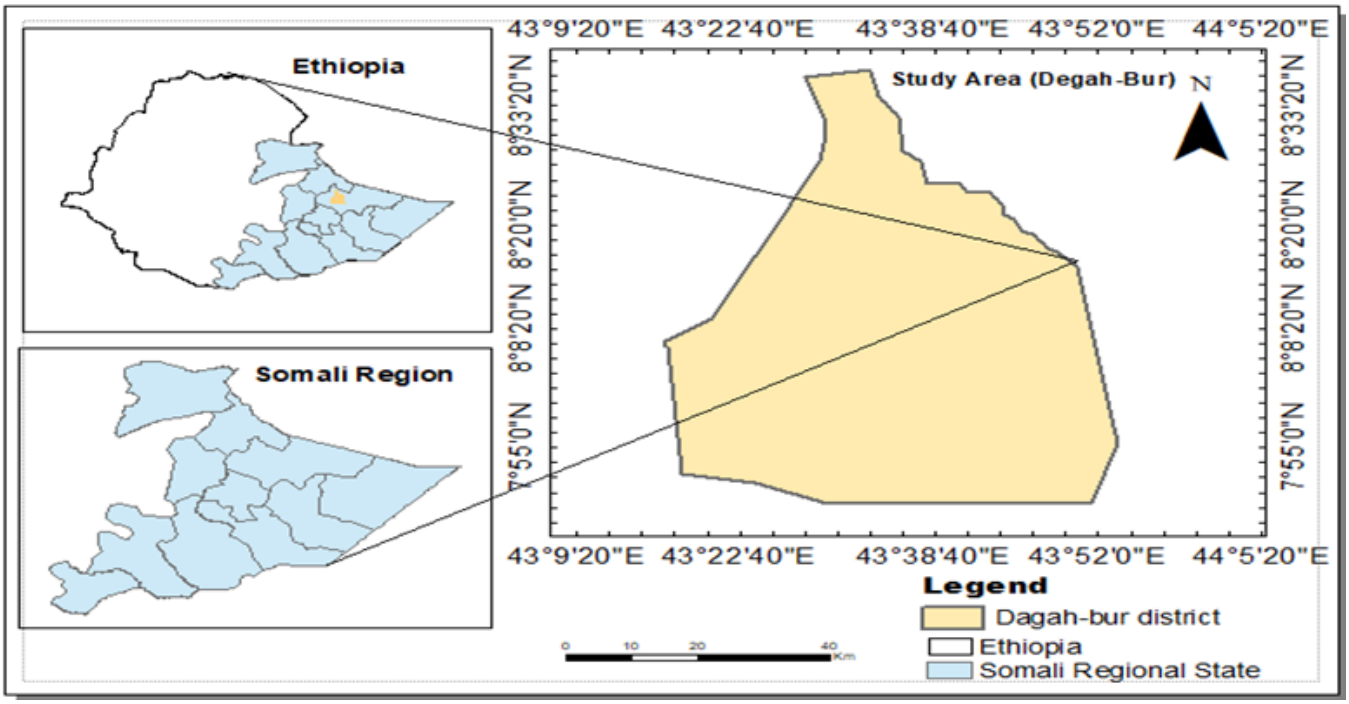

Figure 1: dagah-bur district

3.2. Research design

Regarding study design, the researchers applied cross-sectional survey design. This is mainly because the data were collected from the respondents only once. While it is cost effective, such a design does not portray changes over time in terms of the issue to be studied. In terms of its approach, more qualitative and less quantitative data were gathered via mixed research methods, as the researchers intended to address issues beyond the control of qualitative methods. Using a qualitative approach, various types of information related to the issues to be studied were collected and analyzed. Among these, data related to types of supplementary livelihood activities in which pastoral and agro-pastoral women engaged in reducing households' venerability, the different types of livelihood resources that women have and lack, major socioeconomic constraints of pastoralist and agro-pastoral women of the study site to pursue their livelihoods, and other related issues were the dominant ones covered by this approach.

The study employed quantitative research methods as well to some extent to grasp some information that cannot be fully gathered via qualitative approach. To accomplish this, both open-end and closed-end survey questionnaires were prepared and distributed to randomly selected sample households. The respondents' demographic characteristics, including educational status and other variables, were among the major information addressed via this research method.

3.3. Sampling techniques

Three sampling procedures were used to select study sites. First out of eleven zones in Ethiopian Somali Regional State, Jarar zone, was selected purposively due to its accessibility and inhabited relatively with both "pure" pastoralists (those who derive at least 50% of their household revenue directly or indirectly from livestock and livestock related activities, J. Swift, 1988) and agropastoral (those communities that combine livestock raising with crop production). Similarly, Degahbour woreda, which represents agro-pastoralists and pastoralists, respectively, was selected as the study site. These woreda (districts) are divided into kebeles (the smallest administrative units). In consultation with district administrators, four (5) easily accessible kebeles from each district were purposively selected, and respondents/informants from each kebele were selected using the techniques described below.

Finally, a simple random sampling method was employed to select participants. Sample size was calculated using the formula proposed by Yamane (1967).

$n=N/(1+N(e)^2)$ = --------(1)

Where:

n = Sample Size

N = Total number of targeted populations

e= level of precision (sampling error) at 8 % (0.08) significance level, margin of error level of confidence is 98%; this will be a convenient method that reduces the possibility of nonresponse drastically.

$n = (16993)/(1+16993,(0.08)^2) = 156$

3.4. Tools for data collection

A brief description of the tools selected for data collection, the specific issues each concern about, and to whom they were administered is delineated below.

3.5. Focus group discussion

primarily using six focus group discussions (FGDs) with men and women (one FGD with men and one with women in each location) and interviews with 40 key informants in four kebeles (10 KIIs per kebele). The FGDs were conducted separately for men and women in bulale, labiga, ole, and false kebeles to ensure a comprehensive understanding of gender perspectives and experiences.

3.6. In depth Interviews

Similarly, interviews were conducted with key informants (both men and women) selected from the community members of these kebeles. A structured interview guide was used to guide the discussions, covering topics such as household status, income-generating activities, income-generating activities, decision-making processes, milk production and sales, and fodder management. To ensure that ethical considerations were considered, the data collectors were trained, informed consent was obtained from all participants prior to data collection, and confidentiality was maintained by not recording individual names in the transcripts.

3.7. Data source

The research utilized a combination of primary and secondary data collection methods. Primary data were gathered through semi-structured questionnaires, focus group discussions, key informant interviews and personal observations. The questionnaires captured crucial variables, including the socio-economic characteristics of households, such as the respondents' sex, age and educational status, decision making, work pattern and saving practices . Secondary data was obtained by examining documented sources and engaging in communications with livestock and rural development officials at the regional, zonal and district levels.

3.8. Data analysis

The collected quantitative survey data were entered and cleaned using a statistical software program (SPSS). Descriptive statistics (frequencies and percentages) were used. For qualitative data analysis, KIIs and FGDs were used in narrative analysis to capture the lived experiences and perspectives of participants regarding drought adaptation, considering the social context that shapes decision making around drought risk management, such as cultural beliefs and traditional practices (Riessman, 2008). Additionally, the data collected through both quantitative and qualitative methods were triangulated to ensure the robustness and validity of the findings by comparing data from diverse sources (surveys, interviews, and FGDs).

4. RESULTS AND DISCUSSION

4.1. Socioeconomic characteristics

The characteristics of the household heads, including sex, age, educational status, marital status, religion, and family size, are summarized in Table 1. The findings reveal that the majority of household heads are male (57.69%), Additionally, the study shows that the predominant age group is 39-49 years (51.28%), suggesting that most household heads are in their primary working years, which likely affects their management practices. However, educational background raises concerns, as 63.46% of household heads are illiterate. The mean family size (mean ± SD) of the studied households was 7.81±2.6.

Table 1. Household characteristics table

Variable	frequency(N=156)	%
Gender of HH head		
Male	90	57.69
Female	66	42.3
Age of HH head(year)		
30-38	30	19.23
39-49	80	51.28
50-59	36	23
>60	10	6.4
Education of HH head		
Primary education	18	11.5
Basic education	39	25
Illiterate	99	63.46
Secondary education	2	1.28
Family size	Mean±SD	7.6±2.6

4.2. Source of income and livelihood activities

The results presented in Table 2 indicate that in 44.9% of households (70 individuals), the main source of income stems from livestock sales and products. Livestock sales alone accounted for 38.5% (60 individuals). In contrast, sales of crops contributed to only 9.6% (15 individuals), suggesting that while agriculture is a component of income, it is less significant than livestock. Trade represented the smallest portion at 7% (11 individuals).

Table 2. source income

Sources of cash income	Frequency	%
Livestock sales and product	70	44.9
Livestock sales	60	38.5
Sale of crops	15	9.6
Trade	11	7
Total	156	100

4.3. Livestock population and herd composition

Table 3 presents a summary of the total livestock owned by respondents. The agro-pastoralists in the study area possess a variety of livestock species, including camels, cattle, sheep, goats, and donkeys. This finding aligns with previous research by Scoones (1995) and Nigatu et al. (2004); Pathot (2020), who noted that pastoralists and agro-pastoralists commonly maintain diverse or mixed livestock herds. Diversification of livestock species is advantageous for two reasons. First, different species have varied feeding habits, allowing for a more efficient use of available resources, as reported by Igge et al. (2020).

Table 3. Livestock holding

Livestock type	Mean ± SD of the livestock kept
Camel	8.10±4.74
Cattle	4.96±6.541
Goats	18.6±10.01
Sheep	9.6±9.97
Donkey	1.4±1.5

The data on the types of livestock kept by households revealed the mean and standard deviation for each type, indicating the average number of animals and the variability in herd size. Households kept an average of 8.10 camels (±4.74), whereas cattle were kept in smaller numbers, with a mean of 4.96 (±6.541). Goats are the most prevalent, with an average of 18.6 (±10.01), followed by sheep with a mean of 9.6 (±9.97), which aligns with their roles in meat and wool production. Lastly, donkeys are kept in smaller numbers, averaging 1.4 (±1.5), likely utilized for transportation or as pack animals.

4.4. Livestock management

Livestock management is a central component of a community's agricultural system and livelihoods, with cattle, camels, and shoats being the primary animals raised. Focus group discussions revealed that grazing practices are largely traditional, with animals allowed to graze freely during seasons when pasture is available. This livestock management approach is closely related to the seasonal availability of natural resources. As stated by one of the FGD participants in Bulale Kebele, "during the rainy season, when pasture is abundant, we freely use the communal grazing

4.5. Livestock feeding

The study result indicated that the feeding system practiced by agro-pastoralists in the study area was commonly a free grazing system (62.8%), crop residues (22.4), and cut and carry systems (14.8%). Therefore, this study revealed that the feeding systems practiced by the study area are common grazing systems, crop cut, and carry techniques, and improved forage is not practiced at all.

Table 4. Livestock feed practiced by the study area

Variables	Frequency	%
Communal grazing land	98	62.8
crop residue	35	22.4
cut and carry technique	23	14.8
Improved forage	0	0
Total	156	100

4.6. Discussion

This study provides valuable socioeconomic insights and traditional livestock management practices observed in the

Degahbour district of the Somali region. These findings are crucial for developing sustainable management strategies for agro-pastoralists. One significant finding was that most household heads in the study area were male, accounting for 57.69%. This aligns with previous research, which indicates that most heads of household in pastoral and agro-pastoral communities across various regions of Ethiopia are male (Pathot, 2020; Igge et al., 2019).

The study also reveals that the predominant age group among household heads is 39-49 years, representing 51.28% of respondents. This finding is consistent with that of a prior study conducted by Duguma and Janssens (2021), which indicated that most household heads were middle-aged men. This suggests that younger individuals are not significantly engaged in crop-livestock farming in the area, primarily due to limited access to land. Moreover, many educated youths tend to migrate to larger towns in search of employment in other sectors. Concerns arose regarding the educational background of household heads, as 63.46% were reported to be illiterate. This finding echoes Pathot's (2020) report, which highlights very low educational levels among respondents in similar contexts. The high rate of illiteracy among respondents is likely to impact their acceptance, adoption, and use of improved feed and livestock production technologies. Mulugeta et al. (2005, 2021) reported that the low education levels of farmers can significantly influence the transfer of improved agricultural technologies and their overall participation in development initiatives. The mean family size in the studied households was 7.81±2.6. This average aligns with the overall family size of approximately 6.7 persons per household (Igge et al., 2019; CSA, 2007). Larger family sizes may be linked to the cultural practice of polygamy prevalent among pastoralists and agro-pastoralists in the region. The observed low levels of education are common in many pastoral areas in Ethiopia (Biratu & Haile, 2017; Duguma & Janssens, 2021).

4.7. Household source of income

As in many parts of the Somali region, the primary sources of income for most households in the communities interviewed are pastoralism and agro-pastoralism. Pastoralism includes reliance on livestock and livestock products as the main livelihood sources, while agro-pastoralism includes both farming and livestock rearing. This dual approach to livelihood provides families with a diversified income stream, helping mitigate the risks associated with climate variability and market fluctuations. The results from the study indicate that 44.9% of households (70 individuals) derive their primary income from livestock sales and products, with livestock sales alone accounting for 38.5% (60 individuals). In contrast, crop sales contributed only 9.6% (15 individuals), highlighting that while agriculture plays a role in income generation, it is considerably less significant than livestock. Additionally, Trade accounted for a mere 7% (11 individuals). These findings contrast with the study conducted by Duguma and Janssens (2021), who reported that the main source of household income was crop production, followed by livestock. Focus group discussion participants stated, "We are pure pastoralists, and we work how to rear our livestock, indicating a strong dependence on livestock and crop production for sustenance and none of us have other employments that provide a salary, we all rely on our livestock and the farms. Few of us have small businesses that underscore the nature of their main livelihood sources. Cattle, camels, and shoats (sheep and goats) are the main livestock raised, while sorghum, maize, and, to a small extent, cash crops represent the main crops cultivated by communities in Degahbour. The sale of animal products is the main source of cash income. Similarly, previous studies conducted by Desta and Coppock (2004) and Tolera and Abebe (2007) indicated that the sale of livestock and products constitutes the main source of income in the North-Central Borana Plateau.

However, crop cultivation in this area depends heavily on rainfall. As one of the FGD participants emphasized, "Here is rural kebeles and all communities living here are agro-pastoralists rearing small livestock and cultivating plots of land which depends on the availability of rainfall. In addition to agro-pastoralism, some community members engage in small-scale businesses to supplement their incomes. These secondary activities include operating tea shops, petty trade, selling vegetables and milk, and engaging in labor activities in the kebeles and nearby towns. FGD participants indicated that although livestock and agriculture are the main sources of income for the community, "however some households in this kebele are engaged in small businesses such as small stops, food stores, and some also work as daily laborers depending on the opportunities, and the presence of these micro-enterprises and possibilities of labor work indicates a nascent entrepreneurial spirit within the community, which could be further developed through targeted interventions.

4.8. Work patterns

Work patterns in the community are characterized by long hours and a seven-day workweek. Most participants reported working between 8 and 12 hours per day, with some mentioning that they worked more hours to meet the demands of their livelihoods. Participants also reported working extensive hours with little to no breaks. Most indicated that they work seven days a week: "Since we are struggling with fluctuation of life, no one gets rest; we work every single day, said by one the participants . Therefore, this finding is consistent with Agugo et al. (2017), who revealed that respondents spent between 6 and 13 h daily on the farm.

The demanding nature of their work is further illustrated by another participant who mentioned working "more than 10-14 hours daily. However, it is important to understand that this pattern does not occur throughout the year. Participants also emphasized that they work more hours during the cultivation and harvest seasons, when they need more time to prepare their farms or cut their farms and grass for their livestock. The predominant farming techniques are traditional methods, in which farmers engage in activities such as land preparation, weeding, harvesting, and threshing. The labor-intensive nature of these tasks, combined with the need to protect crops from wildlife such as foxes and pigs, indicates longer working hours for the agropastoral communities in the region. The working pattern is sometimes exactly opposite during the dry season, where there is no farm-related work, and the livestock are

either fed at home using the grass or other food stored or purchased for the livestock.

On the other hand, women emphasized that their work patterns related to domestic chores did not change throughout the year. They have full responsibilities at home to take care of the family, yet they dominate petty trades outside of domestic chores. Women in the Kebeles visited are highly involved in small businesses, such as selling milk, vegetables, and teashops. The demanding nature of women's work, balancing domestic duties and income-generating activities, reflects the limited economic opportunities available to them. Despite their vital role in sustaining their families and communities, women often face time constraints and have limited opportunities for relaxation. This supports the assertion by Rubiano Matulevich et al. (2019) that women in rural areas are especially burdened by extended working hours, which limit their leisure time.

However, the discussion also revealed that traditional gender roles still influence household dynamics and work patterns. While men are often seen as the primary breadwinners and decision-makers, there is recognition of women's contributions to various income generation activities. One participant stated, 'Women were already in control of household resources, yet they sometimes are the main breadwinners of the family his result is in line with previous findings that indicate that women spend almost the entire income they generate on the fulfillment of households and second sources; it follows that women contribute a lion's share in securing households' livelihoods (Gurmu, 2018).

suggesting a gradual shift towards more equitable sharing of responsibilities within a patriarchal culture. This is also evident in other rural areas of the Somali region, where women are active in petty trade, and sometimes their businesses are the main sources of income for the families. This is also visible in other pastoral areas of the Somali region, where women are increasingly active in petty trade, and in some cases, their businesses serve as the primary income source for their families. This change reflects broader structural factors, as discussed by Adnan Bataineh (2019), including access to opportunities, such as parental leave, childcare services, and labor market regulations, which impact women's ability to engage in income-generating activities.

4.9. Income Control and Decision-making

The focus group discussions revealed a nuanced picture of income control and decision-making within households. While there is a traditional view that men are the primary decision-makers responsible for managing the family and making all the necessary decisions, there is evidence of evolving dynamics, as a previous study indicated that women make a significant contribution to household income. However, they are traditionally excluded from the decision-making process regarding the allocation of household income, as only men are considered the head and decision-maker (Mapapa & Milando, 2023). As demonstrated in the previous section, women in many urban and rural areas of the Somali region engage in income generation activities that sometimes serve as the main source of income for their households. As a result, despite the patriarchal nature of the Somali family and social structure, women and men both make decisions and control household income, which is consistent with the study of Hameed (2014), which indicates that within the economic domain, only the measure of couples' joint decisions substantially affects the use of couple contraceptive methods.

Many participants indicated that financial decisions are increasingly being made collaboratively between spouses, with women often playing a leading role in day-to-day financial management and expenses related to household needs. As one participant said, "Nowadays women control over the household resources, indicating an evolving dynamic where women's roles are increasingly recognized. This result is in line with a previous study that revealed that many participants indicated that financial decisions are increasingly being made collaboratively between spouses, with women often playing a leading role in day-to-day financial management and expenses related to household needs (Hameed et al., 2014).

Another participant in added that "In modern times, decisions about household management...are made through discussions between the two parents. These discussions suggest that decisions related to household income are more inclusive, and that both parents usually decide together. This is in line with the study by (Yazew, 2024), which indicates that women's roles in livestock production contributed significantly to creating income for the household. It also maintains food security and incurs additional expenses.

The role of women in household financial management is particularly prominent in savings and expenditure decisions. Several participants noted that mothers are often in charge of overseeing household resources, acting as "cashiers" and "stores" for family finances. One participant explained that urgent needs might prompt women to make independent decisions: "Anything which is necessarily needed urgently, wife takes the decision. This highlights a nuanced understanding of financial control in which women's roles are increasingly recognized, which differs from the traditional power dynamics within households. This responsibility stems from women's perceived attentiveness to changing circumstances and their ability to anticipate future needs, making them well-suited to managing savings and emergency funds.

Despite this shift towards collaborative decision-making, there remains a strong cultural expectation that major financial decisions, particularly those involving large purchases or sales, are primarily the domain of the household head, typically the father. As stated by one of the participants "Men are expected to lead the home. This result is in line with the study conducted in the Somali region, which revealed that pastoral women have not only access to livestock products and income from their sale, but they also have decision-making power over the use and investment of income. However, large livestock use, transfers, sales, and slaughter are determined by male household heads. In particular, decisions on the sale and use of income obtained from large livestock, such as camels and cattle, are often managed and controlled by adult men (Ayele, 2019).

This suggests that even if women contribute to household income and decisions are shared by both parents, the existing practices put the responsibility of taking care of the family income on men's shoulders. However, participants also noted

that husbands often decide but consult with their wives: "When there is a need to sell or purchase expensive things husband always decides it but consults with his wife." This dynamic highlight the complex interplay between traditional gender roles and evolving economic realities in the communities visited for this study. It also shows that household decisions on such matters mutually agree and involve some level of discussion between the parents. The study conducted in the afar region indicated that, in contemporary times, both male and female household heads are working to access lost assets and find other income opportunities. Men now help their women search for firewood, fetch water, market commodities, care for children and livestock, and maintain food security (Yazew, 2024).

In addition to the household income decision-making dynamics, the participants were asked whether they had experience taking a loan in the past. Interestingly, almost all FGD participants mentioned that they had not taken a loan before. However, they stated that they borrow items such as household ration, clothes for the children, and other household necessities from the food stores, and other businesses they know both in the Kebeles and nearby towns such as Degahbour. This is also in line with most parts of the region where people in need of loans aspiring to start businesses tend to borrow their initial capital, such as family members, friends, and other social networks, who can lend them the money they need (Muhumad, 2016). This emanates from the requirements that financial institutions attach to loans, as well as the meager availability of loans to most people in the region.

4.10. Saving practices and uses

Savings practices in the community are primarily informal, with households setting aside resources for future needs or emergencies. A similar study revealed that saving is a crucial tool for enhancing the livelihoods of pastoral and agro-pastoral communities, but due to a number of factors, its status and intensity are still in their infancy (Asfaw et al., 2023). The decision to save and how to use the money saved is typically made jointly by parents, with mothers often playing a leading role in managing these savings. Responsibility for savings decisions was generally shared among parents. Key informant in Obale Kebele noted that "together we [parents] decide to save and control our incomes. This result is in line with the study by Yazew (2024), who revealed that women perform dual activities, such as livestock production and pity trading, selling charcoal, firewood, and livestock outputs such as camel milk, and they collect firewood and charcoal-making inputs from the Mille River and its tributaries. By sharing tasks with their male. The money saved is commonly used for both expected and unexpected expenses such as education fees, repayment of debts, or emergency situations. Participants from the FGDs indicated that the saved money is typically used for household necessities or emergencies. This is similar to previous studies, which indicated that both men and women are now increasingly involved in entrepreneurial activities, partly due to increased household monetary needs and the creation of a local and reliable output market for basic food items (Karmebäck et al, 2015). Similarly, key informants participants highlighted that saved money is often utilized for urgent needs after mutual agreement between parents: "When there is urgent need, father and mother discussed each other and then decides." This collaborative decision-making process reflects a practical approach to resource allocation within a household. These findings are also in line with the findings on household income decision-making. In most cases, household income was managed in the study area.

Furthermore, although families generally save together for collective needs, individual savings are also common among people within these families and households. However, when an individual saves money for personal reasons, the decision regarding how to save and use it becomes solely their own. One participant explained that if one family member saves independently, they may have more autonomy over how those funds are used: "if one of them saved he can alone decide to use or not use. This illustrates that while household incomes are saved, decided, and managed mutually by the heads, each individual within the family structure and depending on the available opportunities to them can also save and independently decide the use of their savings.

Participants also revealed that women usually use Hagbad, an interest-free rotational saving scheme primarily run by women in the same neighborhood and based on mutual trust of members, to save money. However, in the Kebeles visited, financial access and inclusion were largely available through the E-birr, Sahay, E-Sahal, and Hello-Cash microfinance kiosks and their digital platforms. Given the potential of the livestock product market in these areas, enhancing the financial literacy of project beneficiaries has the potential to enhance their financial situation and improve their livelihood.

4.11. Traditional livestock feeding practices

The livestock production situation and feed resource availability in pastoral and agro-pastoral production systems in the Somali region of Ethiopia were assessed based on field visits and interviews of selected households as well as group discussions with the pastoralists.

The study result indicated that the feeding system practiced by agro-pastoralists in the study area was commonly a free grazing system (62.8%) crop residues (22.4) and cut and carry system (14.8%). Therefore, this study revealed that the feeding systems practiced in the study area are common grazing systems, crop residues, and cut-and-carry techniques, where improved forage is not practiced at all. Focus group discussions revealed that grazing practices are largely traditional, with animals allowed to graze freely during seasons when pasture is available. This livestock management approach is closely related to the seasonal availability of natural resources. A similar study revealed that natural pasture serves as the main feed source for livestock in the Somali region, particularly during the rainy season. In certain regions, it is collected during the wet season and stored for use in the dry season. Crop residues are the second most significant feed source in the nation (Duressa et al., 2014; Fantahun et al., 2016; Abdimahad, 2024).

As stated by one of the FGD participants in Bulale Kebele, "during the rainy season, when there is an abundance of pasture, we freely use the communal grazing method; however, when there is not enough pasture, we use the portion and

rotational grazing methods." As indicated by Gezahegn (2006), Somali pastoralists use protected areas through rotational grazing systems, but with priority for weaned calves, heifers, lactating or pregnant cows, breeding bulls, ewes, and rams. During the dry season, when grazing land becomes scarce, community members employ cut-and-carry techniques to feed their animals. This involves cutting the feed for livestock instead of letting it graze.

A similar study revealed that the major roughage feed resources for livestock across all the different production systems in the study areas included natural pasture/grasslands, crop residues, non-conventional feed resources (e.g., leaf and stem of enset, banana, and sugarcane; crop thinning), and crop aftermath (with the exception of urban dairy producers) (Tegegne, et al, 2013). However, the contribution of these feed resources depends on the agro-ecology, types of crops produced, accessibility, and production systems. In addition, improved forage is not practiced in the study area, which is consistent with the finding that was conducted in the Somali region, which revealed that the systematic way major factors that contribute to low productivity of local management of rangeland and improved forage animals. Feed resources provide a crucial development strategy that is not yet practiced (Birhan, 2013).

As stated by one of the FGD participants , "during the rainy season, when there is an abundance of pasture, we freely use the communal grazing method; however, when there is not enough pasture, we use the portion and rotational grazing methods." Therefore, this result is in line with recent findings indicating that natural pasture is the most common feed resource during wet and dry seasons, and grazing land is communal (Ma'alin, 2021). During dry seasons, when grazing land becomes scarce, community members employ cut-and-carry techniques to feed their animals. This involves cutting the feed for livestock instead of letting it graze.

Participants also mentioned area fencing during the rainy season, so that their livestock could graze during the dry season. While this technique has been used and remains to be used by many pastoral and agropastoral communities in the region, the Somali Region Security Administration Bureau has recently been reported to have caused communal conflicts and, therefore, warned against such communal land fencing to avoid conflicts based on these natural resources.

Additionally, some participants mentioned innovative strategies such as planting fodder crops, such as sorghum and maize, solely for their leaves and not for their yield. The leaves can then be stored and used as a livestock feed during the dry season. These practices indicate an adaptive strategy aimed at improving livestock food security. As explained by one of the participants:

During the dry season ... when there is no pasture to graze, we use the cut and carry system, which involves feeding the animals with agricultural residues, collected pasture or even cooked cereal grains. We also store fodder in a more conventional way, by collecting crop residues and storing them over raised beds to preserve the fodder.

These adaptive strategies demonstrate a community's resilience in the face of environmental challenges. Participants also mentioned that they had not attended training in sustainable fodder practices. However, the lack of training in sustainable fodder practices suggests an opportunity for intervention to improve livestock management techniques. Alin et al. (2021) indicated that the major constraints associated with crop residue utilization for livestock feeding are collection, transportation, storage, and feeding problems. Although natural pasture and crop residues have been produced, their full and efficient utilization for livestock feeding has been hindered partly by farmers' inadequate knowledge. Fodder storage is an important component of community livestock management. Participants described how the building raised wooden beds to store harvested grain stalks, keeping them clean and preserved for future use. This practice indicates an awareness of the need to prepare for periods of scarcity; however, there may be room for improvement in storage methods and fodder preservation techniques.

5. CONCLUSIONS

This study provides valuable insights into the socioeconomic dynamics and traditional livestock management practices of pastoralist and agro-pastoralist communities in the Degahbour District of Ethiopia's Somali region. The findings revealed a complex interplay between traditional practices and evolving economic realities, with implications for sustainable livestock management and community development. The demographic profile of household heads, predominantly middle-aged males with low literacy levels, highlights the need for targeted educational interventions to enhance the adoption of improved agricultural technologies. The large average family size of 7.81 persons per household underscores the importance of effective resource management strategies. Livestock remains the primary source of income for most households, with 44.9% deriving their primary income from livestock sales and products. This emphasizes the critical role of livestock in the local economy and the need for sustainable livestock management. The study also revealed a gradual diversification of income sources, including crop cultivation and small-scale businesses, which could be further developed to enhance community resilience. Traditional gender roles are evolving, with women playing an increasingly significant role in household financial management and decision making. This shift towards more collaborative decision-making processes presents opportunities for more equitable and efficient resource allocation within households. Livestock feeding practices are primarily based on traditional methods including free grazing, crop residues, and cut-and-carry systems. The absence of improved forage practices highlights a potential area of intervention to enhance livestock productivity and sustainability. The study also revealed the community's adaptive strategies in response to environmental challenges, such as seasonal variations in pasture availability. These include rotational grazing, storage, and innovative planting of fodder crops. However, the lack of training in sustainable fodder practices indicates opportunities for targeted capacity-building initiatives. Traditional practices continue to play a significant role in livestock management and socioeconomic dynamics, there is a clear need for interventions to enhance productivity, sustainability, and resilience in these communities. Future development initiatives should focus

on improving literacy levels, promoting sustainable livestock management practices, supporting income diversification, and enhancing women's participation in the decision-making processes. These efforts should be tailored to the unique context of the pastoralist and agro-pastoralist communities in the Somali region, building upon existing adaptive strategies while introducing sustainable innovations.

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