



Assessment on Cattle Breeding Practice and Production System Associated with Their Environmental Implication in Ethiopia

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Abstracts: This paper reviewed Cattle breeding practice and production system associated with their environmental implication in Ethiopia, like breeding practice; feed; production and environmental implications on cattle production. The issue of cattle and the production systems that support them is of the utmost significance if Ethiopia is to improve its social and economic stability. Crop-cattle interaction farming systems have been viewed as the poverty saving net for resource-poor rural farmers in the country where the farmers are generally poor and unable to afford conventional fertilizers for soil fertility maintenance. The potentials for increased cattle production and the productivity is proportionally lowered by various cattle management problems, prevalence of major endemic diseases, poor feeding and high stocking rate on grazing lands, lack of support services such as extension services, veterinary services, insufficient data to plan improved services and inadequate information on how to improve animal breeding, marketing, and processing. Empowering small holder producers so that they can provide high quality sustainable cattle production with an identified market destination and they will have access to basic production in put, credit, market related information. Creating strong relationship among various actors. The ministry of agriculture should established necessarily quarantine at appropriate location and introduce necessary products.

Keywords: Breeding Practice, Feed, Production, Marketing, Environmental Implications, Ethiopia

1. Introduction

Ethiopia is a largely rural country with an agrarian economy. Livestock are of economic and social importance both at the household and national levels, and have in the past provided significant export earnings. The economic contribution of the livestock sub-sector in Ethiopia is also about 12% of the total and 33% of agricultural GDP and provides livelihood for 65% of the population [1]. Formally, Ethiopia had been exporting approximately 200,000 livestock annually [2]. This is significantly higher than the recent annual official exports of cattle (12,934 head), sheep (13,554 head) and goats (1,247 head) between 1998 and 2003 [3]. In Ethiopia, recent studies estimated that annual illegal flow of livestock through boundaries reaches high. The actual performance has remained very low, leaving most of the projected livestock off take for the unofficial cross-border

export and the domestic market. These become barriers to understand and analyses the full range of activities required to bring a product (live animals, meat) to final consumers passing through the different phases of production, marketing, processing and delivery to the consumers. It creates barriers to identify market focused collaboration among different stock holders who produce and market value added products [4]. Given the low level of economic development in the country, the pressure exerted on the environment by growing human and livestock populations has exacerbated the rapid depletion of the natural resource base [5]. The present study is therefore, undertaken to review Assessment on Cattle breeding practice and production system associated with their environmental implication in general.

2. Methods

This portion of scientific reports conducted on related to Assessment on Cattle breeding practice and production system associated with their environmental constraints in Ethiopia. The initial review served to introduce and frame the issue of the keywords on the breeding practice; production; marketing; environmental Implications in Ethiopia.

2.1. Productivity

An area of livestock production that was reiterated in FAO Working Papers, The Environmental Implications of Livestock Series, and within Interviews was productivity and efficiency per animal. Dirk Hoekstra, Project Manager for ILRI projects in Ethiopia, stated in his interview that the most important goal in the Ethiopian livestock sector was to improve the per-animal environmental impacts by providing a more productive base (the same amount of erosion per cow, but less erosion per kilo of meat or per liter of milk). In order to achieve a greater productivity per animal, the following need to be addressed: genetic problems (i.e. low-quality breeding stock, disease); fodder availability and fodder quality; veterinary services (access and quality); and marketing.

2.2. Contribute of Livestock

Throughout their long history, Ethiopians have constantly relied on livestock in order to survive. Livestock in Ethiopia are extremely important as they serve a wide variety of functions in society from social to subsistence purposes [6; 7]. Livestock in Sub-Saharan Africa and in Ethiopia are often undervalued in terms of their potential for supporting overall economic development, poverty alleviation, and the general well-being of an immense proportion of the population. In spite of the relatively low notice they are afforded, livestock are estimated to contribute to the livelihoods of 60-70% of the Ethiopian population [8]. They can contribute in a myriad of different forms from traditional security systems to cash to transportation for many Ethiopians. As the oldest form of assets in Ethiopia, cattle and other types of livestock have traditionally and still today serve as a significant indicator of wealth. Even today, Ethiopia is generally recognized to have the largest population of livestock of any other African nation [8]. The immense scope of dependence on livestock is not without reason; Ethiopia's population is growing at a tremendous rate of 2.56% as of 2010 [9]. As rural Ethiopians, generally speaking, live in a subsistence economy, the immense pressure of that population growth has exacerbated poverty, leaving the population more vulnerable to hunger, disease, and famine. Ethiopia's dependency on livestock has in turn created a need to expand livestock production, to help feed and support the growing population. The environmental burden that comes with this intensive increase in livestock production is substantial. The conversion of woodlands and shrublands into croplands has resulted in the loss of the natural vegetation cover and has caused serious erosion.

2.3. Breeding Practice

The pairing of female and male animals for the purpose of reproduction on a farm using artificial Insemination or natural methods is known as mating [10].

Natural mating

In Ethiopia, the use of bulls for natural service remains widespread. Uncontrolled natural mating is the leading form of animal breeding system that is practiced under extensive husbandry in rural areas [11, 12].

Artificial insemination is a process in which sperm is collected from male animals and artificially introduced into the female reproductive tract for the purpose of fertilization [13]. Sperm is stored and from one ejaculation of a bull about 200 to 300 portions of semen can be harvested [10]. Several potentials are offered by artificial insemination over natural service. The most common is the genetic improvement while others include safety breeding, cost effectiveness, disease control, flexibility, and fertility management [14]. High cost of production (processing and collection), storage and transport of semen were the major limitations of artificial insemination [15].

2.4. Cattle and Deforestation

Environmental degradation as a result of agricultural development occurs in a numerous forms. One of the most devastating and widespread is deforestation. Removing forest and crop residues adversely affects the continued productivity in both forest and agricultural systems. It is important to note the scale of deforestation in Ethiopia to date. Forest areas have been reduced from 40% of land cover a century ago to an estimated less than 3% [16]. A major issue within forestry throughout Ethiopia's history has been property rights. From the 1950s until 1974, private land ownership was promoted through land grants given by the federal government. As a result, mechanized farming became increasingly attractive, and large numbers of Ethiopians were relocated to forest areas, where recent pressures have forced unsustainable harvest of timber and other forest products. The Derg regime, which took power after the Ethiopian Revolution in 1974, worsened the situation by promoting relocation programs known as "villagization". Deforestation and the resulting environmental degradation has remained a major problem in Ethiopia and a key challenge to food security, community livelihood and sustainable development. Between 1955 and 1979, over 77% of the country's forested area disappeared, and Ethiopia continues to lose 140,000 hectares of its remaining forests annually [17].

There is no doubt of the interdependency of agriculture and healthy woodlands. Tree and crop residues contain valuable nutrients that are lost to the soils once they are removed. The removal of trees and other land cover also exposes soil to the consequences of water and wind erosion [18]. For a country that has only 3% of its original forests still standing, and where 80% of people depend on wood fuel for all of their energy needs, continued deforestation is a serious issue. Losing forest cover as a

result of agricultural expansion is a severe risk for Ethiopia in both sustaining its main energy source as well as its environmental health.

2.5. Institutions, Stakeholders and, Laws

2.5.1. Federal Institutions

The key national institution for livestock production systems in Ethiopia as well as forest management is the Ministry of Agriculture and Rural Development (MoARD). MoARD is the government ministry charged with overseeing agricultural and rural development policies in Ethiopia. Within the many varied responsibilities of MoARD are the following two duties: supervising use and conservation of forest resources, as well as monitoring and promoting agricultural development.

MoARD was originally the Ministry of Agriculture, which was established by the Federal Government of Ethiopia with the passing of Proclamation 4-1995. This Proclamation also established the other 14 original Ministries of the Federal Democratic Republic of Ethiopia. On January 13, 2004, Proclamation No. 300/2004 merged the Ministry of Agriculture with the Ministry of Rural Development, which today comprises MoARD.

As it pertains to forestry, MoARD operates under the Forest Development, Conservation and Utilization Proclamation No. 542/2007. The Proclamation recognizes two forest types: private and state owned. The Proclamation also bequeaths MoARD with various powers and duties. They include: differentiating trees vs. plants, identifying endangered indigenous tree species, coordinating relevant federal and regional bodies, and enacting policies, laws and strategies to effectively utilize and conserve Ethiopian forests. MoARD also provides technical support to all relevant federal and regional bodies. In forestry today, MoARD acts upon Proclamation No. 542/2007: Forest Development, Conservation and Utilization. This Proclamation replaces the Policy and Strategy on Forest Development, Conservation and Utilization issued by Ministry of Agriculture and Rural Development, which was adopted by the Council of Ministers in 1997.

The Ministry of Finance and Economic Development (MoFED) is another institution with ties to the livestock sector in Ethiopia. It was established to initiate policies that ensure sustainable and equitable macroeconomic stability in Ethiopia. As it relates to livestock, MoFED is responsible for generating GDP estimates for all sectors of the Ethiopian economy. The reports generated by MoFED are thus critical in understanding livestock's role within the economy of Ethiopia. By the same token, if GDP estimates are incorrect (as some authors have argued the valuation and subsequently the prioritization of livestock within the Ethiopian economy may be erroneous [6].

The Ministry of Health is the other important player in the livestock sector, especially as related to any food products derived from livestock. Within the Ministry laws, Article 22 requires the Ministry of Health to devise plans and follow up on their implementation in eradicating communicable

diseases, undertaking the necessary quarantine controls to protect public health, and conducting studies with a view to determining the nutritional value of foods.

Finally, the Environmental Protection Authority is the primary regulatory agency for environmental protection in Ethiopia. At the regional and lower levels, the Environmental Protection and Land Administration Authorities act as regulatory agencies for environmental regulation. One of the most important is the Environmental Policy of Ethiopia [19]. This policy addresses a wide range of environmental concerns. The major aim of the policy is to ensure the sustainable use and management of natural, human made and cultural resources, and the environment. The specific land use and administration policies and strategies have been developed by the different Regional States with autonomous organizations established for implementation [19].

2.5.2. International Projects, Stakeholders, and NGOs

There are a variety of institutions invested in Ethiopian livestock production in some way. The Intergovernmental Authority on Development (IGAD), comprised of Djibouti, Eritrea, Ethiopia, Kenya, Somalia, Sudan and Uganda, has implemented the IGAD Livestock Policy Initiative (LPI). The LPI's purpose is to promote sustainable and effective livestock practices within IGAD countries. To this end, the initiative has created a number of IGAD Working Papers, designed to explore issues related to livestock development in the context of poverty alleviation.

Pastoralists Forum Ethiopia (PFE) is comprised of 20 members, including: Panos Ethiopia, Pastoralist Concern Association Ethiopia, Farm Africa, Hope for the Horn, Oxfam GB, SOS Sahel, UN-EUE. NGOs such as PFE campaigned to have pastoralists' ties included in documents such as the PRSP. From these efforts, the PRSP, published in 2002, contains a section on development approaches and interventions in pastoral areas. However, the document does not include the first and most basic recommendations from PFE, which was that pastoralism be recognized as a way of life and as a production system in the same way that traditional peasant cropping systems are recognized by the federal government [8].

With 60-70% of the population's livelihoods dependent on livestock in one way or another, the majority of Ethiopians are stakeholders in the success of the livestock sector, and in the environmental systems that support livestock production [6, 8]. The most reliant on livestock can be classified into two groups; those living in the rural highland areas, and those in the pastoral lowland communities. While the majority of people and livestock live in the rural highlands, pastoralists rely more on livestock than any other population category [20, 8]. The vast majority of land users and managers in Ethiopia, whether in the highlands or pasturelands, also have a stake in any land management practices that affect livestock. The farmers and local communities are the direct beneficiaries, and ultimately the enforcers, of the environmental policies seeking to mitigate the environmental impacts of livestock management in Ethiopia.

2.5.3. Laws

Ethiopia has a number of laws providing for sanitary and food safety standards, as well as the prevention of animal diseases that affect livestock production. Whether these laws

are enforced is questionable. Government policies have been unable to provide relevant infrastructure and market development to enforce administration policies (Forum for Environment, 2011).

Table 1. Livestock-related laws, [21].

Law	Year	Description	Location of Law
Livestock and Meat Board Order No. 34/1964	1964	Set up Livestock and Meat Board and the establishment of a National Veterinary Institute	N/A
Meat Inspection Proclamation No. 274	1970	Set up formal specifications for slaughterhouses and other processing facilities	federal Negarit Gazeta, 29th Year, No. 15, 6th April 1970
Meat Inspection Regulations No. 428	1972	Set official federal standards for meat inspection and food safety.	Federal Negarit Gazeta, 32nd Year, No. 14, 13th November 1972
Animal Diseases Prevention and Control Proclamation No. 267	2002	Law providing for the prevention and control of animal diseases, and further sanitary standards	Federal Negarit Gazeta, 8th Year No. 14, 31st January 2002
Reorganization of the Executive Organs of the Federal Democratic Republic of Ethiopia (Amendment) Proclamation No. 380	2004	Dissolved the Livestock Marketing Authority (1998) and all duties into MoARD. MoARD as it exists today is created, merging the Ministry of Agriculture with Rural Development	Federal Negarit Gazeta, 10th Year No. 15, 13th January 2004

2.6. Rural Highlands vs. Pastoral Areas

The land use displayed by GIS mapping show that the Ethiopian rural highlands (>1500 m) contain nearly all cultivated or managed areas. This data coincides with data from the FAO, which places 70-80% of cattle within the Ethiopian highland region, but lower levels of other livestock. It can be inferred that that cattle in this region are tied into the cereal crop production of the Ethiopian highlands. Oxen are widely considered the most important domestic animals in the Ethiopian highlands as nearly all of the traction for cultivation is performed by oxen [8]. Pastoralists, in contrast to Ethiopian highland communities, utilize their livestock on a more subsistence basis. Livestock provide their pastoralist owners with considerable protein and their main source of income and asset accumulation. With the least developed infrastructure services, livestock in pastoral areas are more than a necessity – they are pastoralists' way of life.

3. Discussion

The data gathered in this section highlight that cattle breeding practice, feed, human-induced land degradation, and production system is among the most significant driving forces. It is necessary to have a clear understanding of the pressures that cattle place on the availability of natural resources, and on the rural agricultural system as a whole.

3.1. Reproductive and Productive Performances

Both genetic and non-genetic factors influence the reproductive as well as productive performance of animals. The reproductive performance in dairy animals affects the total milk production and calf crops that is got during the life time of dairy cows. Indigenous cattle in Ethiopia are known to the leading source of milk around the production systems excluding urban and peri-urban dairy system where crossbreeds have momentous contribution to milk production. Dairy cattle reproductive efficiency can be

measured in several traits, like age at first service, number of service per conception, age at first calving, lactation length, calving interval, days open, and average milk yield per day an per lactation.

3.2. Feed and Nutritive Value

Livestock feed resources in Ethiopia are mainly natural pasture, crop residues, improved pastures, forage crops and agro-industrial by products [22]. The feeding systems include communal or private natural grazing and browsing, provision of crop residues and cut-and-carry feeding. At present, stock are fed almost entirely on natural pasture and crop residues. Livestock are grazed on permanent pastures, fallow land and cropland aftermath [22]. The major roughage feed resources for dairy animals across all the different production systems included natural pasture/grasslands, crop residues, nonconventional feed resources (e.g. leaf and stem of enset, banana and sugarcane, crop thinning) and crop aftermath (with the exception of urban dairy producers). The contribution of these feed resources, however, depends up on the agro-ecology, the types of crop produced, accessibility and production system [23].

3.2.1. Natural Pasture

Natural pastures supply the bulk of cattle feed. They are composed of indigenous forage species and are subject to severe overgrazing. Grazing occurs on permanent grazing areas, fallow land and on land following harvest. The availability and quality of native pasture varies with altitude, rainfall, soil type and cropping intensity. Average pasture yield for the highland areas is estimated to be 4 tons/ha. In many areas, natural pastures are invaded by species of low palatability [24].

3.2.2. Crop Residues

Crop residues are fibrous materials, which are the byproducts of cultivated crops. This is a basic limitation in residues such as straw and stover with crude protein contents around the borderline level of 6 to 7% [24]. Most residues are deficient in fermentable energy and minerals. Crop residues

have low palatability and digestibility that leads to poor intake, particularly when fed as the sole roughage. The availability of crop residues is closely related to the farming systems, the type of crop produced and the intensity of cultivation. Teff, wheat and barley straws are the major residues available in the highlands while maize and sorghum are common in the lowlands. Crop residues are often left in the field or accumulated in places where the crop is threshed. Transportation of crop residues, even over short distances, can become difficult and costly because of their bulk. The production of crop residues is also seasonal, available in very large quantities just after harvest and less available thereafter [24]. The plant species, agronomic practice used, soil, temperature and the stage of growth influence the chemical composition and the palatability of straws. [25]. reported that there is a considerable variation in the contents of crude protein and crude fiber. However, the quality varies significantly from crop to crop. Residues from leguminous crops have better quality than the residues from cereals. Legume straws contain less fiber, high digestible protein than cereal straws [25].

3.2.3. Fodder Trees

Fodder trees and shrubs are important animal feeds in Ethiopia especially in arid, semi-arid, and mountain zones, where large number of the country's livestock is found [21]. Most browse species have the advantage of maintaining their greenness and nutritive value throughout the dry season when grasses dry up and deteriorate in quality and quantity. Tree fodders are generally rich in protein, vitamins and mineral elements and can be used as dry season feed sources and supplements to poor quality grasses and crop residues. However, their utilization is reduced by the presence of tannins and other phenolic compounds in their leaves. Compared to grasses, fodder trees and shrubs have relatively high concentrations of crude protein and minerals. These nutrients are subject to less variation than in grasses and this particularly enhances their value as dry season feeds for livestock. However, nutritive value of fodder trees decreases with aging, since they become woody as they mature. Nevertheless, such situation can easily be overcome by regular lopping of the plants.

3.2.4. Improved Pasture and Forage Crops

Improved (cultivated) forages yield is higher than the naturally occurring swards and have higher nutritional value. In addition, the length of the productive season is longer for cultivated pastures than for the native pastures, which provide an opportunity to develop and use pasture and forage at a large scale for dairy production and fattening. Several forages have been tested under varying ecological zones for their adaptability and a number of useful forages have been selected for different zones. Improved pasture and forages therefore, have been grown and used in government ranches, state farms, farmers' demonstration plots and dairy and fattening areas [26]. Forage crops are commonly grown for feeding dairy cattle with oats and vetch mixtures, fodder beet, elephant grass mixed with siratro and desmodium

species, rhodes/ lucerne mixture, phalaris/trifolium mixture, hedgerows of sesbania, leucaena and tree-lucerne being common ones [28]. Due to unprecedented population increase, land scarcity and crop dominated farming, there has been limited introduction of improved pasture and forages to smallholder farming communities and the adoption of this technology by smallholder mixed farmers has been generally slow [29].

Yield of improved pasture and forage ranges from 6 to 8 tons and 3 to 5 tons of dry matter (DM) per hectare, respectively, while that of tree legumes ranges from 10 to 12 tons of DM per hectare. In suitable areas, yield of oatvetch mixtures are commonly 8 to 12 tons of DM per hectare. Despite the advantages of improved pasture and forage crops, due to land scarcity and crop-dominated farming, there has been limited spontaneous introduction of improved pasture and forages [26]. In Ethiopia, the most improved tropical forage species can be grown in the altitude ranging from lowland to mid altitude (1,500 to 2000 m.a.s.l.) except temperate species, which can grow in areas between 2,100 to 3,000 m.a.s.l. [26]. Pasture establishment is relatively difficult in the highlands compared to the humid, warmer and lower areas because of the types of soil and climate.

3.2.5. Agro-industrial By-products

Agro-industrial by-products produced in Ethiopia include byproducts from flour milling, sugar factory, oil processing factories, abattoir and breweries. These products are mainly used for dairy, fattening and commercial poultry production and the scope for their wider use by smallholder producers is low due to availability and price [24]. Agro-industrial by-products have special value in feeding livestock mainly in urban and peri-urban livestock production system, as well as in situations where the productive potential of the animals is relatively high and require high nutrient supply. The major agro-industrial byproducts commonly used are obtained from flour milling industries, edible oil extracting plants, breweries and sugar factories [27]. The current trends of increasing urban population has a significant effect on the establishment of agro-industries due to the corresponding increasing demand for the edible main products. Agro-industrial byproducts are rich in energy and/or protein contents or both. They have low fiber content, high digestibility and energy values compared with the other class of feeds [30]. Also reported more than 35% crude protein (CP) and 50 to 70% in vitro organic matter digestibility (IVOMD) for oil seed cakes and 18 to 20% CP and more than 80% IVOMD for flour milling by-products. Supplementing ruminants fed low quality feeds with agroindustrial by-products enables them to perform well due to higher nutrient density to correct the nutrient deficiencies in the basal diet [31].

3.3. Dairy Production System

Most dairy cattle production system in Ethiopia depends on low producing indigenous breeds of cattle. Dairy cattle production systems already existing in Ethiopia is part of

four major livestock production systems: specialized commercial dairy production systems, pastoral and agro-pastoral production, rural smallholder (mixed crop-livestock) production and urban and peri-urban smallholder dairy production.

3.4. Beef Cattle Production System and Management

According to the fourth livestock development project there are three types of cattle fattening system in Ethiopia [32]. These are traditional system, oxen are usually sold after the ploughing season while they in poor body conditions. Meat yields are low, the beef is of poor quality and returns to farmers are after in adequate even to buy a replacement ox cattle in the low lands are rarely fattened and are solid in poor body condition and at low prices. The management of beef cattle is greatly influenced to a large extent by the people who own them and geographical location considering that there exist within the tropics an extreme of climate and diverse environmental condition. It is not suppressing that there is a quite considerable variation in management systems. However, they can be divided into two major types. Traditional and modern beef cattle production many suggestions have been made for the classification of livestock production system, now of these classification provide a suitable frame work for the evaluation of tropical.

3.4.1. Feeding and Nutrition

The main objectives of any livestock industry in the conversion of feeds which are either in edible by man or surplus to is immediate requirement into animal products. Major constituents of beet for farm animals originated from plants, plant by products and animal sources such as fish meal and milk of recent another source added into the list is a non- biological source such as urea from nitrogen. However, most feed for livestock may be classified into two major types roughage and concentrates. Roughages are characterized by relatively large amount of crude fiber and relatively large but varying quantities of carbohydrates, crude protein, fat and little quantities of water [33]. The nutrient requirement of the beef cattle will depend on the age rate of gains expected and in the case of cows whether or not they are suckling a calf. The nutritional requirement bulls depend up on both the age and the extent to which they are being used for breeding purposes. Generally the value of any feed in a ration is determined largely by how well the ration is balance of feeding more of any nutrient than the animal requires is wasteful. Beef cattle require nutrients mainly for three purposes that is for maintenance, growth, production and reproduction.

3.4.2. Health Care of Beef Cattle

The incidence of disease in beef cattle is low when compared with the disease rate of the other important species of livestock. Nevertheless losses do occur and may be of considerable importance in individual herds. A substantial number of microorganisms cause disease in livestock and are classified as viruses, bacteria, mycoplasma, rickets, fungus

and parasites. The common notifiable disease in beef cattle production are a natural, brucellosis, footand mouth disease bovine tuberculosis and rabies. The most important future about a notifiable disease is that owner or the person in charge of an animal suspected as affected by notifiable disease must immediate report his suspension to the responsible bodies [34].

3.5. Factors Limiting Cattle Production and Marketing

One of the major factors that Limit Cattle Production and Marketing includes: Genetic resources, shortage of feed resources, Animal health, Climate factors, and shortage of water.

3.6. Economic Importance of Livestock / Livestock Contribution to GDP

There is a complex system of indicators used to quantify and measure livestock production's impact on Ethiopian national GDP. The livestock sector is estimated to contribute 30-35% of annual GDP, according to the government estimates of MOFED [8]. However, livestock specialists frequently argue that livestock production is underrepresented in the GDP estimates of African nations. Part of the problem is caused by deficiencies in data and estimation procedures, although even accurate counts of the number of livestock raised may still leave livestock underrepresented in terms of their contribution to national GDP [6]. Including for the value of plowing and the IGAD has reestimated the economic importance of livestock to show that livestock provided more than 45% of agricultural GDP in 2008-09 [6].

If Ethiopian farmers and herders provision themselves with home produced goods, they also in large measure service themselves. The most important services provided by livestock include the supply of animal power (for traction, transport and haulage), and livestock as a source of financial services (as providers of credit, as a form of self-insurance and as a means of sharing or pooling risk). According to international conventions, the value of this self-servicing is not separately itemized in national accounts and therefore cannot be identified as part of the economic benefits that livestock provide (IGAD LPI Working Paper No. 02-11, 2010, p. 36).

This conclusion is reinforced by CSA surveys that estimate the value of home-produced livestock food products at 70% of total household expenditures on livestock foods. The great bulk of the meat and milk products that Ethiopians eat are not processed or traded outside the home [19].

3.7. Herder Perceptions/Local Voices

Degradations in biological and physical rangeland resources have become serious challenges, and are well understood by the pastoral communities that are most affected. The studies documenting local perceptions of land degradation reinforce and sharpen findings.

By considering herders' knowledge and involving them in

the decision-making process for development, a more sustainable use of the local resources and a better future for pastoralists could be promoted. New policy should recognize the importance of reintroducing fire for the management of bush encroachment and be linked to communities' fodder management strategies. In this regard, future management programs for the control of bush encroachment also need to understand the mechanisms of bush encroachment in relation to land use and the rehabilitation and management of bush-invaded rangelands.

Rangeland degradation is less understood by policymakers development planners and researchers, confused with desertification, influenced by biases of western intellectuals. As a result, pastoral perceptions are overlooked, and the production system considered as ecologically unfriendly and unsustainable [35].

3.8. Future Consideration

Capacity building of farmer in different for both beef and dairy cattle operation such as rising breeds, reproduction and slaughter operation. Empowering small holder producers so that they can provide high quality sustainable cattle production with an identified market destination and they will have access to basic production in put, credit, market related information. Creating strong relationship among various actors. The ministry of agriculture should established necessarily quarantine at appropriate location and introduce necessary products.

4. Conclusion

Agriculture is the main economic activity in Ethiopia and cattle is also the major among other agricultural activities. The largest livestock population in Africa is owned by Ethiopia. cattle contribute to agriculture, food and rural development of the country. Majority of the livestock population in Ethiopia are cattle which are reared across all the agro ecologies. However, the productivity of cattle did not match their number due to prevalence of diseases, lack of breed improvement program, uncontrolled mating or breeding practice, shortage of feed, traditional production system and poor reproductive performance. By addressing these constraints to all stakeholders including the owners or farmers and designing appropriate mating or breeding systems is known to be one of the good options in improving breeding practice of cattle in Ethiopia. Breeding practice needs to involve farmers, stakeholders in the sector, government policy, the existing breeding practices, production system, management systems and their trait preferences to upgrade the reproduction and production traits of cattle. Exploring indigenous knowledge of managing the herd, setting of breeding objectives and finally designing appropriate mating systems with full participation of farmers is very important in improving both dairy and beef cattle production. Therefore, most of the livestock production system in Ethiopia is traditional

based on low production potential of indigenous breeds of cattle. So, farmers should train different aspects of improving cattle productivity by considering the suitable environment for reproductive and productive traits for improvement of sustainable cattle production and productivity.

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