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Review Article

A Review on Husbandry Practice and Constraints of Goat in Ethiopia

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ABSTRACT
Goats are an integral part of the livestock sub sector in Ethiopia. Rearing of the Goats plays a crucial role in lives of the agrarian and some pastoral communities. husbandry practice/management of the goats include but not limited to housing, herding, feeding, watering and castration. The basic requirement of good goat housing is that it should alter or modify the environment for the benefit of goats and protect them from the vagaries of nature, predation and theft. A good understanding of the community's herding practices is crucial to bring sustainable improvement to the smallholder's flock through community-based strategies. Feed resource of goats in Ethiopia varies from natural shrubs and bushes, to conserved hay and crop residues. The variations in feed resources are observed across the seasons as well as the production systems where they are raised. This may be because type and quantity of feed resources in any area depends on environmental conditions and other associated factors. Drinking water is an absolute requirement for goats and an absence of a sufficient supply of water can be a critically limiting factor in animal/goat physiology and productivity. Insufficient water supply causes physiological disturbances and thereby the overall digestibility of the feed consumed. Castration is the blocking of buck's sperm from testicles to avoid sperm in their ejaculation, which is one of the most important farm activities to prevent unwanted pregnancies in the flock, control aggression, and

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improve the quality of meat. Goat production in Ethiopia is constrained by several biotic and abiotic causes. Generally, the major constraints facing goat production throughout the country are mostly similar except their importance which varies across different areas.

Keywords: Constraints, Ethiopia, Goat, Husbandry Practice.

INTRODUCTION

Goats (*Capra hircus*) are an integral part of the livestock sub sector in Ethiopia (Zewdie and Welday, 2015). They are avital part of the livelihood systems among the agrarian and pastoral communities by contributing to the socio-economic wellbeing of their rearers (Tsigabu, 2015). Their prolificacy and fecundity, short generation interval, adaptation in harsh environment and their ability to thrive under limited feed resources, all these make them favorable as an investment and insurance (Tsedeke, 2007). Goats also serve as sources of foreign currency and are exported in large numbers to the neighboring countries (Berhanu *et al*., 2006). It has also been reported in a study) Zelalem and Fletcher, 1993) that, small ruminants serve as a source of wealth for the resource challenged members of the society who are unable to invest in large ruminants.

The pastoralists in the lowlands of the country raise most of the goats in the country; this is followed by rearing of small flocks by the smallholder farmers residing in the midlands and highlands of the country (Farm-Africa, 1996; Tesfaye, 2004; Adane and Girma, 2008). The goats are primordially selected for their adaptive traits while the productivity on an individual basis is small but the overall economic impact comes in rearing them in large numbers (Markos, 2006; Alemu and Merkel, 2008).

However, in spite of their large numbers their overall contribution to the national economy is far below the expectation, this might be attributable to their genetic makeup, environmental and socio-economic factors (Adane and Girma, 2008).Constraints pertaining to their sub optimal productive and reproductive performances can be recognized to seasonal scarcity of feed and forages, lack of veterinary infrastructure, high prevalence of diseases and parasites, lack of records, and lack of scientific management and high levels of inbreeding (Zewdie and Welday, 2015).

REVIEW

Housing of Goats

The basic requirement of good goat housing is that it should alter or modify the environment for the benefit of goats and protect them from the vagaries of nature, predation and theft (Solomon *et al*., 2010). The main climatic factors from which protection is sought for are high and low ambient temperatures, humidity, solar radiation, wind and rain (Amani, 2017). Sheep and goat housing should meet the

requirements of those animals and serve a producer's needs at the lowest possible cost (Solomon and Alemu, 2009).

The type of housing varies with the production system, the objective of raising goats and perhaps the tradition of their owners. Housing can range from very simple structures made of a roof and partial walls to complex structures with a certain degree of automation. Goats and sheep may be kept either in an area within the family home or in a separate animal shed (Girma and Alemu, 2008; Sisay and Kefyalew, 2015).

The housing should be constructed scientifically so that it is well ventilated and the slope of the floor has to be such that it can drain off the refuse thus keeping the house clean and dry. Houses are usually constructed from locally available materials; however, care has to be taken that the houses are free from vermin's and also are protective against fire (Sisay and Kefyalew, 2015).

The design of the houses depends on the agro ecology and it's advisable that all classes of goats are not reared together (ESGPIP, 2009). Pregnant and nursing does should be housed separately as rearing them with bucks can lead to unnecessary pregnancy and also abortions. Housing goats in Kraals should be advocated only during the dry season and they should be constructed in a way that it can protect the animals effectively from predatory attacks (Fikru and Omar, 2015). The floor of the kraal should be dry and have a proper slope to prevent any slippage of the goats and ensure proper drainage (ESGPIP, 2009).

Herding Practices

As stated by Sölkner-Rollefson (2003), a good understanding of the community's herding practices is crucial to bring sustainable improvement to the smallholders' flock through community-based strategies. In Ethiopia, most of the goats were herded throughout the year. Findings of a study by Alubel (2015) indicated that goat keepers of Ziquala and Tanqua Abergelle districts herd their goats throughout the year. Mainly in dry seasons goat keepers herd goat flock with sheep, because this assist in proper utilization of forage resources as sheep are grazers and goats are browsers (Silanikove, 2000). While, during the wet season most of the goats are grazed alone and/or along with the sheep. The reason why the goats are grazed alone is that during the wet season the sheep are grazed along the roads and also besides the fields as the fallow lands are now cultivated and there are chances that the goats can wander away to the fields (Solomon *et al*., 2008).

Feed Resource and Feeding of Goats

Feed resource of goats in Ethiopia varies from natural shrubs and bushes, to conserved hay and crop residues (Hulunim, 2015). The variations in feed resources are observed across the seasons as well as the production systems where they are raised (Tsedeke, 2007). This may be because type and quantity of feed resources in any area depends

on environmental conditions and other associated factors. The available feed resources in the mixed crop-livestock production areas are natural pastures, crop residues, and to a lesser extent, improved forage, concentrates, and nonconventional feeds.

Natural pasture is the primary feed source for goats in Ethiopia, being abundant during the rainy season. In some areas, it is harvested during wet season and conserved for dry season (Dawit, 2012; Duressa *et al*., 2014; Feyissa *et al*., 2014; Geleti *et al*., 2014). Crop residues are the second most abundant feed sources in the country (Tegegne *et al*., 2013; Duressa *et al*., 2014), and legume residues such as fava bean and field pea (Dawit, 2012). Animals/goats are fed on crop stubble during harvesting seasons. Nonconventional feeds, such as weeds and brewer's grains, a by-product of local tella (beer) production, are also provided (Feyissa *et al*., 2014). Agro-industrial by-products such as wheat bran, oil cake, and molasses are available only to farmers close to urban areas, but are unaffordable to most of them for frequent purchase (Geleti *et al*., 2014).

Free grazing is the most common feeding system in mixed crop-livestock farming areas. Graze/browse on pastureland, along roads and rivers and around homesteads in mixed farming areas (Dawit, 2012; Duressa *et al*., 2014; Feyissa *et al*., 2014).

Watering of Goats

Drinking water is an absolute requirement for goats and an absence of a sufficient supply of water can be a critically limiting factor in animal/goat physiology and productivity (Alamer, 2010). Insufficient water supply causes physiological disturbances and thereby the overall digestibility of the feed consumed. Water requirements of goats varies across environments, type of feed, age, body weight, exercise, status of health, the water content of the feed, milk yield, severity of heat and amount of dry matter intake (Mengistu *et al*., 2007).

Water in general should be provided to the flock at all times so that the animals are not thirsty and the homeostasis is maintained (Schlink *et al*., 2010). This is all the truer for the kids, pregnant and nursing does, diseased goats. Intake of contaminated water can lead to spread of many diseases and parasites which can have both endemic and epidemic consequences (Zewdei and Welday, 2015; Biruh *et al*., 2017). Goats along with other species of livestock are usually taken for watering at the downstream and hence the location should be clean and regularly disinfected. The major water sources in Ethiopia were borehole (water well), dam/pond, river and rain water (Tsedeke, 2007; Belete, 2009; Alefe, 2014). The water quality in Ethiopia varies by season and area. In low land parts of Bale zone, the water quality for the goats varies from clean to muddy (Belete, 2013). Water in general should be provided to the flock at all times so that the animals are not thirsty and the normal physiology can be well-supported (Schlink *et al*., 2010). This is truer for the kids, pregnant and nursing does and diseased goats. Care should also be taken to separate the diseased goats from the

flock and provide them with water or their watering point should be located further downstream (Alubel, 2015).

Castration and Fattening of Goats

Castration is the blocking of buck's sperm from testicles to avoid sperm in their ejaculation, which is one of the most important farm activities to prevent unwanted pregnancies in the flock, control aggression, and improve the quality of meat (Alubel, 2015; Gebrekiros *et al*., 2016; Tegegn *et al.,* 2016; Needham *et al*.,2017).

Castration is usually carried for buckling at weaning age (Tegegn *et al.,* 2016) in Benji Maji Southwestern Ethiopia. However, study by Belete *et al*. (2015) in lowland districts of Bale zone, indicated that the goat keepers castrate the bucks at the age of (1-2) years. Most of the time castration was done by traditional methods (Hulunim, 2015; Behailu *et al*., 2016), which is inhumane and also leads to chances of infection and death (Needham *et al*., 2017). The type and number of animals to be fattened depends on the wealth status of the farmer. Farmers with large flock size do have the potential to retain male kids for subsequent castration and fattening. Highland goats were fattened for their high price for meat purpose (Dereje, 2015). Mostly reason for castration of goats was to improve fattening to earn a better price on sell and to receive a better social status and respect (Girum *et al*., 2013). Females are fattened when they get older or when they stopped giving birth.

Constraints of Goat Production in Ethiopia

Despite of the large population and diverse roles of goats at both household and national level, their overall productivity and the contributions to the country economy is low. Goat production in Ethiopia is constrained by several biotic and abiotic causes. Generally, the major constraints facing goat production throughout the country are mostly similar except their importance which varies across different areas (Hulunim, 2015). Studies by Zewdie and Welday (2015), indicated that important constraint for goat production are scarcity of feed, lack of infrastructure, high prevalence of diseases and parasites, lack of proper records, poor market management besides lack of improved genotypes and high levels of inbreeding. In Bale zone, the constraints are similar to other parts of the country (Belete *et al*., 2015).

CONCLUSION

Ethiopia possesses a large goat population with diverse breed types that are distributed in all parts of the country. Even if to varying degrees, goats are important contributors to the livelihoods of smallholder farmers, pastoralists and agro pastoralists. Apart from their great role to the community the husbandry practice is traditional across the country. Due to various production constraints, this contribution to livelihoods is not

as great as it could be. As goat production is a largely subsistence occupation of lower-income and food-insecure communities, improved production and associated increases in income and available food (milk and meat) can have a profound impact in reducing poverty and ensuring food security Feed shortage (quantity and quality), diseases, low production/productivity, lack of marketing infrastructure, uncontrolled grazing management, water shortages, and predation have been identified as the major constraints to goat production.

CONFLICT OF INTEREST

The author declares that there was absence of any potential conflict of interest.

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