Goat production systems and opportunities for market-orientation in Southern Ethiopia

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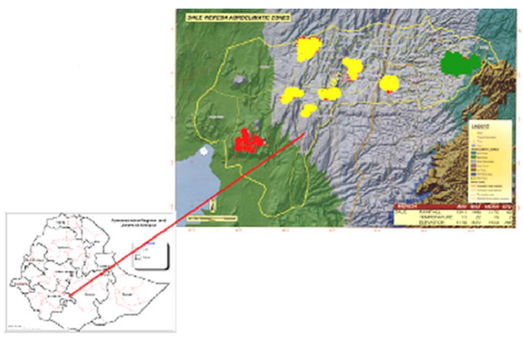
Introduction

- Ethiopia has 22 million goats (CSA, 2009/10) and 2/3 are found in arid and semi arid lowlands.
- In Southern Nations Nationalities and Peoples Regional State (SNNPR), 2.7 million goats are reared in various agro ecologies (CSA, 2010).
- Goats are adapted to a wide range of agro-climatic conditions, have selective feeding behaviour, fast reproduction, low capital investment making them suitable fort smallholder farmers and pastoralists.
- However, productivity of goats is low with average net commercial off take rate of only 7% and meat production of 3.3 kg/head/year.
- Demand for goat meat has been rising due to increased local consumption and the growing export market.

Objectives

- to identify and describe goat production and marketing systems,
- to identify opportunities and challenges of goats production, and
- to determine production potential for development of market-oriented production system.

Materials and Methods



Sidama Zone in the SNNPR State, Ethiopia, 320 km south of Addis Ababa (IPMS, 2005).

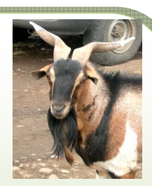
Land area - 1,411 km2 and 17,248 goats, contributing to 17.1% of the goats in the Zone (CSA, 2003).

Agro-ecologies

- Moist Dega – Wonsho; 2300 to 3200 masl.
- Moist Weyina Dega - Dale; 1650 to 2300 masl
- Moist Kola - Loka Abaya; 1170-1500 masl

Sampling procedure and data analysis

- Multistage sampling technique.
- Agro-ecology - used in order to stratify the Kebeles in the district.
- Stage one - Kebele administrations (KAs) - selected using stratified sampling technique.
- Stage two - random sampling used to select Kebeles.
- Three primary market namely: Bokasso, Naramo Dela and Hantate were selected from the Moist Dega, Weyina Dega and Moist Kola agro-ecologies, respectively.
- Two hundred forty goats belonging to 50 households were monitored from September 2006 to March 2007.
- Data entry and statistical analysis were performed using SPSS version 12 Software package.



Results

Table 1. Family size, land and livestock holdings per household

Household characteristics	Moist Dega	Moist Weyina Dega	Moist Kola
No. of respondents	15	90	15
Average family size/HH	6.50[a]	7.87[a]	6.81[a]
Average persons/HH/hectare	3.26[a]	10.31[b]	5.06[a]
Mean land holding/HH	2.18[a]	1.27[b]	1.77[ab]
Land use, ha			
·Crop land	1.83	1.11	1.56
·Grazing land	0.28	0.088	0.17
Average livestock holding/HH	9.40[a] (TLU 3.47)[a]	11.9[a] (TLU 4.44)[a]	24.4[b] (TLU 10.82)[b]

Table 2 Mean livestock holdings of households by species

Species	Moist Dega N=15	Moist Weyina Dega N=90	Moist Kola N=15
Cattle	4.13	5.13	10.93
Goat	2.57	5.76	12.47
Sheep	2.21	0.70	0.48
Equine	0.57	0.31	0.49
Herd size	9.48	11.9	24.37
TLU	3.47[a]	4.44[a]	10.82[b]

Means with the same letters within a raw are not significantly different at 0.05 level . TLU conversion rate as indicated by Gryseels (1988)
HH = Household

Goat types in the three agro-ecologies

- Goats in the Moist Kola agro-ecology are similar to the Sidama goat type and are predominantly white in color, with some fawn and black.
- Goats in the Moist Dega agro-ecology are similar to Arsi-Bale goats black and grey with some red color, and goats in the Moist Weyina Dega are fawn, grey and white.
- Sidama goat type are bigger in size than the Arsi-Bale goats, the midland goats found around Dale are intermediate in size.
- Large sized, white colored goats with thick and straight horns have better market demand and value than the other colored goats.

Flock size and structure

- The overall mean flock size was 5.98±0.55, of which 53.5% were does, 13.4% castrates, 13.8% bucks, 10.6% doe kids and 8.8% buck kids (< 6 mo).
- The highest flock size (12.5 ±2.2) is in the Moist Kola (Loka Abaya) followed by Moist Weyina Dega (5.5± 0.55) and Moist Dega (2.7 ±0.36).
- Breeding stock consisted of 63.4% female and 36.6% all age male flocks. Farmers retain does for replacement and remove male goats through sale.

Flock Monitoring

Table 3 Performance of goats in the three agro-ecologies

Parameters	Moist Dega	Moist Weyina Dega	Moist Kola
Age at first mating (Months)	10.33±0.73[a]	9.83± 0.27[a]	8.73± 0.76[a]
Age at first kidding (Months)	16.13± 0.61[a]	14.86±0.29[ab]	13.73±0.70[b]
Kidding interval (Months)	10.0± 0.35[a]	8.56± 0.18[b]	7.27±0.28[c]
Litter size, No	1.33±0.13[a]	1.59±0.16[a]	2.07±0.07[b]
Average body weight of adult does, Kg	22.7±0.66	24.3±0.89	24.9±0.97
Mean kid birth weight, Kg	2.2	2.5	2.9
Adjusted weaning weight, Kg	8.25±0.35	9.2±0.26	11.5±0.53

Mean with similar superscripts do not differ significantly at 0.05 level.

Feed resources and feeding systems

- In Moist Kola agro-ecology, goats feed on tree leaves, like Acacia species and *Olea Africana*. Palatable trees like *Balanite aegiptica*, *Maytenus ovatus, Rhamus prinoides, Tragia* spp, etc. have been declining and are being replaced by less palatable bushes.
- In Moist Dega (Wonsho) and Moist Kola (Loka Abaya) agro-ecologies shrubs, bushes and tree branches are major feed resources.
- In the Moist Weyina Dega (Dale) agro-ecology crop byproducts from parts of *enset*, banana, chat "*garaba*", sweet potato vine, haricot bean (leaves and broken seed), weeds and tinning from annual crops are the major feed resources.
- In the Moist Weyina Dega (Dale) agro-ecology, supplementary feeds include enset from tuber-pseudo stem to tip part of leaves, banana leaves and stem and chat left-over
- Sweet potato vine, haricot been residue, and maize are commonly used supplementary feeds during the time of harvest.

Major goat diseases

- In Moist Kola (Loka Abaya) area, six major diseases were identified, and trypanosomosis ranked first.
- Farmers move their goats to the Moist Weyina Dega area before the onset of tsetse infestation (before May) in order to avoid the risk of trypanosomosis.
- Goat pox is a major disease of small ruminants. It is locally known as "*Fuso*", and is highly contagious disease of goats, causing a significant loss in body condition and ends up with death.
- Heart water affects goats in all the three agro ecologies.
- Internal parasites are major problems in Moist Dega and Moist Weyina Dega areas and partially in Moist Kola.
- Goat herders recalled mortality that occurred over twelve months (Nov to Oct) to be about 11%.

Marketing structures and marketing systems

- The first primary market is Bokasso in the Moist Dega; the second is Naramo Deala in the Moist Weyina Dega (Dale) and the third and biggest is Hantate in the Moist Kola
- The number of animals marketed in Bokasso, Naramo Deala and Hantate is estimated at 400, 500-1000 and above 2000 per week, respectively.
- The market days are arranged according to local calendar of Sidama people, which include periods of four days locally termed as Dela, Dikko, Qawado and Quawalanka.
- Commonly used animal characteristics that affect price are body weight, sex, age, body condition, presence of horns and coat color

Conclusions and Recommendations

- Goats perform better in the Moist Kola under the extensive free foraging management system. However, lack of access to market, poor infrastructure and prevalence of diseases hamper full exploitation of the resource.
- The emerging small-scale intensive goat fattening system in the Moist Weyina Dega agro-ecology is an opportunity to integrate with the Moist Kola extensive production system.
- In Moist Weyina Dega integration of forages into crop production systems especially under sowing legumes like cowpea with chat and desmodium species under enset and coffee crop is important.
- Trypanosomiasis and goat pox are major diseases in the Moist Kola, while heart water and internal parasites are important in the Moist Weyina Dega and Dega agro-ecologies.
- Seasonal mobility of herders to highlands in order to protect their flock from tsetse-infested areas is an appreciable strategy.
- Inaccessibility of some areas (Loka Abaya) to markets is a crucial problem and facilitating market access is crucial.

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