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CONSTRAINTS AND PROSPECTS FOR THE DEVELOPMENT OF SMALL RUMINANT FARMING IN THE URBAN COMMUNE OF MAMOU, REPUBLIC OF GUINEA

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ABSTRACT

The objective of this study was to characterize small ruminant production in the Urban Commune of Mamou, identify its principal constraints, and define practical development options. Methods: A prospective field study was conducted from 15 September 2024 to 25 January 2025. Administrative records were reviewed, local livestock officers were consulted, and a structured questionnaire was administered to 160 farm heads in seven urban districts. The surveyed farms kept 2159 small ruminants (2062 goats and 97 sheep). Data were summarized as counts, proportions, and descriptive statistics in Microsoft Excel 2016. Results: Men represented 68.00% of respondents, 48.75% were 50-80 years old, and 73.75% had Quranic education. Goats predominated, and 90.62% of farms kept goats only. Major reported constraints were predation (96.87%), disease (96.25%), environmental and spatial pressure (93.75%), poor housing hygiene (93.12%), seasonal feed shortages (53.12%), and livestock theft (33.12%). Natural pasture was used by all farms, whereas only 1.00% used concentrate supplementation. Small ruminant farming has substantial socioeconomic potential in Mamou, but productivity is limited by preventable health, feeding, housing, and security problems. Farmer organizations, planned prophylaxis, dry-season forage production, secure housing, and stronger veterinary extension are priority interventions.

Keywords: Small Ruminants; Goat Production; Sheep Production; Animal Health; Production Constraints; Mamou.

1 INTRODUCTION

Small ruminant production is a major socioeconomic and nutritional activity worldwide, particularly in tropical regions and developing countries [1]. In West Africa, rural and low-income urban households depend on sheep and goats as readily mobilized savings, sources of high-quality animal protein, and assets used to meet social and religious needs [2]. Traditional small ruminant systems therefore contribute not only to household income but also to food security and resilience [2].

In the Republic of Guinea, livestock production contributes approximately 4.6% of national gross domestic product and 21% of agricultural gross domestic product, and directly or indirectly supports more than 300,000 livestock keepers.

The national herd has been estimated at more than three million sheep and 3.6 million goats. The National Livestock Development Programme recognizes the strategic role of this subsector and the need to improve production services and value chains [3].

Middle Guinea, particularly the Fouta Djallon highlands, has climatic and topographic conditions that are broadly favorable to agropastoral production. Nevertheless, urban and peri-urban small ruminant farming in Mamou faces interconnected zootechnical, health, environmental, and sociodemographic constraints that reduce flock productivity. Similar limitations have been documented in peri-urban sheep systems in West Africa [4].

The objective of this study was to describe the functioning of small ruminant production systems in the Urban Commune of Mamou, identify the principal constraints that limit their development, and propose feasible strategies through which the sector could contribute more effectively to sustainable local socioeconomic development.

2 MATERIAL AND METHODS

2.1 Study area

The study was conducted in the Urban Commune of Mamou, the administrative center of Mamou Prefecture in Middle Guinea (Fouta Djallon), approximately 270 km from Conakry (10°23'00" N, 12°05'00" W). The commune covers 674.32 km² and lies at an elevation of approximately 400-800 m. It has a tropical climate with a dry season from November to April and a rainy season from May to October. Mean annual rainfall is approximately 2000 mm, and temperatures generally range from 15 °C to 36 °C.

2.2 Study design and period

A prospective, descriptive field study was carried out from 15 September 2024 to 25 January 2025. The investigation combined consultation of livestock authorities and administrative records with a farm-level questionnaire survey.

2.3 Administrative review

Meetings were held with staff of the Prefectural Directorate of Agriculture and Livestock and heads of veterinary posts. These consultations documented animal-health monitoring arrangements and provided prefecture-level livestock statistics, including the 2023 census.

2.4 Farm survey and variables

A structured questionnaire was administered to 160 heads of small ruminant farms distributed across seven urban districts. The farms collectively kept 2159 animals. Recorded variables included respondent sex, age, education, main occupation, herd species composition, management system, housing, feeding, watering, animal-health problems, predation, and theft. The source study did not report the farm-selection method or questionnaire validation procedure; these details should be supplied by the authors to maximize reproducibility.

2.5 Statistical analysis

Qualitative and quantitative data were entered, coded, and analyzed using Microsoft Excel 2016. Findings were summarized using counts, relative frequencies, proportions, and descriptive statistics. Because the study was descriptive, no inferential statistical tests or multivariable models were reported.

3 RESULTS AND DISCUSSION

3.1 Institutional data and overall herd structure

According to the 2023 records of the Prefectural Directorate of Agriculture and Livestock, Mamou Prefecture had 17 360 small ruminants: 9492 goats (54.7%) and 7868 sheep (45.3%). Relationships between official veterinary services and farmers were mainly occasional and curative, typically initiated through individual requests for treatment, or were limited to national vaccination campaigns such as those against sheep and goat plague and contagious bovine pleuropneumonia.

The predominantly reactive relationship between farmers and veterinary services limits preventive herd-health planning. Stronger extension coverage, routine surveillance, and scheduled prophylaxis are therefore important, particularly because animal-health constraints are repeatedly reported across West African goat systems [5].

3.2 Sociodemographic characteristics of farmers

Among the 160 respondents, 109 (68.00%) were men and 51 (32.00%) were women. Farmers aged 50-80 years formed the largest group (48.75%), followed by those aged 30-49 years (45.62%); only 5.62% were aged 18-29 years. Quranic education was reported by 73.75% of respondents, while 15.62% had no formal schooling. Merchants represented 82.50% of respondents, whereas 6.87% identified livestock farming as their exclusive occupation (Figure 1).

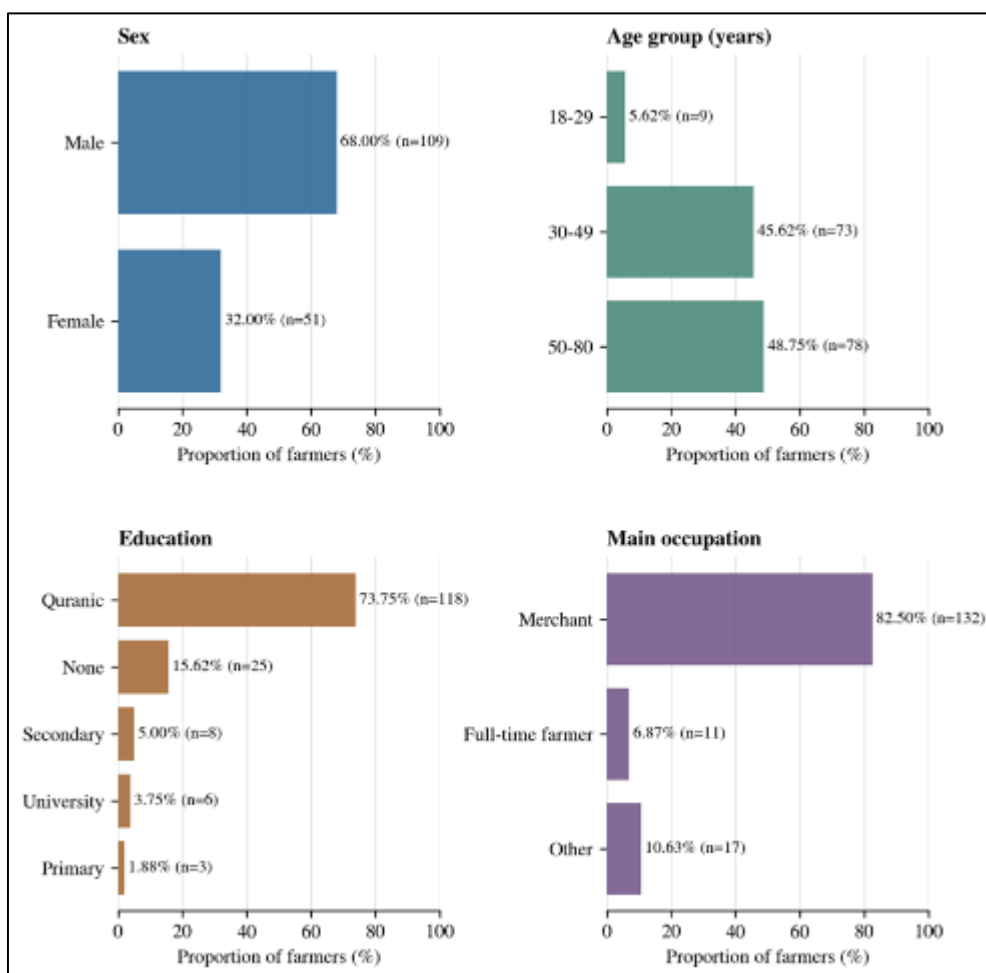


Figure 1: Sociodemographic profile of surveyed small ruminant farmers in the Urban Commune of Mamou (N = 160). Percentages are accompanied by respondent counts; categories within each domain are mutually exclusive, apart from rounding.

The predominance of older men is consistent with observations from other small ruminant production systems in Central and West Africa, where male household heads commonly control livestock ownership [4,6]. The very low participation of people aged 18-29 years suggests limited attractiveness of traditional production compared with transport and general commerce. Women's participation may also be underestimated when formal ownership, rather than day-to-day animal care or product marketing, is used to define the farm head.

3.3 Herd composition and management system

Of the 160 farms, 90.62% kept goats only (primarily the Fouta Djallon Guinean goat), 5.62% kept sheep only (Djallonké sheep), and 3.75% maintained mixed flocks (Figure 2). Across the survey, 2,062 of 2,159 animals (95.51%) were goats and 97 (4.49%) were sheep.

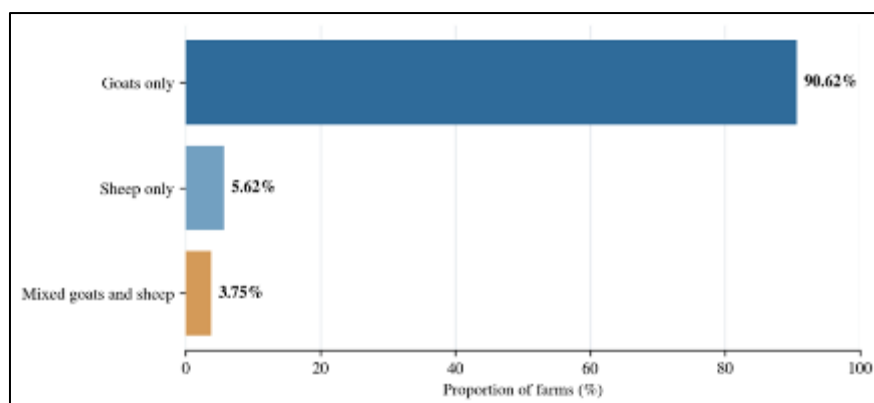


Figure 2: Distribution of surveyed farms by small ruminant species kept (N = 160). Values were reconstructed from the proportions reported in the source study; the total differs from 100% by 0.01 percentage point because of rounding.

The strong preference for goats is plausibly related to the hardiness, prolificacy, and browsing ability of local goats, which allow them to use woody plants and low-quality by-products [7]. These characteristics support the important multifunctional role of goats in tropical production systems [8].

All respondents practiced a traditional semi-intensive system. Although 99% reported some form of rudimentary shelter, including wooden pens, verandas, or unused huts, animals generally roamed during the day to obtain feed from courtyards, roadsides, and refuse areas. This pattern reduces direct feed costs but increases exposure to infectious agents, parasites, traffic, predation, theft, and ingestion of hazardous waste.

3.4 Feeding and watering practices

All farms used natural urban or peri-urban pasture, including grasses and browse. Household residues such as tuber peelings and kitchen leftovers were used by 85.00% of farms, whereas only 1.00% provided concentrate or agro-industrial by-product supplementation. In addition, 85.62% lacked a fixed watering facility; animals drank from streams, seasonal channels, and runoff water (Figure 3).

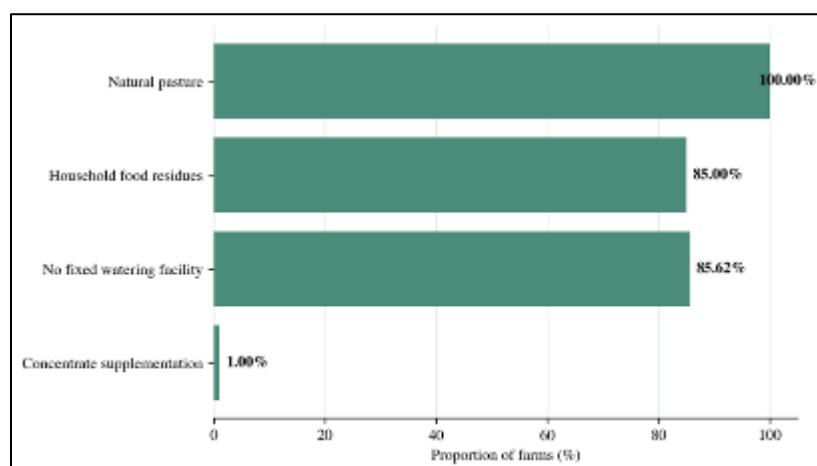


Figure 3: Feeding and watering practices reported by small ruminant farms in Mamou (N = 160). The indicators are not mutually exclusive. Natural pasture included grasses and browse; household residues included peelings and kitchen leftovers; concentrate supplementation included cereal and agro-industrial by-products.

Reliance on uncontrolled water sources can increase exposure to parasites and fecal contamination, particularly where animals roam freely [6]. The near absence of concentrate supplementation is also important because forage quantity and quality decline during the dry season. Forage cultivation, conservation, and strategic supplementation could reduce seasonal weight loss, but recommendations should be adapted to farmers' purchasing power and locally available feed resources.

3.5 Major production constraints

The most frequently reported constraints were predation (96.87%), disease (96.25%), environmental and spatial pressure (93.75%), and poor housing hygiene (93.12%). Seasonal feed shortage affected 53.12% of respondents, while 33.12% reported livestock theft (Figure 4). These percentages describe overlapping constraints and should not be summed.

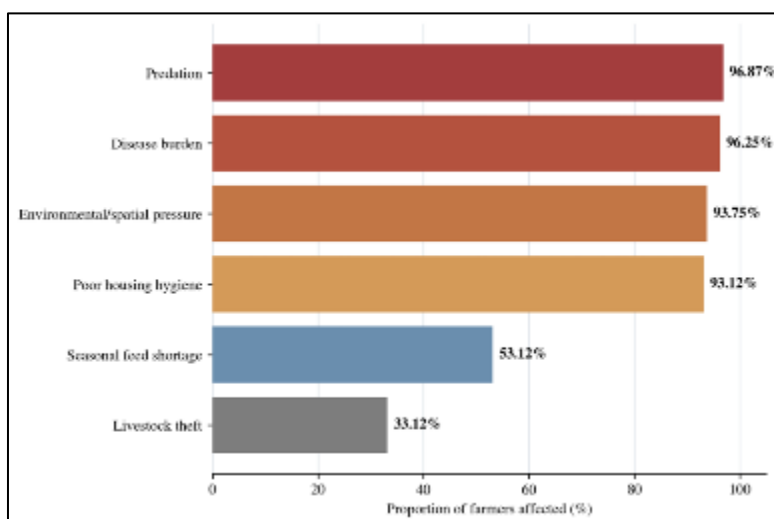


Figure 4: Major constraints reported by surveyed small ruminant farmers in the Urban Commune of Mamou (N = 160). Indicators were reported independently and were therefore not mutually exclusive.

Respiratory and digestive disorders were reported, to varying degrees, on all farms, and 60% of respondents reported PPR. Farmers also mentioned dermatoses and parasitic disease. The reported disease pressure is consistent with regional evidence identifying infectious diseases and parasitism as major limitations to goat productivity [5,9]. Locally validated deworming approaches, including assessment of effective plant-based options, may complement conventional control when supported by veterinary oversight [10].

Environmental constraints included predation by roaming dogs, deforestation, drought, insecure fencing, land pressure, and shrinking grazing space. Poor hygiene was associated with inadequate cleaning and accumulation of moisture and feces in shelters. Seasonal undernutrition reflected dry-season forage scarcity and the high cost of commercial feed. Theft was facilitated by nocturnal roaming, limited surveillance, and the absence of individual animal identification. Comparable interactions between climate, feed availability, and management have been reported in other resource-constrained small ruminant systems [11,12].

Taken together, the findings indicate that productivity is constrained by a chain of mutually reinforcing factors. Free roaming increases exposure to contaminated water, predation, and theft; inadequate housing hygiene raises infection risk; and low preventive-service use allows manageable disease burdens to persist. Intervention packages should therefore address housing, feeding, health, and security jointly rather than as isolated problems.

4 PROSPECTS FOR SUSTAINABLE DEVELOPMENT

4.1 Farmer organization and access to services

Small ruminant farmers should be encouraged to form cooperatives or professional associations. Collective organization could improve access to credit, veterinary inputs, training, market information, and secure communal grazing areas. It could also facilitate group vaccination, purchasing, and animal identification.

4.2 Agroecological integration and dry-season feeding

Manure can be valorized as organic fertilizer for urban and peri-urban horticulture, while adapted forage species such as *Stylosanthes* and *Leucaena* can be established and conserved for dry-season use. Feed plans should combine safe local residues, browse management, forage conservation, and targeted supplementation. This integrated approach can strengthen household food security and reduce vulnerability to seasonal shortages [13].

4.3 Animal health and preventive care

Periodic PPR vaccination, scheduled parasite control, basic biosecurity, housing sanitation, and rapid referral of sick animals should be implemented jointly with local veterinary services. A preventive calendar should be accompanied by farmer education and simple record keeping so that morbidity, mortality, treatment, and vaccination can be monitored over time.

4.4 Participation of young people and women

Targeted husbandry and business training, starter support, and access to producer organizations could make small ruminant enterprises more attractive to young people and improve women's economic participation. Program monitoring should capture both formal animal ownership and actual contributions to daily husbandry, processing, and marketing.

5 CONCLUSION

The Urban Commune of Mamou has substantial potential for goat and sheep production, supported by hardy local breeds and strong household demand. However, productivity remains limited by traditional management, substantial disease pressure, unsafe water and inadequate dry-season feeding, poor housing hygiene, predation, and theft. The high prevalence of several overlapping constraints indicates that isolated measures are unlikely to be sufficient.

Sustainable improvement requires coordinated action by public authorities, veterinary services, researchers, and farmer organizations. Priorities include secure and hygienic housing, planned vaccination and parasite control, reliable watering points, dry-season forage production and conservation, individual animal identification, and inclusive training and finance for women and young people. Future studies should report the sampling frame, questionnaire validation, production and mortality outcomes, and inferential analyses to quantify determinants of farm performance.

STATEMENTS ON COMPLIANCE WITH ETHICAL STANDARDS

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Disclosure of conflict of interest

The authors declare that they have no financial or non-financial conflicts of interest related to this work.

Statement of ethical approval

The source manuscript did not report the name of an approving ethics committee, an approval number, or a formal determination that approval was not required. The authors must provide the applicable institutional statement before submission.

The study was observational and the source manuscript did not report experimental manipulation of animals. The authors should confirm whether any direct animal examination or sample collection occurred and, if applicable, provide the relevant approval statement.

Statement of informed consent

The source manuscript did not describe the consent procedure used for interviews with farmers. The authors must state whether written or verbal informed consent was obtained and how confidentiality was protected.

REFERENCES

- [1] Srouf A. Economy and Sustainability of Sheep and Goat Farming Systems in Fragile Areas. Paris: Éditions Agro-Presse; 2018. 210 p.
- [2] Faye B, Animales R. The role of livestock in the fight against poverty. Rev Elev Med Vet Pays Trop. 2021;33(0):231-238.

- [3] Ministry of Livestock and Animal Production. National Livestock Development Program in Guinea. Conakry: Ministry of Livestock and Animal Production; 2016. 120 p.
- [4] Dorchies PP. Socio-economic determinants, zootechnical performance, and health constraints in peri-urban livestock farming in Côte d'Ivoire: the case of sheep farming in Bouaké. *Rev Sci Vet.* 2011;18(4):112-125.
- [5] Missohou A, Talaki E, Aboubacar I. Goat farming in West Africa: potential and health constraints. *Med Vet.* 2016;42(1):15-28.
- [6] Tendonkeng F, Pamo TE, Boukila B. Small ruminant farming in Cameroon: constraints and development prospects. *Int J Biol Chem Sci.* 2013;7(2):512-524.
- [7] Higher Institute of Veterinary Sciences and Medicine (ISSMV). Zootechnical and Health Guide for Ruminants in West Africa. Dalaba: ISSMV; 2022. 142 p.
- [8] Alexandre G, Arquet R, Fleury J, Boval M, Mahieu M, Mandonnet N. Goat farming systems in tropical areas: analysis of functions and performance. *Rev Elev Med Vet Pays Trop.* 2012;25(3):305-315.
- [9] Guingouain C. Diagnosis of Small Ruminant Farming Constraints in the Guinean Zone [veterinary thesis]. Dakar: EISMV; 2017. 98 p.
- [10] Kaboré A. Anthelmintic Activity of Two Tropical Plants Tested In Vitro and In Vivo on Gastrointestinal Strongyles of Mossi Sheep in Burkina Faso [doctoral thesis]. Ouagadougou: University of Ouagadougou; 2015. 185 p.
- [11] Chikhi A, Boujenane I. Characteristics of sheep farms and zootechnical performance in arid zones. *J Anim Prod.* 2013;14(2):45-58.
- [12] Bompas G. Study of Farming Practices Implemented in Small Ruminant Farming Systems in Martinique [master's thesis]. CIRAD; 2010. 68 p.
- [13] Yembliman K, Lare L, Kombate B. Traditional goat farming and household food security in West Africa. *Rev Agron Afr.* 2020;12(3):89-102.