

Opportunities for exploiting underutilized feed resources to enhance market-oriented animal production in North-western Ethiopia

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Abstract:

This study was conducted in Metema district, Amhara Region, Ethiopia to characterize the existing feed resources and recommend their enhanced utilization for animal production. The major feeds were pasture (55.7%), crop residues (20.7%), stubble (14.3%) and hay (9.3%). The estimated annual feed supply was 833,531.2 tons DM and 94% came from natural pasture. About 33 herbaceous species and 20 woody species that are highly desirable, desirable and less desirable were identified. The total dry matter biomass and the high proportion of desirable species could be effectively utilized to support market-oriented ruminant production in the district and beyond.

Introduction:

Ethiopia has the largest ruminant population in Africa. The lowlands (<1500 masl) cover 78 million ha, and support 12% of the human and 26% of the livestock population (Beruk and Tafesse 2000). The Amhara Region owns 35% of the national livestock population (Befekadu and Berhanu 2000). The lowland district of Metema, in North Gondar Zone bordering the Sudan, has a dominant cattle and goat production system. It is sparsely populated and has underutilized surplus feed during the rainy season (Elias *et al.*, 2007). Farmers from neighboring highland districts practice transhumant cattle production from May to October and use the surplus feeds. However, the human population and crop production has been increasing in recent years, creating conflict over resources between the highlanders and lowlanders. This study was, therefore undertaken to a) characterize feed resources and utilization practices, and b) to recommend options for wider and efficient utilization of feeds for market-oriented animal production.

Materials and Methods:

A single-visit formal survey, group discussions and visual observations were used to collect primary information and data from secondary sources were collected. A total of 140 respondents from 7 villages were selected by stratified random sampling and interviewed. Feed samples were collected from communal, roadside and enclosure areas, and in each site herbaceous and woody biomass, grass species composition, basal cover, litter cover, soil erosion, soil compaction, seedling count, age distribution and woody density enumeration, canopy cover and hedging were recorded. For the height classes <0-1m, >1-3 M, >3-4.5 m and >4.5 m was used. Feed samples were stratified by season and types and subjected to chemical analysis. Data were analyzed using SPSS and SAS.

Results:

About 82.9 % of the respondents practiced crop-livestock mixed farming system. The mean ruminant livestock holding per household was 12.52±6.23 cattle, 0.80±0.40 goats and 0.13± 0.07 sheep. Natural pasture (55.7%), crop residues (20.7%), stubble (14.3%) and hay (9.3 %) were the major feed resources. The total estimated annual feed supply (tons DM) was 833,531 and 94% came from natural pasture. Of the identified 33 herbaceous species, 14 and 19 were different grasses and non-grass species. From the non-grass species, 6 legumes and 13 sedges were recorded. Of the grasses, 23.1%, 38.5% and 30.8% were highly desirable, desirable and less desirable, respectively. Of the identified 20 woody species, 15%, 35% and 50 % were highly desirable, desirable and less desirable, respectively. The largest proportion of woody vegetation was contributed by different species of Acacia (20%) and Commbretum (10%). The total dry matter biomass, dry matter biomass of grass and highly desirable grasses, and legumes were higher (P<0.05) in the enclosure followed by communal grazing areas than the road side grazing.

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Considering all grazing livestock in the district, it was estimated that there is an annual surplus of 598,258 tons DM. These results are in agreement with Sisay (2006). There are also potential irrigable areas that could be developed for production of improved forages in the district.

Conclusion:

Seasonality in feed availability and lack of knowledge on feed conservation have created feed shortage both in the highland and lowland ecologies of Ethiopia. Meat production in the lowlands and meat and milk production in the highlands offer great opportunities for market-oriented ruminant production. The population pressure and expansion of crop land calls for alternative ways of feed production, conservation and utilization. The seasonally surplus total dry matter biomass could be effectively utilized to support market-oriented ruminant production in the district and beyond.

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Keywords: feed resources, animal production, market-oriented, Ethiopia