Assessing Nigeria's National Ruminant Livestock Feed Balance

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INTRODUCTION

- Ruminant livestock significantly contributes to Nigeria's economy by converting low-value biomass (Figure 1) into products like meat and milk.
- Biomass availability is increasingly limited due to rising demands for staple crops, animal-sourced foods, and bioenergy.
- Precise estimation of livestock feed demand and supply is needed for

• Total biomass available as animal feed was 195 Mt of DM (Figure 3).

RESULTS







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effective decision-making in the livestock sector.

• We used remote sensing and feed quality data to assess the demand and supply of ruminant livestock feed resources in Nigeria.



Figure 1: Sources of livestock feed resources in Nigeria

METHODOLOGY

Figure 3: Feed supply for the year 2023 in Nigeria.

• Total ruminant feed demand was 212 Mt of DM (Figure 4).



- Biomass availability was estimated using gridded products for land use, above-ground dry matter productivity (DMP), crop distribution, and phenology.
- Feed energy availability was calculated by extracting above-ground DMP in kg/ha/day, excluding areas with burn scars and grazing restrictions (Figure 2).
- Livestock energy requirements were modelled for maintenance, growth, lactation, gestation, and locomotion using Gridded Livestock of the World (GLW) data.



Figure 4: Feed demand for the year 2023 in Nigeria.

- Total deficit was 17 Mt of DM (Figure 5).
- Surplus in forest mixed zone (65%) and southern mixed zone (43%).
- Deficit in (Agro)pastoral Sahel zone (64%) and northern mixed zone (29%).





Figure 2: Feed balance model for ruminant livestock. A minus sign (-)

indicates excluded biomass, while an asterisk (*) denotes inclusion of feed

concentration values in subsequent calculations. ME = Metabolizable Energy

and DM = Dry Matter. Source: Fraval et al. (2024)

Figure 5. Feed deficit/surplus for the year 2023 in Nigeria.

CONCLUSION

- Feed was scarce where livestock are most concentrated.
- Invest in feed production, feed mobility, feed infrastructure and policy coordination.







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