# INTEGRATING LIVESTOCK INTO AGRICULTURAL SYSTEMS FOR INCREASED LIVESTOCK PRODUCTIVITY: EVIDENCE FROM SMALLHOLDER DAIRY FARMERS IN BABATI DISTRICT, TANZANIA

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# Introduction

- Smallholder farming system characterized by sub-optimal use of available feed resources. resulting in year-round feed shortages
- There is need for sustainable dairy production systems through growing and utilizing greater quantities of home grown quality forages.
- . This can greatly reduce livestock production costs without compromising the productivity.





# **Key Outcomes:**

Average milk production and feed intake (DM) at different levels of feed supplementation:

	Feed intake (kg DM)	s.e.d and sig Feed intake	Milk yield	s.e.d and sig Milk yield	Rate of change in milk yield
Fodder type			(Litres)		(Litres)
NG100	5.99	0.694	9.47		(reference feed)
NG80_BH20	3.96	0.078	9.76	0.314***	0.4
NG70_BH30	3.98	0.088	<mark>9.8</mark> 8	0.311***	1.7
NG60_BH40	3.35	0.058	9.898	0.392***	2.7
MS100	0.62	0.062	6.81		(reference feed)
MS80_BH20	0.71	0.094	7.25	0.191***	0.97
MS70_BH30	0.71	0.087	7.48	0.279	0.47
MS60_BH40	0.693	0.015	7.64	0.261***	0.98



## **Objective**

Evaluating the impact of improved Napier grass and maize stover based diets on milk yield under smallholder conditions

### **Materials and Methods**

- Use of field trial experimentation:
- Farms used as experimental units and lactating cows as replicates
- 23 farmers from 6 villages (Hysum, Bermi, Long, Bashnet, Masabed & Gabadaw)

24 lactating cows : Two genotypes (local and improved cattle)

## Implications

Napier grass can yield significantly higher milk yield when supplemented with bean haulms at the rate of 20-40%. The higher the inclusion rate the more milk is realized: 0.5-2.7 litres of milk per day.

Supplementing maize stover with bean haulms on the other hand yielded marginal milk increase per day.





Two basal ratios– Napier grass and maize stover supplemented with bean haulms at different levels (100, 80, 70 & 60%)

Data collected for 45 days with a 7-day adjustment before trial started.

Application of regression analysis to assess incremental changes.

#### **Dairy experimental diets**

Feed types	Napier grass-based diets				Maize stover - based diets			
	T1	T2	Т3	T4	T5	T6	Τ7	Т8
Napier grass	100	80	70	60				
Bean haulms	-	20	30	40	-	20	30	40
Maize stover					100	80	70	60
Total	100	100	100	100	100	100	100	100

Farmers mixing local feed in Babati, Tanzania

#### Conclusions

In this study, Napier grass supplemented with bean haulms resulted in milk yields similar to those of the Napier grass/concentrate feed supplement. Thus, mixing Napier grass with legumes crop residues has the potential to increase milk yields on farms

Cows fed maize stover based diets had low DMI which affected the milk yield of animals on this treatment. Indicating maize stover should not be relied on a basal diets for feeding milking cows due to its ow palatability and high fibre content

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