EFFECTS OF SWEET POTATO CULTIVARS AND ENVIRONMENTAL FACTORS VARIATION ON IN SACCO DEGRADABILITY AND *IN-VITRO* DIGESTIBILITY IN KENYAN HIGHLANDS

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Introduction…

- One of the major challenge facing dairy farmers in the highland of Kenya is low milk production from their dairy cows since animals feed on poor quality basal diet which is not able to support the high milk production.

- Different parts of sweet potato are fed as supplement as they are nutritious and affordable

Introduction…

- Effect s of variations on insacco degradation and IVOMD which are major factors determining the nutrition value of sweet potato are not known in the Kenyan highlands

- Study was conducted to determine the effect on in-sacco degradation and IVOMD of 6 sweet potato cultivars grown under 2 varied management, in 3 agro-ecological locations, in the highlands of Kenya.

Material and methods

- 6 sweet potatoes cultivars; Naspot1, 103001, Kemb23, Gweri, Kemb36 and Wagabolige were grown in high altitude (2100 m), medium altitude (1800 m), and low altitude (1600 m) locations in the highlands of Kenya being defoliated at day-75 post-planting and at day-150 and they were on-farm grown.
- Samples were analysed for IVOMD using NIRS
- Samples were incubated in rumen and degradation parameters determined
- SAS 2003 was used for data analyze to compute ANOVA and mean separation was done using lsd

Results and discussion

In-sacco parameters of various cultivars of sweet potato vines .

	Cultivars					
Degrad.parameters	103001	Gweri	Kemb23	Kemb36	Naspot1	Wagab
Sol.fraction (%)	6.3^{c}	11.4^{b}	5.1^{c}	13.3^{a}	8.7^{b}	9.8^{b}
Pot.degradable	94.0^{a}	91.4^{c}	98.3^{a}	100.0^{a}	100.0^{a}	94.6^{a}

In-sacco parameters of various cultivars of sweet potato storage roots

	Cultivars					
Degrad. parameters	103001	Gweri	Kemb23	Kemb36	Naspot1	Wagab
Sol.fraction (%)	10.7^{b}	9.8^{b}	8.6^{c}	8.7^{c}	13.4^{a}	9.7^{b}
Pot.degradable	91.8^{c}	95.8^{b}	100.0^{a}	95.4^{b}	79.5^{d}	100.0^{a}

Results and discussion

Table 1. IVOMD, of SP vines of day-150 ratooned (R) and unratooned (U) for various cultivars in different locations.

	Location								
	High			Medium			Low		
Cultivar	75	150R	150U	75	150R	150U	75	150R	150U
103001	57.2^{b}	56.1^{c}	55.3^{c}	61.0^{a}	55.1^{b}	56.5^{b}	58.0^{c}	51.4^{c}	50.2^{d}
Gweri	60.8^{a}	62.2^{a}	61.9^{a}	62.5^{a}	60.7^{a}	59.6^{a}	62.9^{a}	59.3^{a}	54.3^{b}
Kemb23	58.3^{b}	58.9^{b}	57.0^{b}	59.4^{a}	56.1^{b}	56.4^{b}	58.5^{c}	53.1^{b}	53.7^{b}
Kemb36	55.3^{d}	57.4^{a}	57.3^{b}	62.6^{a}	56.1^{b}	56.6^{b}	57.7^{c}	55.0^{b}	54.4^{b}
Naspot1	56.1^{c}	54.2^{d}	57.6^{b}	60.0^{a}	57.3^{b}	58.1^{b}	60.4^{b}	51.4^{c}	52.4^{c}
Wagabo	58.9^{b}	56.2^{c}	59.4^{b}	60.5^{a}	58.3^{b}	57.7^{b}	60.3^{b}	55.7^{b}	57.3^{a}

Results and discussion…

Table 2: IVOMD of SP roots of day-150 ratooned (R) and unratooned (U) for various cultivars in different locations

	Locations					
	High		Medium		Low	
Cultivar	R	U	R	U	R	U
103001	74.5^{a}	73.8^{a}	75.2^{a}	74.9^{a}	69.8^{b}	74.9^{a}
Gweri	73.9^{a}	64.5^{b}	72.3^{a}	71.0^{a}	69.8^{a}	70.6^{a}
Kemb23	60.2^{b}	77.2^{a}	72.4^{a}	72.9^{b}	59.4^{b}	68.9^{c}
Kemb36	77.1^{a}	76.8^{a}	76.0^{a}	72.0^{b}	62.0^{b}	63.0^{c}
Naspot1	78.2^{a}	76.2^{a}	74.6^{a}	76.4^{a}	72.3^{a}	75.0^{a}
Wagabo	65.6^{c}	76.9^{a}	73.5^{a}	74.7^{b}	67.7^{b}	67.3^{c}

Results and discussion

- Gweri vines and Naspot1 roots had low potential degradation percentage meant that much of them would by-pass the rumen for further digestion in the lower gut.

- Gweri vines had the highest IVOMD in all the locations except day-150 unratooned in low altitude locations, which was due to the low fibre content in the cultivar. Day-75 vines grown in medium altitudes had the highest IVOMD. This could be due early stage of growth hence low fibre content in them.

- Naspot1 root had the high IVOMD across all the locations, however it reduced when the cultivar was defoliated at day-75, meaning defoliation of the cultivar increased the fibre content of this cultivar

Conclusion

- Gweri and Naspot1 had the lowest degradable potential percentage in vines and storage roots respectively.

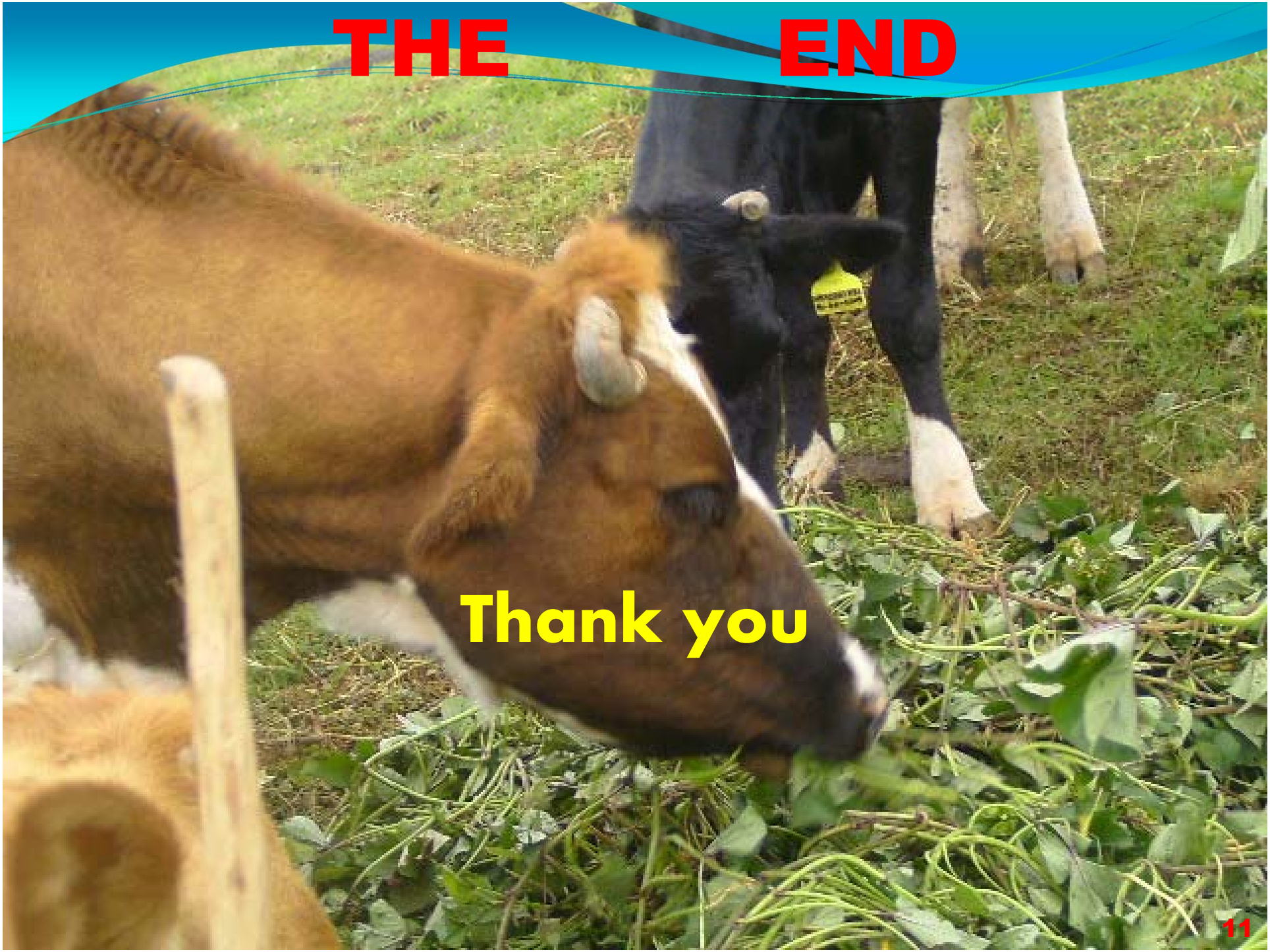
- Gweri vines had the highest IVOMD in all the locations except day-150 unratooned in low altitude locations while day-75 vines grown in medium altitudes had the highest of the same.

- Naspot1 root had the high IVOMD across all the locations, however the percentage reduced when the cultivar was defoliated at day-75.

- Gweri would be preferred to be grown for vine production and undefoliated Naspot1 for root production while vines cut at day-75 would more preferred than the ones harvested at day-150

Acknowlegements

- Egerton University
- UoN
- DMG Members
- APA
- Every one of us


THE END
Thank you