



RTB-ENDURE

Sweetpotato sub-project

Sweet Potato Vines Silage: A Feed Resource for Improved Smallholder Pig Production in Uganda



Research
Program on
Roots, Tubers
and Bananas



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Objectives



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Increase productivity and marketed share of pigs and pig products for economically active smallholder farmers through efficient use of Sweet potato vines silage



Introduction

- Feed that is scarce and highly priced.
- Seasonal fluctuations in availability
- Use of affordable rations based on local ingredients
- Efficient exploitation of food - feed crops is an alternative
- One such alternative is the Sweet Potato crop.



Introduction

- Uganda highest producer of SP in Africa (about 2.2 million tons/annum).
- Grown for roots while vines are either fed to livestock.
- Crude protein in SPV high (19-22).
- Fresh form can only be fed for a short period of time after harvest:
- The need for conservation
- Preservation of vines in form of silage to extend shelf life



The Research process



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Determine current
feeding practices

Determine best
quality of silage

Determine best
silage diets on-
station

Validate best silage
diets on-farm

Methodology

| District | Subcounty | Treatment | No. of farmers | No. pigs per farm | Total |
|----------|------------------|-----------------|----------------|-------------------|-----------|
| Kamuli | Bugulumbya | silage + suppl | 4 | 3 | 12 |
| | Butansi | silage + suppl | 4 | 3 | 12 |
| | Namwendwa | Farmer practice | 4 | 3 | 12 |
| Masaka | Nyendo-Ssenyange | silage + suppl | 4 | 3 | 12 |
| | Buwunga | silage + suppl | 4 | 3 | 12 |
| | Mukungwe | Farmer practice | 4 | 3 | 12 |
| | | | 24 | | 72 |

- One treatment per homestead
- Silage prepared in the homesteads
- Supplement weighed out on a daily basis
- Silage fed at free will

Methodology

Silage Preparation

- Procure sweet potato vines
- Spread out to wilt
- Chop into pieces 2-2.5 cm length
- Spread maize bran over the top
- Fill into plastic silos (Capacity 50-100kg)
- Compact to remove as much air as possible
- Tie off at the top with a sisal string.
- Allow to stand for at least 30 days



Composition of concentrate diet

| Ingredient | Proportion in diet | Cost (UGX) |
|------------------|--------------------|----------------------------|
| Maize bran | 75.7 | $75.7 \times 550 = 41,635$ |
| Soybean | 21 | $21 \times 2000 = 42,000$ |
| Dical- Phosphate | 2 | $2 \times 1200 = 2,400$ |
| Lysine | 0.3 | $0.3 \times 9,000 = 2,700$ |
| Vit- min premix | 0.5 | $0.5 \times 5000 = 2,500$ |
| Salt | 0.5 | $.05 \times 1000 = 500$ |
| Total | 100 | 91,735 |

Data Collection

Pigs weighed biweekly

Silage intake determined biweekly

Feed/gain calculated from intake and body weight gain.

Analysis:

Appropriate statistical package GLM procedures (SAS 2003)



Results

Means of Daily gain, Feed Intake and Feed/Gain

| | Control | Silage + Suppl. | P < 0.05 | SEM |
|------------------------|---------|--------------------|----------|------|
| Initial weight (kg) | 11.61 | 11.49 | 0.74 | 0.27 |
| Final weight (kg) | 29.36 | 32.29 | 0.62 | 1.50 |
| Daily Feed intake (kg) | 1.45 | 1.21 | 0.001 | 0.04 |
| ADG (kg) | 0.18 | 0.23 | 0.03 | 0.02 |
| Feed/Gain (FCR) | 4.59 | 4.16 | 0.35 | 0.17 |
| | | | | |

Results

Cost of making SPV silage (100kg)

| No. | Item | Unit cost (UGX) | Amount (UGX) |
|-----|-------------------------------------|-----------------|---------------|
| 1 | 1.5 metres of polythene tube | 2,000 | 3,000 |
| 2 | Labour to chop and compact 1 tube | | 2,500 |
| 3 | Maize bran | | 1,500 |
| 4 | Cost of SPV provided by the farmers | | 4,500 |
| 5 | Sisal string 1.5m | | 100 |
| | Total | | 12,000 |

Conclusions

- Use of sweet potato vines silage can even out the supply of feed on smallholder pig farms
- Supplementing SPV silage at a level of 40% improves pig growth performance



Partners and collaborators



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THANK YOU FOR YOUR ATTENTION!