

**SWEETPOTATO PROMOTION GROUP**

UNIVERSITY OF IBADAN

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# Sweetpotato in Nigeria

Proceedings of the First National Sweetpotato Conference  
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Under the Auspices of the  
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Edited by

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## The Role of Sweetpotato in Livestock Farming in Nigeria

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### Introduction

The uncertainty surrounding the escalating cost of cereals as traditional sources of energy for livestock feeding makes it imperative to seek alternative sources. The potential and wide ecological adaptability of sweetpotato makes it a likely suitable alternative. Sweetpotato is an import crop in the feeding of humans and livestock in developing economies.

In Africa, only 3 % of the total production estimate is believed to be utilized for animal feed, while over 20 % is reported to be wasted (Calpe 1991). This suggests improved processing techniques and greater awareness of sweetpotato's potential will lead to its greater use in livestock feeds. Oboh (1987) cited the following potential attributes of sweetpotato in livestock feeding:

1. Sweetpotato competes favourably with or far outstrips some well-known root and tubers in terms of nutrient content.
2. No serious competition for its uses as staple in Nigeria
3. The Irish potato, an alternative to sweetpotato, is preferred by humans
4. Sweetpotato produces more dry matter and has a greater feeding value per acre than even maize
5. The peels and vines can be utilized for animal feeding thereby reducing wastes.
6. Research has shown that as much as 40 % sweetpotato can be used in broiler ration without detrimental effect on the performance of broilers.
7. Sweetpotato contains low toxic factor no adverse effect on production when the root is used, compared to cassava.

### Status of sweetpotato in livestock feeding at the Department of Animal Science, University of Ibadan

The Department of Animal Science has conducted research on the feeding value of sweetpotato as a replace for maize in the diets of rabbits, cockerels and broiler chickens. Sweetpotato leaves have also been fed as forage to small and large ruminants. Encouraging results have been obtained in terms of body weight gains, semen quality and milk yield.

### Potentials of sweetpotato as livestock feed

Many workers have considered the suitability of sweetpotato (roots and tops) in feeding livestock. Most of these studies attempted to replace maize either wholly or partially with sweetpotato as an energy source. Inclusion

of uncooked sweetpotato at 250–300 g/kg diet for pigs lead to slower growth and a lower protein efficiency ratio, but popping improved starch availability and also eliminated trypsin inhibition completely. Earlier workers have reported reduce back fat thickness of yearling cattle when corn was replaced with dehydrated sweetpotato roots. Furthermore, milk yield was also improved. Sweetpotato leaves supply enough carotene needed for colouring egg yolk.

### Limitations of sweetpotato as animal feed

Poor starch digestibility has been recognised as a major constraints in the utilization of raw sweetpotato in livestock feeding. Previous studies have shown that the sweetpotato starch is less susceptible to  $\alpha$ -amylase hydrolysis than in cooked cereal starches. Heating is, therefore, essential for better use of sweetpotato starch. Trypsin inhibitor found in sweetpotato affects protein utilization and for this reason inhibition caused by trypsin should be removed by adequate processing methods.

### Conclusion

Sweetpotato is widely grown in all agro-ecologies of Nigeria. In the face of the unprecedented rise in the cost of maize in livestock feed, sweetpotato has a comparative advantage as a substitute in feeding livestock.

Nigerian Scientists working on use of sweetpotato in livestock feeding at Department of Animal Science, University of Ibadan are: Professor O. O. Tewe, Professor A. D. Ologhobo, Professor E. A. Iyayi, Professor J. A. Oluyemi, Professor G. N. Egbunike, and Dr. O. A. Abu. Professor S. O. Oboh has done work at Department of Animal Science, Ambrose Alli University, Ekpoma, Edo State, while Dr. O. A., Olorunisomo is of the Department of Animal Production and Health Science, University of Ado-Ekiti, Ado-Ekiti, Ekiti State.

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### Cost Implications of Feeding *Clarias gariepinus* (Burchell) Processed Sweetpotato (*Ipomoea batatas*)

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**Abstract.** Maize is an expensive energy source of feedstuff in fish management especially during the off-season, hence the need to source and utilize other cheaper and non-conventional energy sources. This study investigated the growth performance of *Clarias gariepinus* fry fed processed sweetpotato meal as an energy source and its effect on the haematological and economic values. Three experimental diets were compounded such that maize was 100% energy source in Diet 1 (Control). In Diets 2 and 3, maize was replaced with sweetpotato tuber (SPT) and sweetpotato peel (SPP), respectively at 25 % inclusion level. The diets were fed at 5 % body weight to the *C. gariepinus* fry (0.21 ± 0.03 g) in polystyrene net cages suspended in 3 concrete tanks (2 x 3 x 1.2 m<sup>3</sup>) for 42 days in triplicates. Growth, nutrient utilization, haematological parameters were measured and cost evaluations were calculated. The mean weight gain (MWG) of the fry fed the maize-based diet (1.96) was significantly higher (P < 0.05) than the fry fed SPT (1.37) and SPP (1.27) respectively. The MWG of fry fed Diets 2 and 3 were not significantly different from each other. The feed conversion ratio (FCR) of the control and the SPT-based diets were not significantly different from each other but both were significantly different (P < 0.05) from fish fed the SPP diet. The Growth Efficiency Feed Conversion