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ECONOMICS OF USING CASSAVA ROOT MEAL AS SUBSTITUTE FOR MAIZE IN POULTRY FEEDS

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Abstract

Feed accounts for 80% of production costs of poultry enterprises in Nigeria. Maize is an important ingredient in the formulation of poultry feeds. Because of increased demand by flour millers and breweries, its price has soared, resulting in proportionate feed cost increases. Many feed mills and poultry projects have closed down; and those remaining are operating at excess capacity. Thus, alternative sources of energy for poultry feed formulation need to be identified. At the National Root Crops Research Institute (NRCRI) at Umudike, various levels (0%, 50%, 75%, and 100%) of cassava root meal were used to substitute maize in broiler rations. The effects on broiler performance and meat yield were monitored and evaluated. Results showed that cassava root meal could substitute as much as 75% of maize in broiler feeds. Cost-benefit analyses of cassava root meal production have a gross margin of ₦1,244.61/t of fresh cassava used and a cost-benefit ratio of 1.41 against the use of maize in broiler feeds. Thus, both cassava root meal production and its use in poultry feed were profitable.

Introduction

Feed accounts for 80% of commercial poultry production costs in Nigeria. Maize is an important ingredient in the formulation of poultry feeds. Given increased demand from flour millers and breweries, the price has soared, resulting in a proportionate increase in feed costs. Consequently, many feed mills and poultry projects have closed down; and those remaining are operating at excess capacity. Thus, alternative, cheaper sources of energy for poultry feed must be identified.

At the NRCRI in Umudike, Ngoka et al. (1984) addressed this problem. They used various levels (0%, 50%, 75%, and 100%) of cassava meal (processed from fresh roots) to substitute for maize in layer, breeder, and broiler rations. They monitored the effects on three aspects of poultry production: layer performance and egg quality, rate of hatching, and broiler performance and/or meat yield. Results of the study showed that cassava meal can substitute as much as 75% of maize in layer, breeder, and broiler feeds.

This study evaluates the costs and returns of cassava meal production from fresh roots, and analyses the cost-to-benefit ratios of using cassava meal as a substitute for maize in broiler feeds.

Methodology

The quantities of variable inputs used in producing cassava meal from fresh roots, and the outputs were recorded and evaluated at their actual market prices. The variable inputs (including cassava meal), used in raising day-old chicks to maturity, were also evaluated. Gross margins and cost-benefit analyses (Pearce 1971) were carried out to determine the cost effectiveness of both cassava meal production and its use as substitute for maize in broiler rations, as was originally done by Ngoka et al. (1984).

Results and Discussion

The estimated costs and returns of cassava root meal production are presented in Table 1. A gross margin (487.3%) of ₦1,244.61/t (₦1.00 = US0.081) was obtained. Table 2 summarizes the results of the cost-benefit analysis of using cassava meal instead of maize in broiler feed, obtaining a cost ratio of 1.41. These findings show that both cassava meal production and its use as a substitute for maize in poultry production are profitable. The implementation of a project such as this can boost cassava production because it provides alternative uses and new markets for both fresh roots and its processed product, cassava meal (Ezeh 1991; Ospina and Wheatley 1991).

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Table 1. Estimated costs and returns of producing meal from cassava roots for poultry feed, 1991.

Parameter	Unit	Quantity	Value (₦)[a]
Output	Ton	1	
Revenue			1,500.00
Variable costs			
Raw material	Ton	1	240.00
Labour	Man-day	3	15.00
Fuel	Liter	11	0.39
Total variable costs			255.39
Gross margin			1,244.61 (487.3%)

a. ₦1.00 – US$0.081.
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Table 2. Cost-benefit analysis of using cassava root meal as an energy substitute for maize in feeds for poultry (broiler) production, 1991.

Parameter	Maize-based feed			Cassava-based feed		
	Unit	Quantity	Value (₦)[a]	Unit	Quantity	Value (₦)[a]
Broiler output/revenue	kg	984.1	14,651.91	kg	862.5	12,841.00
Variable costs	kg	1040.0	3,120.00	kg	1513.0	302.60
Maize						
Other ingredients	-	-	5,968.00	-	-	5,968.00
Day-old chicks	-	-	4,000.00	-	-	4,000.00
Drugs	-	-	1,368.00	-	-	1,368.00
Total variable costs			14,456.00			13,172.60
Cost-benefit ratio		1.41				

a. ₦1.00 = US$0.81.

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