

EFFECT OF SPLIT MEALING ON GROWTH PERFORMANCE OF PIGS

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Abstract

The study examined the performance and cost implications of pigs on split mealing. Forty five (45) weaner pigs (Large white x Landrace) were allotted to three (3) treatments replicated 15 times of a pig per replicate in a completely randomized design in a feeding trial that lasted for 112 days. The treatments imposed were based on frequency of one or two or three meals a day. A measured quantity of feed at 5% body weight were made into either one or two or three portions and fed once or twice or thrice at 8.00 am or 8.00 am and 12.00 pm or 8.00 am and 12.00 pm and 4.00 pm, respectively throughout the experimental period. Data collected on daily feed intake and weekly weight gain were analyzed by one way analysis of variance using SPSS and differences in means where significant were separated using Duncan option of the software. Feed intake and weight gain of pigs were not influenced ($P>0.05$) by the frequency of feeding. Although, numerical improvement by 11.71% in the weight gain and 9.17 – 15.96% in feed intake were observed in pigs fed three times daily compared with those fed once or twice daily. Cost of pig production showed that the cost of feed expended to gain a kilogram weight of pigs was lesser in pigs fed twice (₦328.37) or thrice (₦343.45) a day when compared with those fed once daily (₦355.29). The study showed that feeding pigs' on split meal thrice daily improved weight gain with lower cost of production. Pig farmers are encouraged to feed their pigs thrice a day for better growth and higher economic advantage.

Keywords: economic advantage, performance, pigs, split mealing.

Introduction

Profitable pig enterprise is anchored on the efficient use of feed resources to optimize growth and minimize cost. Attempts to enhance the utilization of alternative feed resources such as agro-industrial wastes has largely proved not to be very effective due to quality concerns such as low protein content, high fibre content and anti-nutritional properties. Since most of the alternative energy and protein sources are not widely accepted as first choice in livestock feed formulation, researchers are now evolving a feeding management strategy that will promote good growth and ensure lean carcass meat.

The choice of feeding periods for pigs is based entirely on nutritional and economic considerations (INRA, 1984). For example, feeding restriction is commonly practiced with market pigs to improve carcass quality and feed efficiency while decreasing production costs (Wood *et al.*, 1996; Candek Polokar *et al.*, 1998), whereas free access to a low protein diet increases back fat thickness and intramuscular content (Gondret and Lebret, 2002).

In Nigeria, most farmers feed their pigs once daily while others allow the animals' free access to agro-by-products throughout the day. In conventional pig feeding management, however, more variable feeding management systems are applied.

The question of how often the pigs should be fed for efficient feed utilization still remains unanswered. The present study was to assess the effect of split mealing on the performance and cost implications of weaned pigs.

Materials and methods

The study was carried out at the Pig Unit, Department of Agricultural Science, Adeyemi College of Education, Ondo, Nigeria. A basal diet was formulated (Table 1) to meet the nutrients requirements for pigs (NRC, 2012).

Table 1. Gross composition of experimental diet, g/100g

Ingredients	Composition
Maize	53.8
Groundnut cake	8.13
Soybean meal	10.8
Palm kernel cake	15.5
Wheat offal	9.97
Limestone	0.50
Premix	0.50
Lysine	0.15
Methionine	0.15
Salt	0.50
Total	100

A measured quantity of feed at 5% body weight were made into either one or two or three portions and fed once or twice or thrice daily at 8.00 am or 8.00 am and 12.00 pm or 8.00 am and 12.00 pm and 4.00 pm, respectively throughout the experimental period. A total of forty five (45) weaner pigs (Large white x Landrace) of mixed sexes were randomly distributed to the three (3) treatments of 15 replications of a pig per replicate in a completely randomized design. Data collected on daily feed intake, weekly weight gain and calculated values for feed conversion ratio were analyzed by one way analysis of variance using SPSS and differences in means were separated using Duncan option of the software

Results and discussion

The numerical improvement in feed intake, weight gain and feed conversion ratio of pigs in this study is in agreement with the study on broiler chickens (Urdaneta – Rincon and Leeson, 2002; Tolkamp *et al.*, 2005; El-Fiky *et al.*, 2008; Chris *et al.*, 2011). Gaber and Hanafy (2008) reported that offering little quantities at time intervals improved feed utilization with concomitant increase in weight gain. From the economic indices measured, feeding pigs on split meals of twice or thrice daily recorded higher economic advantage compared with offering the whole feed in a single meal. The profitability ratio further confirms the economic benefit of employing split feeding in the management of pigs.

Table 2. Performance and economics of production of pigs on varying feeding frequency

	Frequency of feeding, in days				
	Once	Twice	Thrice	SEM	Sig
Performance indices					
Initial body weight, kg/pig	6.67	6.63	6.63	0.77	0.83
Final live weight, kg/pig	55.33	55.33	62.67	4.06	0.74
Average weight gain, kg/pig	0.44	0.44	0.50	0.32	0.62
Average feed consumed, kg/pig	1.32	1.22	1.45	0.11	0.65
Feed conversion ratio	3.01	2.78	2.88	0.08	0.26
Cost and Returns					
Cost					
Purchase price	3335	3315	3315		
Labour	450	450	450		
Pen maintenance	125	125	125		
Depreciation on building	87.75	87.75	87.75		
Cost of feed, N/kg	118.43	118.43	118.43		
Cost of feed, ₦/kg weight gain	355.29	328.37	343.45		
Cost differential, N	-	26.92	11.84		
Relative cost benefit, %	-	7.58	3.33		

Cost of weight gain, ₦	17363.02	16065.03	19116.97
Total cost, ₦	21360.77	20042.78	23094.72
Returns			
Return on sale, ₦	27665	27665	31335
Net profit, ₦	6304.23	7622.22	8240.28
Profit/kg over control group, ₦	-	1317.99	1936.05
% Profit over control group	-	20.91	30.71
Profitability ratio			
Benefit cost ratio (BCR)	1.29	1.38	1.36
Rate of return (ROR)	0.29	0.38	0.36
Gross ratio (GR)	0.77	0.72	0.74

Conclusion

Judging from the result of this study, feeding pigs on split meals twice or thrice daily enhanced weight gain, reduced cost of feeding and yielded higher profit compared with offering the whole feed in a single meal. Pig farmers are encouraged to employ split feeding in pig production.

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