

Options for Improving rural poultry and pig production

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Key messages

- ✓ Productivity of rural poultry and pig can be increased markedly with integrated technological options involving feed, health and housing thereby enhancing the livelihood of the rural poor.
- ✓ Direct-fed microbial can be used in laying guinea fowls diets without any negative effects on their growth and productive performance and can be used as a valuable alternative to the use of conventional sub-therapeutic antibiotics.
- ✓ High cost of feed in rural pig production can be significantly reduced by efficient utilization of non-conventional feed resources to replace grains in the diet thereby boosting profitability.

Objectives and approach

- ✓ The main objective of the studies on poultry and pig production was to identify viable options for improving the traditional systems.
- ✓ Baseline studies were conducted in 2013 and 2014 to characterize the traditional poultry (including guinea fowl) and pig production systems to identify the constraints and opportunities, and options to improve them. To improve the systems, non-conventional feedstuffs such as false yam tuber, rice bran and groundnut vines were tested to replace grains in pig diets, and pito mash and boiled false yam seed in guinea fowl diet. In addition, direct-fed microbial (probiotic) was tested to improve the performance of indigenous growing and laying guinea fowls.

Key results

- ✓ Mean feed intake of the control birds was similar ($P>0.05$) to that of birds where 20% of maize was replaced with pito mash and feed cost was reduced by 14% (Table 1).
- ✓ Application of direct-fed microbial daily, at 3 consecutive days per week and at 7-days repeated every other week at 1.5ml/L through water led to increased feed intake and egg weight compared to control but had no effect on mortality (Table 2).
- ✓ There was a linear decrease in feed cost from 0g/kg to 500g/kg rice bran inclusion levels in pig diet. The feed cost/gain was lowest at 300g/kg live weight (Table 3).

Significance and scaling potential

- ✓ There is high potential for development of prototype houses for poultry/pigs for scaling and for on-station breeding of guinea fowls and pigs for sale to farmers to reduce mortality.
- ✓ There is also the potential for the development of feeding packages using non-conventional feedstuffs to replace grains in poultry and pig diets to enhance profitability.

Table 1: Effects of pito mash on performance of local guinea fowl (10-20 weeks of age)

Parameter	Control Diet (mean±sd)	Pito mash Diet (mean±sd)	Probability
Feed intake (g/bird/day)	53.11 ± 2.78	56.73 ± 7.21	0.385
Weight gain (g/bird/day)	5.86±2.49	5.71±0.82	0.916
Mortality (%)	1.50±1.29	1.75±0.96	0.766
Total feed cost (GHS/bird)	3.29±0.22	3.03±0.39	0.294
Feed cost/kg gain (GHS)	3.26±0.22	2.81±0.36	0.076



Table 2: Growth performance as affected by antibiotics and direct-fed microbial (DFM) in guinea fowls at week 35

Parameter	Treatment ^a				SEM	P-Value
	Control	Daily	3CDW	7DREOW		
Average daily feed intake (g)	76.5 ^a	70.7 ^b	73.6 ^a	75.7 ^a	0.9	0.007
Average daily gain (g)	6.4 ^b	7.9 ^a	6.8 ^b	6.2 ^b	0.3	0.009
Feed conversion ratio	7.3	4.4	6.2	6.2	0.8	0.147
Egg weight (g)	31.4 ^c	35.6 ^a	32.4 ^b	32.8 ^b	0.3	<0.0001
Mortality (%)	13.9	5.6	8.3	11.1	5.4	0.728

^aTreatment: Control; Daily application of DFM; 3CDW = 3 consecutive days per week; 7DREOW = 7 days repeated every other week at 1.5ml/L through water

Table 3: Growth performance of Ashanti Black pigs offered control diet and diet at different levels of inclusion of rice bran as replacement for maize

Parameters	Rice bran inclusion levels (g/kg)				LSD (P<0.05)
	0	300	400	500	
Number of pigs	8	8	8	8	-
Daily feed intake, g	680	790	800	804	0.10
Daily weight gain, g	70	80	70	60	0.02
FCR (feed/gain)	10.21	11.42	12.63	15.08	4.93
Girth width gain, cm	23.30	24.60	23.20	21.50	6.41
Feed cost/kg, US\$	0.17	0.15	0.14	0.13	-
Feed cost/kg live weight gain, US\$	1.74	1.71	1.77	1.96	2.39



Partners



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