Performance of indigenous guinea fowls (*numida meleagris*) fed direct-fed microbial

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Key research activities

Nine weeks old guinea keets were randomly allocated to treatments of DFM frequency application regime at 1.5 ml/L for 30 weeks:

- T1: Control
- T2: Daily,
- T3: 3 consecutive days per week (CDW) and
- T4: 7-days repeated every other week (DREOW).
- Birds were fed an iso-caloric and iso-nitrogenous basal diet at 12.13MJ/kg of ME and 16% CP respectively. Growth, blood and egg parameters were measured.

Results and main findings

Daily DFM frequency significantly affected feed consumption , daily weight gain (Table 1) and egg weight (Fig 1), and serum blood chemical composition (Table 2).

Implications of the research for generating development outcomes

DMF can be used by producers to improve egg weight, weight gain, serum albumin and reduce serum Low Density Lipoprotein of guinea fowls.

How this work would continue in Africa RISING phase 2

Results will be tested on farm in Phase 2.

Current partnerships and future engagements for out scaling

Ghana Air Force Base and the Kwame Nkrumah University of Science and Technology. Linkage will be established with the Northern Region Guinea Fowl Producers Association to validate the results on farm.

Table 1: Growth Performance of indigenous guinea fowls

DFM frequency	Daily feed intake/bird (g)	Daily weight gain/bird (g)	Final body weight/bird (g)	Feed Conversion ratio	Mortality (%)
Control	76.5	6.4	1178.9	7.3	13.9
Daily	70.7	7.9	1354.7	4.4	5.6
3 CDW	73.6	6.8	1196.4	6.2	8.3
7 DREOW	75.7	6.2	1184.6	6.2	11.1
SEM	0.9	0.3	40.6	0.8	5.4
P-Value	0.007	0.009	0.044	0.147	0.728

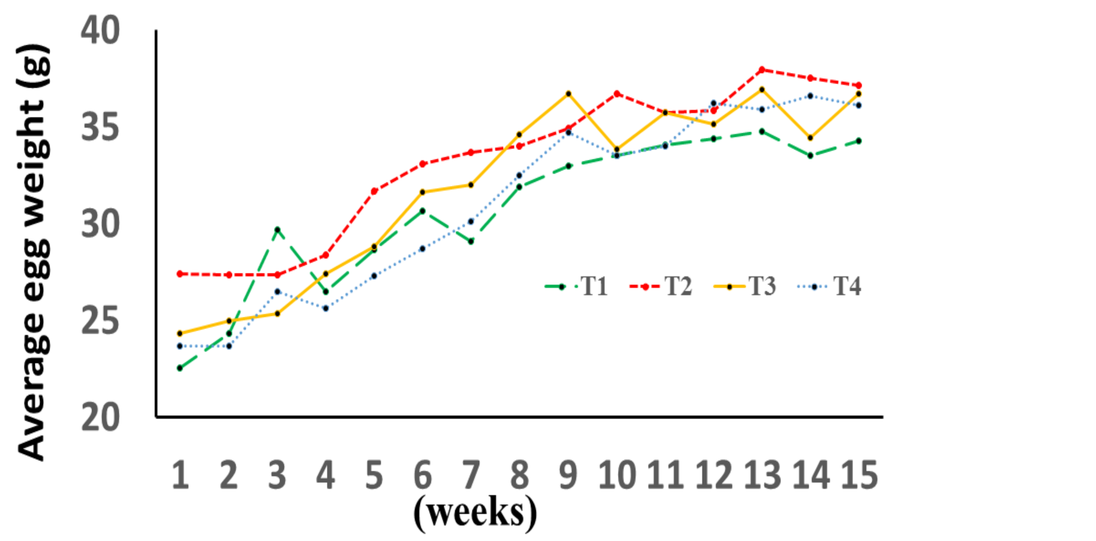

Fig 1. Effect of DFM and antibiotic treatments on weekly weight of eggs (1-15weeks). DFM increased eggs weights significantly (P=0.037) as compared to the control.

Table 2: Serum biochemical indices of indigenous guinea fowls

DFM frequency	Albumin (g/l)	Globulins (g/l)	Total Protein (g/l)	High Density Lipo protein (mmol/l)	Low Density Lipoprotein (mmol/l)	Very Low Density Lipo protein (mmol/l)
Control	18.5	25.1	43.8	3.4	3.2	0.6
Daily	23.6	32.6	56.3	2.7	1.4	0.1
3 CDW	18.9	25.7	44.5	2.5	1.6	0.6
7 DREOW	18.7	23.4	41.9	2.7	2	1.3
SEM	1.06	2.73	3.74	0.34	0.33	0.29
P-Value	0.024	0.166	0.092	0.292	0.017	0.122

The Africa Research In Sustainable Intensification for the Next Generation (Africa RISING) program comprises three research-for-development projects supported by the United States Agency for International Development as part of the U.S. government's Feed the Future initiative.

Through action research and development partnerships, Africa RISING will create opportunities for smallholder farm households to move out of hunger and poverty through sustainably intensified farming systems that improve food, nutrition, and income security, particularly for women and children, and conserve or enhance the natural resource base.

The three projects are led by the International Institute of Tropical Agriculture (in West Africa and East and Southern Africa) and the International Livestock Research Institute (in the Ethiopian Highlands). The International Food Policy Research Institute leads an associated project on monitoring, evaluation and impact assessment.

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