



EFFECTS OF SOYBEAN AND MAIZE BRAN SUPPLEMENTATION ON PRODUCTION, FERTILITY AND CARCASS YIELD OF LOCAL CHICKENS UNDER SCAVENGING CONDITION IN LILONGWE, MALAWI

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Background to rural poultry

- Rural poultry rearing is an integral part of the farming systems in Malawi
- About 42 % of birds are indigenous chickens, and are genetically poor (Lwesya et al, 2004; DAHLD, 2012)



Rural poultry production system

- Farmers traditionally rear poultry as scavengers
- Environment in Malawi is favorable for poultry production, evidenced by large population of poultry of almost 94 % (DAHLD, 2011)
- Under scavenging system birds are left to fetch for their own feed and water



Problem Statement and Justification

- The productivity of local chickens in Malawi is not meeting the maximum genetic potential
- Local chickens scavenge around homesteads and the major feed resource is household wastes. These feed sources are not enough to achieve maximum productivity for the farmer to realize profits

Justification cont'd...

- There is therefore need to supplement the local chickens with energy and protein feeds for maximum productivity in terms of egg number and quality
- However, supplement feeding regime is not established. No information that relates supplementation and carcass yield.
- Therefore there is a need to explore more on supplement feeding to increase production particularly carcass yield



Objectives

- **Main objective**
- To evaluate the effect of different feed supplements on growth, egg production and carcass yield of local birds under scavenging conditions

Objectives

- **Specific objectives**

- To evaluate the effect of supplementation on number of eggs laid by hens under scavenging conditions
- To evaluate the effect of supplementation on egg weight of hens kept under scavenging conditions
- To determine the effect of supplementation on carcass yield of indigenous chickens

Hypothesis

- Supplement feeding has no effect on egg production and carcass yield of local chickens under free-range system of production

Methodology

Study Area

- The study was conducted in villages around Bunda (Mkwinda EPA) for convenience in terms of data collection and access

Experimental birds and management

- The study was targeted to the pre lay scavenging pullets, hens and cocks of different phenotypes found on households in the area of the study



Methodology

- Clusters were established in three Group village Headmen (GVH) in Mkwinda EPA and each cluster had a leader
- Each GVH had three clusters which were allocated to the three treatments
- Random sampling was used to allocate the feed to the established clusters



Methodology

- Proximity of the households to each other (50 m radius) and where the local chickens scavenge was used in dividing the clusters
- The minimum distance of 1 km from one cluster to another was used in cluster demarcation
- Demarcation of clusters representing the three treatments were established with the help of the poultry owners



Methodology

- Watering and feeding points were established for each cluster
- The feed was given to the chickens twice per day (morning and afternoon)
- Amount of feed given was based on flock size per cluster and the feed intake (130g per day)
- All the experimental chickens (hens and pullets) were wing tagged using metal wing bands (Hasco tags) for ease of identification



Experimental diets

Two diets were used for the experiment:

1. Simple complete ration (89.33% maize bran, 10.42% soya meal and 0.25% salt);
2. Maize bran

Table 1: Nutrient composition of the supplements (as analysed in the lab)

Supplements	CP,%	DM,%	ASH,%	EE,%
Maize bran	10.41	88.66	3.59	14.49
Soya + maize bran (simple ration)	15.15	89.41	4.12	13.97

Data collection and analysis

Type of data

- Data for egg production, egg weight, growth and deaths were collected; slaughter weight

Data analysis

- Data collected was analysed in SPSS and GLM was used to compute analysis of variance (ANOVA) of number of eggs laid and egg weight
- Significant level of 5% was used



The model used

$$Y_{ijk} = \mu + t_i + c_j + p_k + (tcp)_{ijk} + e_{ijk}$$

Y_{ijk} = Response variable on number of eggs laid

μ = Overall mean

t = the i^{th} treatment effect on supplement

c = the j^{th} cluster effect

p = the k^{th} parity effect

tcp = interaction effect of treat, parity & cluster

e = Residual term

A completely randomised design was used to examine differences between treatments

Results and discussions

Descriptive statistics on qualitative parameters

Parameter	Classes	Frequency (N)	Percentage
Treatment	Control	22	31.9
	Maize bran	23	33.3
	Maize bran + soya	24	34.8
Bird phenotype	Normal	47	68.1
	*Others	22	31.9
Parity	1	19	27.5
	2	11	15.9
	3	15	21.7
	4	24	34.8

*Others (Necked neck, Dwarf, Kawangi and BA*Local cross)

Effect of treatment, parity and phenotype on Egg weight

Parameter	Classes	Mean, g	SE
Treatment	Control	39.232 ^b	0.902
	Maize bran	38.381 ^b	0.771
	Soya + maize bran	43.078^a	0.783
Parity	1	35.871 ^a	0.909
	2	39.413 ^b	1.181
	3	42.375 ^b	0.932
	4	42.874 ^b	0.772
Bird phenotype	Normal	40.140 ^a	0.536
	*Others	40.580 ^a	0.779

*Others (Necked neck, Dwarf, Kawangi and BA*Local cross)

Effect of treatment, parity and bird phenotype on number of eggs laid per hen per clutch

Parameter	Classes	Mean	SE
Treatment	Control	11.112 ^c	0.485
	Maize bran	14.610 ^b	0.414
	Soya + maize bran	18.149 ^a	0.421
Parity	1	14.391 ^a	0.488
	2	14.547 ^a	0.635
	3	15.111 ^a	0.501
	4	14.981 ^a	0.415
Bird phenotype	Normal	13.922 ^b	0.288
	*Others	15.645 ^a	0.419

*Others (Necked neck, Dwarf, Kawangi and BA*Local cross)

Effect of treatment on carcass yield of cocks and hens

Parameter	Control	Maize Bran	Soya + MB
Hens			
Live weight	998.25±0.491 ^c	1099.4±0.470 ^b	1297.43±0.407 ^a
Hot dressed wt	798.38±0.421 ^c	899.8±0.410 ^b	1094.39±0.410 ^a
Cold dressed wt	776.13±0.500 ^c	881.4±0.458 ^b	1048.57±0.458 ^a
Cocks			
Live weight	999.00±0.491 ^c	1100.0±0.470 ^b	1298.80±0.470 ^a
Hot dressed wt	801.13±0.498 ^c	1060.8±0.410 ^b	1098.29±0.410 ^a
Cold dressed wt	780.13±0.479 ^c	899.4±0.458 ^b	1079.57±0.458 ^a

Conclusion

- Supplementing LC with simple ration (protein and energy) significantly improved egg production and carcass yield.



LC feeding simple ration (15.15% CP)

Recommendation

- Farmers are encouraged to supplement indigenous chickens by formulating simple ration (89% maize bran , 10.75% soybean meal & 0.25% salt)



LC feeding simple ration (15.15% CP)

THE END

THANK YOU



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