BIBLIOGRAPHY

BANDO, PRECY A. April 2012. The effect of ground pigeon pea seed on the growth performance of sunshine broilers. Benguet State University, La Trinidad, Benguet.

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ABSTRACT

The study was conducted at the Poultry Experimentl Building, Benguet State University, Balili, La Trinidad, Benguet from October 2011 to December 2011 to determine the effect of ground pigeon pea seed in terms of growth performance, feed consumption, feed efficiency, profitability of raising sunshine broilers supplemented with ground pigeon pea seed, and to determine the best level of ground pigeon pea seed to be utilized as feed supplement for sunshine broilers.

A total of 160 sunshine broilers were randomly distributed into four treatments which were replicated four times with ten birds per replication to make a total of 40 birds per treatments. The treatments are the following: pure commercial feeds, 10g of ground pigeon pea seed, 20g ground pigeon pea seed and 30g ground pigeon pea seed.

The result of the study revealed that there were no significant differences in initial weight and total feed intake. The initial weight obtained was o.53 kg and total feed intake was 5.33 kg. birds given ground pigeon pea seed had lower feed conversion ratio, had higher in the total gain in weight but also had feed cost per kilogram gain in weight. Regardless, these birds also produced the highest ROI value.

Based on the result of the study, ground pigeon pea seed may be incorporated in the feeds of the broilers to enhance feed efficiency and consequently the return on investment.

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INTRODUCTION

The high cost of feed is approximately the major constrains of the poultry industry. Although it has attained storage of sophistication, it must resolve the problem on the cost of feeds in order to sustain the already thriving poultry industry.

Feed cost constitutes 75-80% of the total cost production. This however could be partially solved by continuously looking in the processing and utilization of the locally available non-conventional feedstock, not directly utilized for human food, which can be used as poultry feeds (Ene-Obong, 1995).

One of the non-conventional feedstuff which could be utilized as a substitute to soybean oil meal is pigeon pea known to grow easily on a wide variety of soil, even on marginal grassland in the upland (Girmand, 1998: and NRC, 1994). The chemical composition of pigeon pea was found to contain 22-27% crude protein, 7.3-10 crude fiber, 1.7-2, 1 EE, 3.1-4.2 ash, 61.2 NFE and lysine about 7.59%. The perennial legume is kwon to be a good source of dietary minerals such as calcium, phosphorous, magnesium, iron, sulfur and potassium.

Chicken needs protein and the other nutrients for the maintenance, development and

growth. Protein is needed for these functions and to prevent deficiency.

This study was conducted to find out the effect of pigeon pea seed (ground) as a feed supplement to sunshine broilers. The result of this study can serve as a guide in using ground pigeon pea as a feed supplement in sunshine broilers.

Lastly, the research can be a good start to enhance the performance of sunshine broilers that can result to high income and profit.

Specifically, this study aimed to determine the effect of pigeon pea seed (ground) in terms of growth performance, feed consumption, feed efficiency, morbidity, mortality and the profitability of raising sunshine broilers supplemented with ground pigeon pea seed. Determine the best level of ground pigeon pea to be utilized as feed supplement for sunshine broilers.

This study was conducted at Benguet State University (BSU) Experimental House Balili, La Trinidad Benguet from October 2011 to December 2011.

REVIEW OF LITERATURE

Cullison (1987) pointed out that every living animal need protein. It is the basic structural material from wich all body tissue is formed. This includes not only the muscle and vital organs but also the blood cells as well as animal hairs, hoof and horn. Schaible (1970) mentioned that beans and peas furnish palatable and nutritious feeds to livestock. Mung beans are good as green feed. They are good for fattening and lactating animals.

Kipps (1970) legumes are higher in feeding value than non legumes. They are higher in protein, higher quality and are superior as a protein source for poultry feeding. Legumes are relatively high in calcium; contain fair amounts of phosphorous and excellent source of vitamin A and D.

Pigeon pea significantly contributes to meet the dietary requirements of crude fiber, ash, fat, magnesium, manganese, and copper (Faris and Singh, 1970). Pigeon contains high amounts of vitamin B, carotene and ascorbic acid (*Miller et al., 1956*). These are deficient in cereals: therefore pigeon pea has a good supplement value of cereal based diet. Pigeon pea is a rich in source of lysine but deficient in sulfur-containing amino acids-metionine and cystein. It improves the amino acid score for lysine in rice- and wheat-based diets, and for threonine, leucine, and isoleucie in wheat-based diet when used in a 70:30 cereal: pigeon pea ratio.

The toxic factors that interact with glycoprotein on the surface of red blood cells, causing then to agglutinate are called phytolectins. These factors are present in pigeon pea, but being highly sensitive to heat treatment, these are little significance. Legumes

cause flatulence when consumed in large amounts. This is due to high level of oligosaccharides; stachyose, raffinose,andverbascose. These sugars constitute about 53% of the total soluble sugars in pigeon (Singh, 1988).

The dry leaves and left-over pods at threshing of a crop are used as feed for animals.

The by-products of seed coats, broken bits, and powder from the dhal mill are called ‘c hunl. It is a valuable food for milch cattle (CSIR 1950; Pathank, 1970).

Faris and Singh (1990) pointed out that pigeon pea has several uses as medicine that heals wounds and sores, as an astringent, a medicine that stops bleeding by constricting the tissues, and as a medicine that cures diseases of the lungs and chest. It also works as antihelminthic to destroy internal worms.

Pigeon pea also contains considerable amounts of several anti-nutritional factors, namely, protein inhibitors, amylase inhibitors, and flab causing sugar and phytic acid. Pigeon pea contains some amounts of polyphenoli compounds (tannins) that inhibit the digestive enzymes-trypsin, chymotrypsin, and amylase. These are especially present in the dark seed coated pigeon pea. These compounds create problems when pigeon pea is consumed in large quantities. However, the anti-nutritional factors in pigeon pea are less that they are in soybean, pea, and common bean. Pigeon pea also contains some unavailable carbohydrates that reduce the bioavailability of other nutrients (Kamath and Belavady, 1980).

According to *Faris et al*. (1987). The dietary nutrients of pigeon pea

Constitutes	Green Seed	Mature Seed
Protein (%)	21.0	18.8
Protein indigestibility (%)	66.85	8.5
Trypsin inhibitor	2.8	9.9
Starch (%)	48.4	53.0
Starch digestibility (%)	53.0	36.2
Amylase inhibitor	17u.3	26.9
Soluble sugars (%)	5.1	3.1
Flatulence factors	10.3	53.5
Crude fiber (%)	8.2	6.6
Fat (%)	2.3	1.9
Minerals and trace elements		
Calcium (%)	94.6	120.8
Magnesium (%)	113.7	122.0
Copper (%)	1.4	1.3
Iron (%)	4.6	3.9
Zinc (%)	2.5	2.3

MATERIALS AND METHOD

Materials

The materials used in this study were as follows: 160 heads of sunshine chicken, brooding-rearing cages, feeders, waterers, feeds, sacks, incandescent bulb (100 watts), old news paper sheets, weighing scales, pails, ground pigeon pea, record book and disinfectant.

Methodology

Pre-experimental. Before the arrival of the chicks, the brooding pens together with the feeding through and waterers were thoroughly cleaned and disinfected. The floor was covered with old news paper sheets and the lights were switched on a few hours before the arrival of the chicks.

Upon arrival of the chicks, these were placed inside the brooder house where they will feed with broiler starter feeds. Water was made available to them at all times. During this pre-experimental period which was lasted for three weeks, the birds were given the same care and management. They were fed twice a day, once in a morning and once in the afternoon.

Experimental design and treatment. After the three weeks, the experimental birds were weighed to obtain their initial weight, and were distributed at random into four treatments following the Completely Randomized Design (CRD) each treatment was replicated four times with 10 birds per replication, making a total of 40 birds per treatment.

The four treatments were the following:

T_0= Commercial Feeds (CF)

T_1= 10g ground pigeon pea/ kg of Commercial Feeds

T_2= 20g ground pigeon pea/ kg of Commercial Feeds

T_3= 30g ground pigeon pea/ kg of Commercial Feeds

Care and management of birds. The experimental birds in all the treatment was given the same care and management except the condition of different levels of ground pigeon pea as partial feed replacement for the commercial feeds in treatments 1, 2, 3. The birds was feed with broiler starter rations from the first to the 4th week and broiler finisher ration from the fifth to the end of the study at 60 days.

Data Gathered

The data gathered were the following:

1. The initial weight of the birds (kg). This refers to the weight of the birds at the start of the study. This was taken after brooding period.

2. Final weight (kg). This refers to the weight of the birds at the end of the experiment.

3. Feed Offered (kg). This refers to the total amount of feeds consumed by the birds from the start of the study until the end of the experiment. This was taken by adding all the feeds offered top the birds after the left-over's had been subtracted.

4. Feed left-over (kg). The weight of the feeds left in the feeding through taken every morning before feeding.

5. Mortality. This refers to the number of dead birds during the experiment.

6. Morbidity. This refers to the number of birds that got sick during the duration of the study.

7. Commercial Feed Cost. This refers to the cost of commercial feeds.

8. Cost of Pigeon Pea Ground. This refers to the cost of ground pigeon pea.

9. Total Feed cost. This refers to the cost of commercial feeds and the pigeon pea seed.

From the data above, the following were computed:

1. Total gain in weight (kg). This was computed by subtracting the initial weight from the final weight.

2. Average daily gain (kg). This was obtained by the following formula:

$$\text{Average daily gain} = \frac{\text{Total Gain in Weight}}{\text{Experimental Period}}$$

3. Total feed intake. This was obtained by adding the amount of feed offered after the feed left-over's had been subtracted.

4. Feed conversion ratio. This was obtained by dividing the total feed intake by the total gain in weight.

5. Feed cost required to produce a kilogram gain in weight. This was obtained by multiplying the cost of one kilogram feed mixture.

6. Percent mortality. This was obtained by dividing the total number of dead birds in each treatment and multiplied by 100%.

7. Net returns. This was obtained by subtracting the total cost of production from the total sales.

8. Return on investment (ROI). This was computed using the following formula:

$$ROI = \frac{\text{Total Sales - Total Cost of Production}}{\text{Total Cost of Production}} \times 100$$

9. Morbidity rate (%). This was computed by dividing the number of sick birds by their initial number multiplied by 100.

10. Cost of production (php). This includes the cost of stocks, feeds, labor and other materials that will be used in the study.

11. Gross income. This was obtained by multiplying the final weight of the birds by their price per kilogram live weights.

Data Analysis

The data was subjected to analysis of variance for Completely Randomized Design (CRD). Comparison of treatment means was done using Duncan's Multiple Range Test (DMRT).

RESULTS AND DISCUSSION

Initial and Final Weights

Table 1 presents the initial weight (21 days) of the birds in all treatments. Statistical analysis revealed that there were no significant differences among the treatment means. This implies that the bird were homogenous at the start of the study.

The final weight (60 days) of the sunshine broilers in all treatments is also shown in Table 1. The results indicate that the final weights of the birds proportionally increases as the level of ground pigeon pea seed added to the feeds, the weight of the birds is increased. The increase in weight could be attributed to the high protein, magnesium, and calcium content of pigeon pea seed which may have enhanced muscle deposition in the birds fed 10 to 30 grams of pigeon pea seed (*Faris et al.*, 1987).

Table 1. Initial weight at 21 days and final weight of the birds at 60 days

	WEIGHT	
TREATMENT	INITIAL (kg)	FINAL (kg)
Pure commercial feeds	0.540	1.894[c]
10g ground pigeon pea seed/ kg CF	0.499	2.121[b]
20g ground pigeon pea seed/ kg CF	0.559	2.190[ab]
30g ground pigeon pea seed/ kg CF	0.533	2.346[a]

Means with different letters are not significantly different at 5% by DMRT.

Total Gain in Weight

Table 2 presents the total gain in weight of the birds in different treatments. Statistical analysis shows significant differences among the treatment means. The gains in weight of the birds given pigeon pea supplement were higher than that of the control group. This implies that adding pigeon pea seed to the feeds of the birds positively affects the growth performance of the birds. The result revealed that supplementing 10g to 30g pigeon pea seed on broilers ration does not detrimentally affect the growth rate of the birds.

The average daily gain in weight of the birds in different treatment is shown also in this table. Differences between the average daily gain in weight of birds among treatments were highly significant, where in the experimental birds treated with 10g to 30g of ground pigeon pea seed were found more capable to gain weight daily than those given commercial feeds.

Table 2. Total gain in weight and average daily gain in weight of the birds

TREATMENT	GAIN IN WEIGHT (kg)	
	TOTAL	DAILY
Pure commercial feeds	1.357[b]	0.034[c]
10g ground pigeon pea seed/ kg CF	1.622[a]	0.041[ab]
20g ground pigeon pea seed/ kg CF	1.631[a]	0.041[b]
30g ground pigeon pea seed/ kg CF	1.808[a]	0.045[a]

Means with the same letter superscript are not significantly different at 5% by DMRT.

Total Feed Intake

Table 3 presents the total feed intake of the birds in the different treatments in 40 days of trial feeding. Among treatments, bird given 20g of ground pigeon pea seed consumed an average of 5.748 compared to those given 10g and control group which means of 5.457 and 5.132, respectively. Numerically, the birds given 30g of pigeon pea seed registered a lower mean of 4.989 kg. this may imply that with this ration, the birds easily get full.

Statistical analysis revealed that there were no significant differences. It was observed that birds that given 0 ground pigeon pea seed had lesser left-over as compared to those given different levels of ground pigeon pea. Furthermore was observed that birds given 0 ground pigeon pea were more active during feeding time than the birds given different levels of pigeon pea seed.

Table 3. Total feed intake

TREATMENT	TOTAL FEED INTAKE (kg)
Pure commercial feeds	5.132
10g ground pigeon pea seed/ kg CF	5.457
20g ground pigeon pea seed/ kg CF	5.748
30g ground pigeon pea seed/ kg CF	4.989

Means with no letter superscripts are not significantly different at 5% by DMRT.

Feed Conversion Ratio

Table 4 presents the mean of feed conversion ratio of treatments. Statistical analysis showed significant differences between treatments. Birds given thirty grams of ground pigeon pea seed had better FCR than any of the birds given twenty grams and ten grams which did not significantly different from each other and the control groups. Result revealed that the amount of ground pigeon pea seed incorporated into the ration of the experimental is decreased the FCR also decreases numerically. This indicates that the ability of the birds to convert feed to gain is increased. The overall mean feed conversion ratio of the birds was 3.35. This may also show that birds fed with ground pigeon pea seed makes them more efficient in converting feeds to flesh.

Table 4. Feed conversion ratio

TREATMENT	FEED CONVERSION RATIO (kg)
Pure commercial feeds	3.765[a]
10g ground pigeon pea seed/ kg CF	3.370[a]
20g ground pigeon pea seed/ kg CF	3.513[a]
30g ground pigeon pea seed/ kg CF	2. 754[b]

Means with the same letter superscript are not significantly different at 5% by DMRT.

Feed Cost to Produce
a Kilogram Gain in Weight

Presented in Table 5 are the feed costs to produce a kilogram gain in weight. Statistical analysis showed the significant difference among the treatment means. The birds given 20g of ground pigeon pea seed has the higher feed cost to produce a kilogram gain in weight. There was a direct relationship between the level of ground pigeon pea seed and the cost of feed to produce a kilogram gain due to the additional cost incurred in the procurement of ground pigeon pea seed.

Return on Investment

Table 6 showed the return on investment in the different treatments. Although this was not subjected to statistical analysis, it is shown that higher profits were obtained from the birds treated with different levels of ground pigeon pea seed. Birds given 30g of ground pigeon pea seed had the highest ROI of 37.68% followed by the birds given 20g with an ROI of 20.50% and those given 10g of ground pigeon pea seed have an ROI of 24.35% and 19.86% pure commercial feeds, respectively. Birds given 30 grams of

Table 5. Feed cost per kilogram gain in weight

TREATMENT	FEED COST (Php)
Pure commercial feeds	98.83[d]
10g ground pigeon pea seed/ kg CF	114.13[c]
20g ground pigeon pea seed/ kg CF	148.77[a]
30g ground pigeon pea seed/ kg CF	129.98[b]

Means with different letters are not significantly different at 5% by DMRT.

ground pigeon pea seed consumed the lowest amount of feeds but they had the highest ROI. This indicates that the birds treated with 30g of ground pigeon pea seed easily get full. This implies that supplementing ground pigeon pea seed on birds ration resulted to a higher income than feeding commercial feeds solely.

Table 6. Net return and return on investment

ITEM	T_0	T_1	T_2	T_3
A. SALES				
1. Sunshine chickens	10,226.08	11,454.75	11,826	12,669.75
TOTAL SALES	10,226.08	11,454.75	11,826	12,669.75
B. Expenses				
1. Cost of stock	1600	1600	1600	1600
2. Cost of feeds	5446.08	5790.97	6099.78	5292.33
3. Pigeon pea (ground)	0.00	305.59	643.73	838.19
4. Cost of labor	600	600	600	600
5. Disinfectant	50	50	50	50
6. Transportation	50	50	50	50
7. Bulb, receptacles	450	430	407	403
8. Electricity	100	100	100	100
9. Waterers and box	269	285	263	267
TOTAL EXPENSES	8565.08	9211.56	9813.51	9202.52
C. Net Income	1661.17	2243.19	2012.49	3467.23
ROI	19.86%	24.35%	20.50%	37.68%

SUMMARY, CONCLUSION AND RECOMMENDATION

Summary

The study was conduct to determine the effect of different levels of ground pigeon pea seed on the growth performance of sunshine broilers. One hundred sixty day-old sunshine broiler chicks were distributed at random following the completely randomized design (CRD) into four treatments. Each treatment was replicated four times with ten birds per replication, making a total of forty per treatment. The treatment were T0-pure commercial feeds, T1- 10g ground pigeon pea seed/kg of commercial feeds, T2- 20g ground pigeon pea seed/kg of commercial feeds and T3- 30g ground pigeon pea seed/kg commercial feeds.

The result of statistical analysis showed no significant differences in terms of initial weight and the total feed intake. Significant differences were observed in the final weight, total gain in weight, and average daily gain in weight, feed consumption ratio and feed cost to produce a kilogram of broilers.

Although the Return on Investment (ROI) values were not subjected to statistical analysis, higher ROI's was obtained from the birds supplemented with pigeon pea seed compared to the control group. The highest ROI was observed in the birds given 30 grams of ground pigeon pea seed was 37.68% followed by these fed 10 grams and 20 grams ROI values of 24.35% and 20.50% respectively. Lowest ROI of 19.86% was observed in the control group.

Conclusion

Based on the result of the study, the addition of ground pigeon pea seed on the birds ration gives an advantage in terms of final weight, feed consumption and feed conversion ratio. Therefore, it is concluded that ground pigeon pea seed can be incorporated in the feed growing-finishing broilers to enhance growth and feed efficiency.

Recommendation

Since supplementing ground pigeon pea seed on sunshine broilers ration to higher profit, it is recommended that adding 30 grams of ground pigeon pea seed should be added in broiler diets during the growing-finishing period.

However, a similar study may be conducted to evaluate the effect if the level of ground pigeon pea seed is increased beyond 30 grams.

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APPENDICES

Appendix Table 1. Initial weight of the birds (kg)

TREATMENT	REPLICATION				TOTAL	MEAN
	I	II	III	IV		
T0	0.572	0.544	0.542	0.503	2.161	0.540
T1	0.508	0.506	0.471	0.511	1.996	0.499
T2	0.580	0.599	0.499	0.558	2.235	0.559
T3	0.541	0.520	0.542	0.532	2.134	0.533
GRAND TOTAL					8.52	
GRAND MEAN						0.53

ANALYSIS OF VARIANCE

SOURCE OF VARIATION	DEGREE OF FREEDOM	SUM OF SQUARES	MEAN SUM OF SQUARES	COMPUTED F	TABULAR F 0.05	TABULAR F 0.01

TRT	3	0.0075	0.00250587	3.1824[ns]	3.4903	5.9525
ERROR	12	0.0094	0.00078742			
CORRECTED TOTAL	15	0.0170				

[ns]= not significant Coefficient of Varaition=5.21%

Appendix Table 2. Final weight of the birds (kg)

TREATMENT	REPLICATION				TOTAL	MEAN
	I	II	III	IV		
T0	1.895	1.840	1.845	1.995	7.575	1.894[c]
T1	1.930	2.280	2.145	2.130	8.485	2.121[b]
T2	2.020	2.210	2.210	2.320	8.760	2.190[ab]
T3	2.330	2.230	2.440	2.385	9.385	2.346[a]
GRAND TOTAL					34.21	
GRAND MEAN						2.14

ANALYSIS OF VARIANCE

SOURCE OF VARIATION	DEGREE OF FREEDOM	SUM OF SQUARES	MEAN SUM OF SQUARES	COMPUTED F	TABULAR F 0.05	TABULAR F 0.01
TRT	3	0.4240	0.1413474	11.4138**	3.4903	5.9525

ERROR	12	0.1486	0.01238385	
CORRECTED TOTAL	15	0.5726		

**Highly Significant Coefficient of Varaition=5.21%

Appendix Table 3. Total gain in weight of the birds (kg)

TREATMENT	REPLICATION				TOTAL	MEAN
	I	II	III	IV		
T0	1.335	1.296	1.303	1.492	5.426	1.357[b]
T1	1.422	1.774	1.675	1.619	6.490	1.622[a]
T2	1.441	1.611	1.712	1.762	6.525	1.631[a]
T3	1.790	1.710	1.899	1.835	7.233	1.808[a]
GRAND TOTAL					25.67	
GRAND MEAN						1.60

ANALYSIS OF VARIANCE

SOURCE OF VARIATION	DEGREE OF FREEDOM	SUM OF SQUARES	MEAN SUM OF SQUARES	COMPUTED F	TABULAR F 0.05	TABULAR F 0.01
TRT	3	0.4152	0.13873747	9.7697**	3.4903	5.9525

ERROR	12	0.1704	0.01420085	
CORRECTED TOTAL	15	0.5866		

**Highly Significant Coefficient of Varaition=7.43%

Appendix Table 4. Average daily gain of the birds (kg)

TREATMENT	REPLICATION				TOTAL	MEAN
	I	II	III	IV		
T0	0.033	0.032	0.033	0.037	0.135	0.034[c]
T1	0.036	0.044	0.042	0.040	0.162	0.041[ab]
T2	0.036	0.040	0.043	0.044	0.163	0.041[b]
T3	0.045	0.043	0.047	0.046	0.181	0.045[a]
GRAND TOTAL					0.64	
GRAND MEAN						0.04

ANALYSIS OF VARIANCE

SOURCE OF VARIATION	DEGREE OF FREEDOM	SUM OF SQUARES	MEAN SUM OF SQUARES	COMPUTED F	TABULAR F 0.05	0.01
TRT	3	0.000	0.0000892	10.2346**	3.4903	5.9525

ERROR	12	0.000	0.0000087
CORRECTED TOTAL	15	0.000	

**Highly Significant Coefficient of Varaition=7.36%

Appendix Table 5. Total feed intake of the birds (kg)

TREATMENT	REPLICATION			TOTAL	MEAN	
	I	II	III	IV		
T0	4.903	4.188	5.031	6.406	20.528	5.132
T1	4.974	5.874	5.511	5.469	21.828	5.457
T2	4.943	5.118	6.396	6.534	22.991	5.738
T3	5.042	4.731	5.073	5.112	19.957	4.989
GRAND TOTAL					85.30	
GRAND MEAN						5.33

ANALYSIS OF VARIANCE

SOURCE OF VARIATION	DEGREE OF FREEDOM	SUM OF SQUARES	MEAN SUM OF SQUARES	COMPUTED F	TABULAR F 0.05	TABULAR F 0.01
TRT	3	1.3833	0.461085262	1.0718^{ns}	3.4903	5.9525

ERROR	12	5.1622	0.43018492	
CORRECTED TOTAL	15	6.5455		

^{ns}=No Significant Coefficient of Varaition=12.30%

Appendix Table 6. Feed conversion ratio

TREATMENT	REPLICATION				TOTAL	MEAN
	I	II	III	IV		
T0	3.673	3.231	3.862	4.293	15.059	3.765[a]
T1	3.498	3.311	3.291	3.378	13.478	3.370[a]
T2	3.431	3.177	3.737	3.708	14.053	3.513[a]
T3	2.817	2.767	2.672	2.758	11.014	2.754[b]
GRAND TOTAL					53.60	
GRAND MEAN						3.35

ANALYSIS OF VARIANCE

SOURCE OF VARIATION	DEGREE OF FREEDOM	SUM OF SQUARES	MEAN SUM OF SQUARES	COMPUTED F	TABULAR F 0.05	TABULAR F 0.01

TRT	3	2.2194	0.73981383	10.7391**	3.4903	5.9525
ERROR	12	0.8267	0.06888996			
CORRECTED TOTAL	15	3.0461				

**=Highly Significant Coefficient of Varaition=7.83%

Appendix Table 7. Feed cost to produce a kg gain nin weight

TREATMENT	REPLICATION			TOTAL	MEAN	
	I	II	III	IV		
T0	96.41	84.83	101.38	112.70	395.52	98.83[d]
T1	118.48	112.15	111.48	114.42	456.53	114.13[c]
T2	145.28	134.51	158.24	157.03	595.06	148.77[a]
T3	132.99	130.59	126.14	130.18	519.90	129.98[b]
GRAND TOTAL					1966.81	
GRAND MEAN						122.93

ANALYSIS OF VARIANCE

SOURCE OF VARIATION	DEGREE OF FREEDOM	SUM OF SQUARES	MEAN SUM OF SQUARES	COMPUTED F	TABULAR F 0.05	TABULAR F 0.01

TRT	3	5501.1407	1833.71357	26.5647**	3.4903	5.9525
ERROR	12	828.3391	69.0282562			
CORRECTED TOTAL	15	6329.4798				

**=Highly Significant Coefficient of Varaition=6.76%