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A Comparative Analysis on Effects of Feeds on Quail

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Abstract
This study was carried out to determine whether there is any significant different between the treatment of quail bird, 82 birds (quail) where used in carrying out the experiment where we have 36 males and 46 females, they are distributed to four different plots according to their weight and four different feeds were apply to them with the purpose of knowing which type of feed can contribute most to the growth of the quail. Complete randomized block design was used to determine the significant in the feeds and Duncan multiple range test was used to determine the treatment that cause the significant difference ,using SPSS and from the analysis it was discovered that the best feed to be considered should either be layers or finisher feed in order to enhance the productivity of quail and to increase the weight gain.

Keywords
Quail, Experiment, Treatment, Feeds

I. Introduction

The term poultry is a category of domesticated birds kept by human for the purpose of collecting of their eggs or killing for their meat or feathers[2],[5]. These most typically are members of the order Galliforous (which include chickens, quail and turkeys) and the family Anatidae (in order Anseriformes), commonly known as "water fowl" e.g. domestic duck and domestic geese. Poultry also includes other birds which are killed for their meat such as pigeon or doves or birds considered to be game such as pheasants[4, 5]. Poultry comes from the French/ Norman word POULE, itself derived from the Latin word pullus, which means small animal. The level and efficiency of production of any animal depends on the provision of adequate protein, energy, vitamins and minerals in the right proportion in their diets [1]. It has been known that poultry is the second most widely eaten meat in the world, accounting for about 30% of meat production worldwide after pork 38%.

II. Research Methodology

Research Design

The research design of this experiment is arranged in such way that an experimental unit (Quail) is weighs and distributed to four different plot and four different feeds is being tested on them. The layout of the design can be seen below:

Table 1: Distribution of male Quail to different plots

EXPERIMENTAL UNIT	PLOT			
	A	B	C	D
0.23-0.25	2	3	3	3
0.26-0.27	2	2	3	2
0.28-0.29	2	2	2	2
0.30-0.33	2	2	2	2

Table 2: Distribution of female Quail to different plots

EXPERIMENTAL UNIT	PLOT			
	A	B	C	D
0.23-0.25	2	3	3	3
0.26-0.27	3	3	4	4
0.28-0.29	3	3	3	3
0.30-0.33	2	3	2	2

Research Tools

The research tools used in this analysis is randomized compete block design (RCBD). The composition of each treatment used in carrying out the experiment is as follow:

Treatment A (Layers feed)

Ingredient	proportion (kg)
Maize	7.74
Soya meal	3.00
Wheat offal	2.00
G.N.C	3.00
P.K.C	2.00
Bone meal	5.00
Lime stone	1.00
Fish meal	1.00
B.premix	0.03
Methione	0.03
Salt	0.02
Total	25kg

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Treatment B (Grower feed)

Ingredient	proportion (kg)
Maize	7.70
Soya meal	3.00
Wheat offal	2.00
D.O.C	1.00
B.D.G	3.00
Bone meal	0.50
Lysine	0.025
Lime stone	2.00
B.premix	0.625
Methione	0.025
Common Salt	0.02
Ground Cake	3.00
Total	25kg

Treatment C (Finisher feed)

Ingredient	proportion (kg)
Maize	8.525
Soya bean meal	4.50
Wheat brown	4.25
Common Salt	0.075
Groundnut cake	5.00
Methionine	0.0625
B.premix	0.0625
Bone meal	0.50
Lysine	0.025
Limestone	2.00
Total	25kg

Treatment D (Compounded feed)

Ingredient	proportion (kg)
Maize	9.00
Dry fish	1.00
Groundnut cake	4.00
Wheat offal	5.00
Common salt	0.20
P.K.C	3.80
Bone meal	2.00
Total	25kg

The basic methods that are used in achieving this research work are randomized complete block design (RCBD) and Duncan's multiple range test (DMRT) procedure with the use of statistical package "SPSS".

Table 3: Layout for RCBD

	Block 1	Block 2	,,,,,,,,,,,,,,,,,	Block b
Treat 1	Y_{11}	Y_{12}	……	Y_{1b}
Treat 2	y_{21}	Y_{22}	.....	Y_{2b}
:	:	:		:
:	:	:		:
Treat t	Y_{t1}	Y_{t2}	,,,,,,,,,,,,,,,,,,,	Y_{tb}

Statistical Model for RCBD

$Y_{ij}=\mu_i + \tilde{I}_i + \beta_j + e_{ij}$

Where

Y_{ij} = the observation in block j receiving treatment i
μ_i = Grand mean or the total mean
$\tilde{I}_i$ = the effect of ith treatment
β_j = The effect of block jth

e_{ij} = the error term normally distributed with mean zero and constant variance

Table 4 : ANOVA TABLE

SOURCE	DF	SS	MS	F
Treatment	t-1	SStrt	$\frac{SSt}{t-1}$	$\frac{MSt}{MSE}$
Blocks	b-1	SSB	$\frac{SSb}{b-1}$	$\frac{MSb}{MSE}$
Residual	(t - 1) (b-1)	SSE	$\frac{SSe}{(t-1)(b-1)}$	
Total	N-1	SST		

Duncan Multiple Range Test Procedure

For Duncan's multiple range test. We list our means in order of magnitude, from highest to lowest or otherwise, and then we test for significant difference between the highest and lowest-it must be greater than

$$\left(D \times \sqrt{\frac{MSE}{n}}\right).$$

If this is significant, we test highest against the lowest mean, and continue in this way until all means have been tested against one another. However the D value changes each time. For the first test (highest against lowest mean) we look up the D value for the number of treatments (i.e. for the number of mean I our table of results). For the next test (second highest against lowest, we used the D value for the number of mean minus 1(because we are excluding the highest mean now), and so on. However, the degrees of freedom do not change- it is always degree of the residual (error) mean square.

III. Data presentation

Table 5: showing the weekly Mean for The Differences in Weight Gain of the Four Plot and Treatment

Treat/block	A	B	C	D	Total
Layers	0.025	0.0192	0.0257	0.0275	0.0974
Grower	0.0195	0.0215	0.016	0.0145	0.0715
Finisher	0.0222	0.024	0.0222	0.027	0.0954
Compounded	0.0215	0.0217	0.0237	0.0255	0.0925
Total	0.0882	0.0865	0.0876	0.0945	0.3568

IV. Data Analysis

Randomized Complete Block Design for the Quail

Treatments: H_o: $\mu_1=\mu_2=\mu3=\mu_4$ VS H_I: At least one of the means differ.

Blocking: H_0: $\beta_1=\beta_2=\beta_3=\beta_4$ VS H_I: At least one of the means differ.

Level of significance α=0.05
Decision rule: Reject H_o if P-value<α, otherwise do not reject H_o
Test statistic: $\frac{MSB_{lock}}{MSE_{rror}}$, $\frac{MSB_{lock}}{MSE_{rror}}$

Table 6 : Result of the analysis from the SPSS, Tests of Between-Subjects Effects

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	4.433E-005a	6	7.389E-006	3.52	.045
Intercept	.007	1	.007	3244	.000
TREATMENT	2.973E-005	3	9.911E-006	4.72	.030
BLOCK	1.460E-005	3	4.868E-006	2.32	.144
Error	1.890E-005	9	2.100E-006		
Total	.007	16			
Corrected Total	6.324E-005	15			

a. R Squared = .701 (Adjusted R Squared = .502)

Conclusion: only the treatment variable is assumed to be significant in this design. The p value =0.03 for treatment is less than α=.05, but p value =0.144 for block is greater than α=.05, therefore we do not reject H_o for block but reject for treatment and conclude there is no significant differences in the block and there is significant difference in treatment .

V. Conclusion

The result of the analysis revealed that , the amount of feed does not determine their quality on birds according to this research , we suggest that for the best income for poultry farmers on quail, the best feed to be considered should either be layers or finisher feeds in order to enhance in their productivity and weight gain.

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