DIFFERENT INDIGENOUS PLANTS AS FEED SUPPLEMENT ON THE PERFORMANCE OF COBB BROILERS

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ABSTRACT

This study was conducted at the Center for Research Poultry House, UNP, Vigan, Ilocos Surfrom October 6 to November 22, 1992 to determine the performance of cobb broilers fed with different indigenous plants such as ipil-ipil, katuday leaves and aragan as supplement to commercial feeds.

The Completely Randomized Design (CRD) was employed in two replications with the following treatments: TI - 100% commercial feeds (cf; T2 - 90% cf + 10% ground ipil- ipil leaves; T3 - 90% cf + 10% ground katuday leaves; T4 - 90% cf + 10% ground aragan. Data gathered was delimited on the growth performance, feed consumption, feed conversion efficiency and net return per bird in pesos which were statistically analyzed using the analysis of variance procedure and further tested employing the Duncan's Multiple Range Test (DMRT).

Findings revealed insignificant differences among treatments in most of the data gathered except for the total gain in weight and feed conversion efficiency of the experimental birds which gave highly significant and significant differences among treatments, respectively. Based on the findings, ground aragan (sargassum) is highly recommended to be utilized by broiler raisers as feed supplement to commercial feeds in order to produce heavier birds after six weeks and thereby reducing the cost of feed and increasing the net return.

INTRODUCTION

In the advent of rapid population growth, demand for protein rich food greatly increased *to* meet the people's nccds.

Nowadays, broiler production has become a viable income booster which can be ventured into by many household heads. Increased production of poultry meat would greatly help solve nutritional deficiency especially among those who can hardly afford to buy other meat products.

Although broilers are said to be easily managed and cared for, the greatest burden of the raisers is feeds supply because it constitutes 60% of the total cost in raising broilers, particularly the commercial feeds because of their high cost. However, Almazan in 1981 stated that the cost of production can be reduced by supplementing the commercial ration with protein-rich feedstuffs coming from indigenous plants. Molina in 1972 reported that the addition of ipil-ipil leaf meal to growing mash ration of birds greatly improved the feeding value of the basal feed. He further stated that

ipil-ipil leaf meal lowered the cost of production by increasing the efficiency of feed utilization. In 1974, Quisenberry stated that ipil- ipil leaf meal is an excellent source of carotene being al most twice as the carotene of alfalla leaf. He found out that five percent ipil-ipil leaf meal incorporated in the commercial ration is economically viable.

There is really a need lo find ways and means to reduce the expenses for feeds by utilizing nutritious indigenous plants as supplement to commercial feeds in order to realize higher net return for any amount invested. Hence, this study was conducted.

OBJECTIVES OF THE STUDY

The study was conducted to determine the performance of cobb broilers fed with different indigenous plants as supplement to commercial feeds.

Specifically, it attempted to answer the following questions:

1. Which of the birds fed with different indigenous plants (ipil-ipil, katuday leaves and aragan) as feed supplement will give the best growth performance as measured in tenns of:

   a) initial weight per bird upon arrival in grams;
   b) bi-weekly weight per bird in grams;
   c) final weight per bird in kilograms; and
   d) total gain in weight per bird in kilograms.

2. Which of the birds fed with different indigenous plants as feed supplement will consume the most ration?

3. Which of the birds fed with different indigenous plants as feed supplement will give the best feed conversion efficiency?

4. Which of the birds fed with different indigenous plants as feed supplement will give the highest computed net return per bird in pesos?

TIME AND PLACE OF THE STUDY

The study was conducted at the Center for Research Poultry House, UNP, Vigan, Ilocos Sur from October 6 to November 22, 1992. The data gathered was delimited on the growth performance feed consumption, feed conversion efficiency and net return per bird in pesos.

MATERIALS AND METHODS

A. Stock and Materials. The following stock, supplies and materials were used in the study:

1. 100 day-old cobb broiler chicks;
2. Commercial feeds(chickbooster. broiler, starter mash, broiler crumble and yellow corn grit);
3. Feed supplement (ground ipil-ipil leaves, katuday leaves and aragan),
4. 3 Electric bulbs (50-watt);
5. 12 Waterers;
6. 1 Brooding Cage;
7. 2 Rearing Cages;
8. Disinfectant (Lysol);
9. Antibiotics (vetracin);
10. Weighing Scale;
11. Feeding Troughs; and
12. Record Notebook and Ballpen

B. Methods. The following methods/ procedure ere employed in the conduct of the study:

1. Procurement of Stock. (100) day-old cobb broiler chicks were purchased from the F. Alquiza Poultry Supply in Vigan, Ilocos Sur.

2. Brooding. Upon arrival, the chicks were placed in a 1x5 meter brooding cage. 'The chicks were brooded for

two weeks by providing electric lights. During current failure, candles were lighted to provide heat to the chicks.

3. Experimental Design. The Completely Randomized Design (CRD) was employed in the study with two replications with the following treatments.

Tl - 100% commercial feeds (cf)
T2- 90% cf + 10% ground ipil-ipil leaves
T3- 90% cf + 10% ground katuday leaves
T4- 90% cf + 10% ground aragan (sargassum)

The experimental layout is further illustrated hereunder:

Tl	T2	T3	T4
T3	T4	Tl	T2

4. Allotment of Birds. After two weeks for brooding, birds were alloted to their respective rearing cages. Ten (lO) birds were alloted per cage or a total of twenty (20) per treatment in two replications. The remaining 20 birds were in a row- experimental cage.

5. **Health** and Sanitation. Prior to the arrival of the experimental chicks, brooding and rearing cages were cleaned. Feeding and drinking troughs were cleaned daily in the morning. Vetracin was dissolved in the drinking water of the chicks during the brooding period to prevent the outbreak of diseases.

6. **Feed and** Feedings. All the birds were given the same ration during the brooding period of two months. Chick booster was given to the chicks after which it was followed by broiler starter mash; and broiler scrumble mash with yellow corn grit. As specified in the different treatments. starting at rearing stage, the birds alloted in TI were given pure commercial feed (cf) ration; T2 were given 90% cf + 10% ground ipil-ipil leaves; T3 90% cf + 10% ground katuday leaves; and T4 90% cf + 10% ground aragan. The feeding schedule was observed up to marketing stage of the birds. The birds fed in ad-li-bitum basis three times a day (6:00AM; 12:00N and 5:00PM).

All other cultural management procedures involved in broiler production were strictly employed in the conduct of the experiment.

7. Gathering of Data. All the ten (10) birds alloted for each treatment in three replications were used as samples for gathering the following data:

a. Initial Weight Per Bird. The initial weight per bird in grams was taken upon arrival or before they were placed in the brooding cage. Sample birds were marked with a pentel pen to distinguish them from the rest. The total weight of the birds was divided by ten which is the number of sample birds.

b. **Bi-Weekly Gain in Weight.** The average bi-weekly gain in weight per bird in grams was taken every two weeks. The initial weight was deducted from the new weight per bird.

c. Final Weight. The average final weight per bird in kilograms was taken at the end of the study, after forty-five (45) days from arrival of the chicks. The total weight of the sample birds was divided by ten (10).

d. **Total** Gain in Weight. The average total gain in weight per bird in kilograms was determined by deducting the initial weight from the final weight.

e. Feed Consumption. The feed consumed per bird was determined based on weekly consumption after subtracting the leftover feeds from the feeding troughs.

f. Feed Conversion Efficiency (fce). The feed conversion efficiency per bird was determined by dividing the total feed consumption or kilograms by the total gain in weight per bird in kilograms.

g. Net Return Per Bird. The computed net return per bird in pesos was determined by deducting the cost of production from the gross sale per bird at the end of the experimental period.

8. Analysis of Data. AII the data gathered were properly tabulated, then analyzed using the analysis of variance procedure. Treatment means were further subjected to the Duncan's Multiple Range Test (DMRT) of significance at .05 level.

RESULTS AND DISCUSSION

Initial Weight Per Bird

The initial weight per bird in grams taken upon arrival is shown in Table I and further illustrated in Figure I.

Birds scheduled to be alloted in T0 (pure commercial feeds) exhibited the heaviest with a mean of 48.25 grams, followed by T3 (90% cf + 10% ground katuday leaves) with a mean of 48.00 grams, and the heaviest was exhibited by birds in T2 (90% cf + 10% ground ipil-ipil leaves) and T4 (90% cf + 10% ground aragan) with an equal mean of 47.75 grams per bird.

Table 1. Initial Weight Per Bird Upon Arrival in Grams

Treatments	REPLICATION I	11	Total	Mean
Tl - Pure cf	48.0	48.5	96.5	48.25
T2 - 90%cf+10%gil	47.5	48.0	95.5	47.75
T3 - 90%cf+10%gkl	48.5	47.5	96.0	48.00
T4 - 90%cf+10%ga	47.5	48.0	95.5	47.75
Total	191.5	192.0	383.5	
Grand Mean				47.94

Legend: cf = commercial feeds
gil = ground ipil-ipil leaves
gkl = ground katuday leaves
ga = ground

Statistical analysis of the initial weight per bird using the analysis of variance as shown in Table la revealed insignificant differences between treatment means. This implies that birds were more or less uniform in weight because they were hatched in the same incubation period. This is justified by a computed f value of .41 which is very much lower than the computed f value of 9.28 at .05 level of significance.

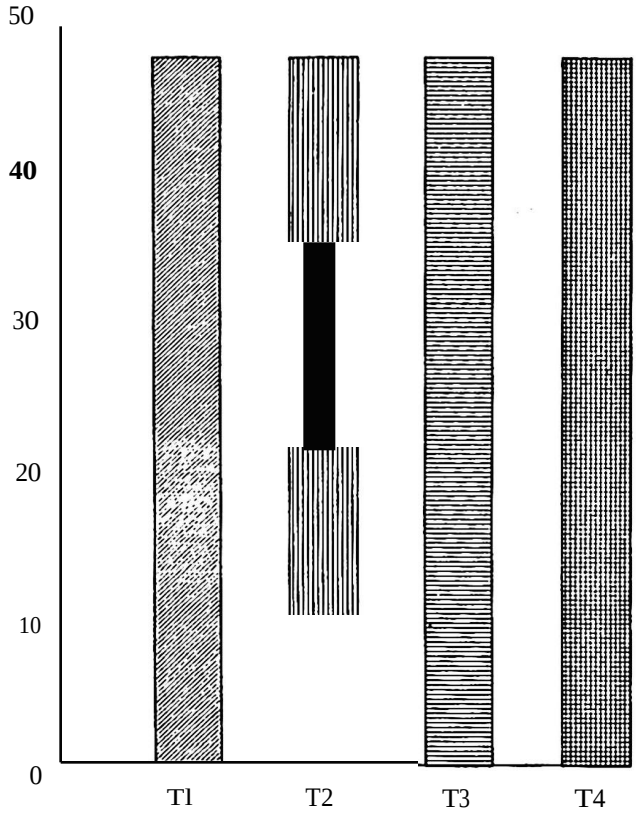

Figure I. *Initial Weight per Bird Upon Arrival in Grams*

Legend: T1 - 100% Commercial Feeds (cf)
T2 - 90% cf + 10% ground ipil-ipil leaves
T3 - 90% cf + 10% ground katuday leaves
T4 - 90% cf + 10% ground aragan

Table 1a. Analysis of Variance on the Initial Weight **Per Bird**

Source of Variance	df	SS	MS	CFV	T .05	F	V .01
Replication	1	.031	.031	.11			
Treatment	3	.344	.115	.42%	9.28		29.46
Error	3	.844	.28				
Total	7						

CFV = 1.103% Sx = .529 ns = not significant

First Bi-Weekly Weight Per Bird. The first bi-weekly weight per bird in grams is shown in Table 2, and further illustrated in Figure 2.

It could be noted from the tabulated data that birds in T3 (90% cf+ 10% ground katuday leaves) and T4 (90% cf + 10% ground aragan) exhibited the heaviest with an identical means of 311.25 grams, followed by T2 (90% cf + 10% ground ipil-ipil leaves) with a mean of 310.90 grams; and Tl (pure commercial feeds) garnered the highest with a mean of 310.25 grams.

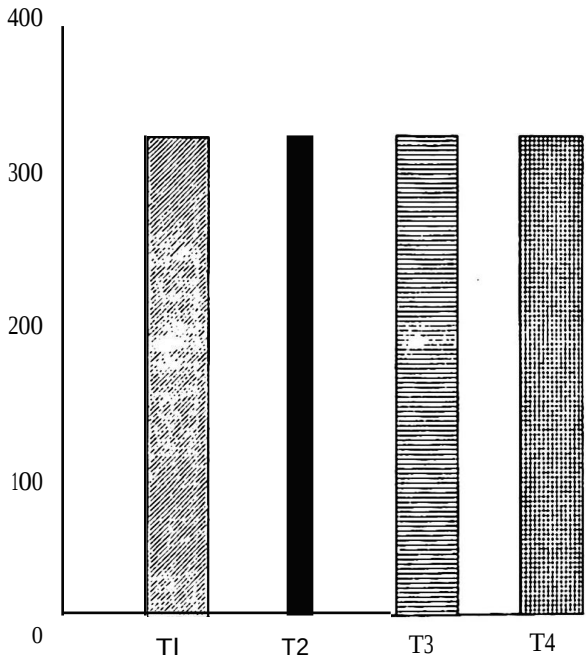

Figure 2. *First Bi-Weekly Weight per Bird in Grams*

Legend: T1 - 100% Commercial Feeds (cf)
T2 - 90% cf + 10% ground ipil-ipil leaves
T3 - 90% cf + 10% ground katuday leaves
T4 - 90% cf + 10% ground aragan

Table 2. First Bi-Weekly Weight **Per Bird** in Grams

Treatments	REPLICATION I	II	Total	Mean
Tl	316.50	304.00	620.50	310.25
T2	315.80	306.00	621.80	310.90
T3	318.00	304.50	622.50	311.25
T4	317.50	305.00	622.50	311.25
Total	1,267.80	1,219.50	2,487.30	
Grand Mean				310.91

Analysis of variance on the first bi-weekly weight per bird as shown in Table 2a revealed no significant dilTerences between treatments as indicated by a computed F value of .336 which is very much lower than the tabulated F value of 9.28 at .05 level. Again, this is attributed to the fact that birds are still in the brooding stage and they are given the same ration.

Table 2a. Analysis of Variance of the First Bi-Weekly Weight Per Bird in Grams

Source of Variance	df	SS	MS	CFV	T .05	F	V .01
Replication	1	291.6	291.6	227.81			
Treatment	3	1.3	.43	.336	9.28		29.46
Error	3	3.84	.28				
Total	7	296.74					

CFV = .36% Sx = 1.13 ns = not significant

Second Bi-Weekly Weight Per Bird. The second bi-weekly weight per bird in grams is presented in Table 3 and further illustrated in Figure 3.

As shown in the table. birds fed with 90% commercial feeds and 10% ground aragan or sargassum (T4) registered the heaviest with a mean of 1,045.00 grams, followed by birds fed with 90% cf + 10% ground ipil-ipil leaf (T2) with a mean of 1,030.00 grams; then came next the birds given with 90% cf + 10% ground katuday leaves (T3) with a mean of 975.00 grams per birds; and the lightest was exhibited by birds fed with pure commercial feeds with a mean of 905.00 grams.

Table 3. Second **Bi-Weekly Weight Per Bird in Grams**

Treatments	REPLICATION I	II	Total	Mean
Tl	935.00	875.00	1,810.00	905.00
T2	955.00	1,105.00	2,060.00	1,030.00
T3	910.00	1,040.00	1,950.00	975.00
T4	1,035.00	1,055.00	2,090.00	1,045.00
Total	3,835.00	4,075.00	7,910.00	
Grand Mcan				988.75

Analysis of variance as shown in Table 3a revealed insignificant difference between treatments as indicated by a computed F value of 1.66 which is very much lower than the tabulated F value of 9.28 at .05 lcvcl. The insignificant difference show that there was no effect of the different ration given to the birds, hence, their growth increment were more or less uniform.

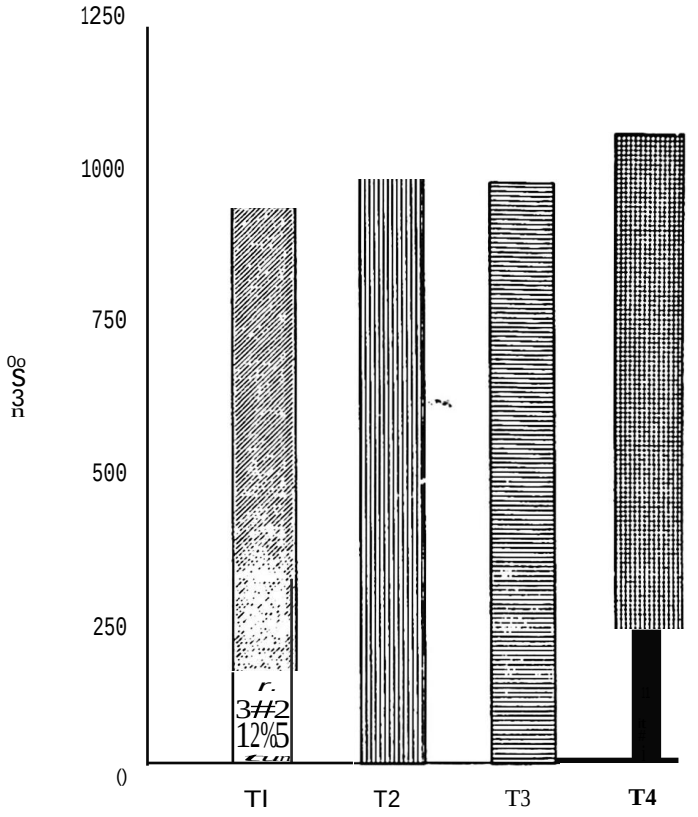

Figure 3. *Second Bi-lIeekly Weight per Bird in Grams as Affected by Different Indigenous Plants as Supplement to Commercial Feeds*

Legend: TI - 100% Commercial Fceds (cf)
T2 - 90% cf + 10% ground ipil-ipil leaves
T3 - 90% cf + 10% ground katuday leaves
T4 - 90% cf + 10% ground aragan

Table 3a. Analysis of Variance on the Second Bi-Weekly Weight Per **Bird** in Grams

Source of Variance	df	SS	MS	CFV	T .05	F	V .01
Replication		7.200	7.200	1.49			
Trcatmcent	3	24,137.5	8.045.83	1.66"	9.28		9.46
Error	3	I4,500	4,833.3				
Total	7	45,837.5					

CFV = 7.031% Sx = 69.52 ns = not significant

Final Weight **Per Bird** in Kilograms. The final weight per bird in kilograms is presented in Table **4** and further illustrated in Figure **4.**

As shown in the table, birds fed with 90% commercial feeds + 10% ground aragan (T4) registered the heaviest with a mean of 1,503 kilograms, followed by birds given with 90% commercial feeds + 10% ground ipil-ipil leaves (T2); birds fed with 90% commercial feeds + 10% ground katuday leaves with means of 1.485 and 1.430 kilograms, respectively. The lightest was registered in the control treatment or birds given with pure commercial feds (Tl) with a mean final weight of 1.353 kilograms.

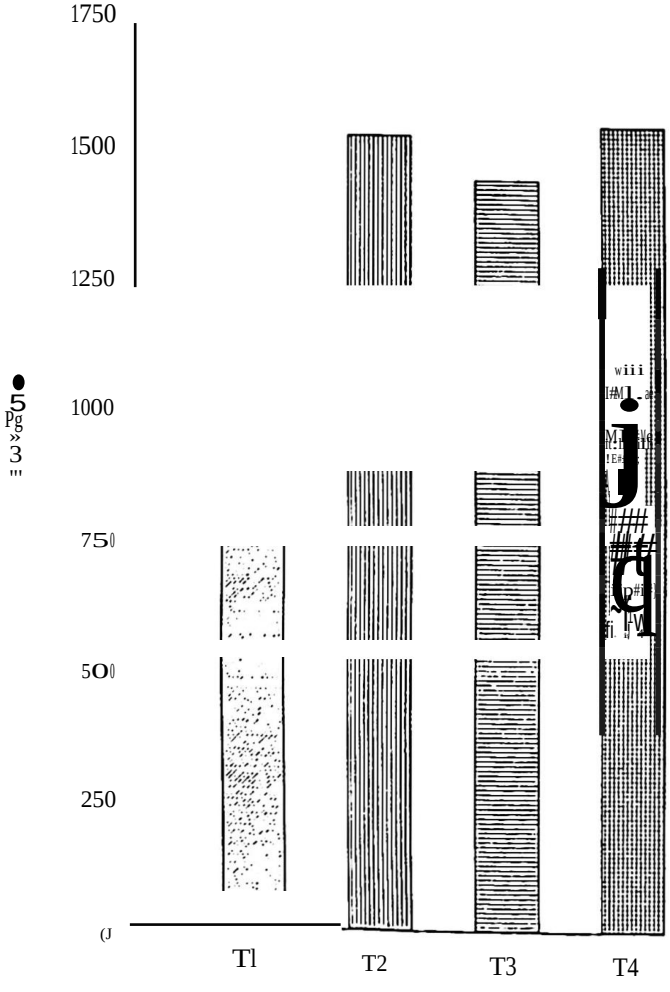

Figure 4. *Final Feight per Bird in Kilograms as Affected by Different Indigenous Plants as Supplement to Commercial Feeds*

Legend: TI - 100 Commercial Fccds (cf)
T2 - 90 cf + 10% ground ipil-ipil leaves
T3 - 90% cf + 10% ground katuday leaves
T4 - 90% cf + 10% ground aragan

Table 4a. Final Weight **Per Bird** in Kilograms

Treatments	REPLICATION I	II	Total	Mean
Tl	1.320	1.385	2.705	1.353
T2	1.435	1.535	2.970	1.485
T3	1.380	1.480	2.860	1.430
T4	1.475	1.530	3.005	1.503
Total	5.610	5.930	11.540	
Grand Mean				1.443

Analysis of variance as shown in Table 4b revealed insignificant differences between treatments as implied by a computed F value of .375 which is very much lower than the tabulated F value of 9.28 at .05 lcvcl. Similarly, the different ration given to the birds did not show a significant cflcct on thc final weight of the experimental birds which is attributed to the homogeneity of the breed used in the experiment.

Table 4h. Analysis of Variance on the Final Weight Per Bird in Kilograms

Source of Variance	df	SS	MS	CFV	T .05	F	V .OJ
Replication	I	.013	.013	.542			
Trcatmcnt	3	.028	.009	.375ns	9.28		29.46
Error	3	.073	.024				
Total	7	.I14					

CFV = 10.74% Sx = .I55 ns = not significant

Total Gain in Weight Per Bird in Kilograms. The total gain in weight per bird in grams is presented in Table *5* and further illustrated in Figure *S*.

As shown in the table, birds fed with 90% commercial feeds + 10% ground aragan (T4) registered thc highest gain in weight with a mean of 1.455 kilograms, followed by birds fed with 90%commercial fccds + 10% ground ipil-ipil leaves (T2); 90%commercial feeds + 1O ground katuday leaves (T3)l and pure commercial feeds (Tl) with means 0f 1.438. 1.383. and 1.305 kilograms per bird, respectively.

Table 5. Total Gain in Weight Per Bird in Kilograms

Treatments	REPLICATION I	II	Total	Mean
Tl	1.272	1.337	2.609	*1.305*
T2	1.388	1.487	2.875	1.438
T3	1.3.32	1.433	2.765	1.383
T4	1.428	1.482	2.910	*l.455*
Total	5.420	5,739	11,159	
Grand Mean				1.395

Analysis of variance as shown in Table 5a revealed a highly significant difference between treatments as shown by a computed F value of 90.00 which is very much greater than the tabulated f values of 9.28 and 29.46 at .05 and .0I levels, respectively. This implies that there was an effect of the variations of rations given to the experimental birds on their total gain in weight. Thus. birds with ground indigenous plants outweighed those under the control treatment.

Table 5a. Analysis of Variance on the Total Gain in Weight Per Bird in Kilograms

Source of Variance	df	SS	MS	CFV	T .05	F	V .OI
Replication	I	.0126	.0126	126.00			
Treatment	3	.0276	.009	90.005	++9.28		29.46
Error	3	.0004	.OOOI				
Total	7	.0406					

CV= .71% Sx = .0I •• = highly significant

Further subjecting the different treatment means to the Duncan's Multiple Range Test (DMRT) of significance as shown in Table 5b revealed that the means of the birds fed with ground aragan and ipil- ipil as supplement to commercial feeds (T2 and T4) were comparable with each other but incomparable to the means of the birds given with katuday leaves as supplement (T3) and those given with pure commercial feeds (TI), However. the two treatments (T3 and T0) were also incomparable with each other. This goes to show that birds given supplemental indigenous plants gave better performance.

Table Sh. DMR Test of Significance on the Total Gain in Weight Per Bird in Kilograms

Treatments	Mean
Tl	l.305e
T2	1.438a
T3	1.383b
T4	1.455a

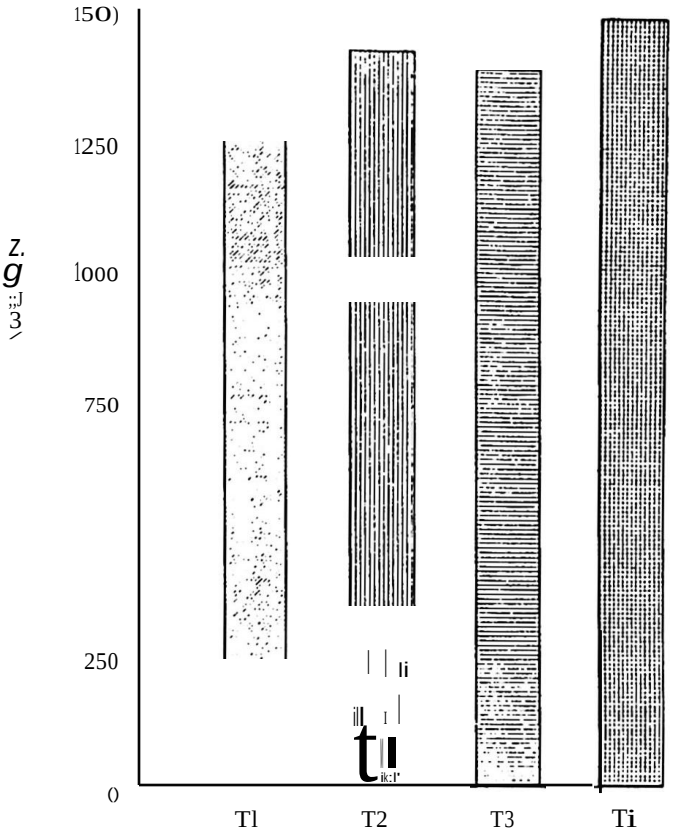

Figure 5. *Total Gain in Ileight per Birtl in Kilograms as Affected by Different Indigenous Plants as Supplement to Commercial Feeds*

Legend: T1 - 100% Commercial Fccds (cD)
T2 - 90% cf + 10% ground ipil-ipil lcaves
T3 - 90% cf + 10% ground katuday lcavcs
Ty - 90% cf + 10% ground aragan

Mcans followed by common letters arc not significantly different at .05 levcl using DMRT.

Average Fccd Consumption Per Bird in Kilograms. Thc avcragc amount of fccds consumed per bird during the cxperimcntation period is presented in Table 6 and further illustratcd in Figure 6.

As shown in the table. birds fed with purc commercial fccds (T1) consumcd the highest with a mcan of 3.88 kilograms per bird, followcd by birds in T3 (90% commercial fccds + 10% ground katuday leaves); T2 (90% commercial fccds + 10% ground ipil-ipil leaves); and T4 (90% commercial feeds + 10% ground aragan) with means of 3.80, 3.68 and 3.65 kilograms pcr bird, respectivcly.

Table 6. Average Feed Consumption Per Bird in Kilograms

Treatments	REPLICATION I	II	Total	Mean
Tl	3.85	3.90	7.75	3.88
T2	3.70	3.65	7.35	3.68
T3	3.75	3.85	7.60	3.80
T4	3.55	3.75	7.30	3.65
Total	14.85	15.15	30.00	
Grand Mcan				3.75

Statistical analysis as shown in Table 6a revealed insignificant difference betwccn treatments as justificd by the computed F value of 4.09 which is lower than the tabulatcd F values 0f 9.28 and 29.46 at .05 and .0I levels. respectively. This implies that the amount of fccds consumcd per bird was more or less uniform which goes to show that they possess homogenous characteristics as regards to their ability to take in feeds bccause only one brecd was uscd in the study.

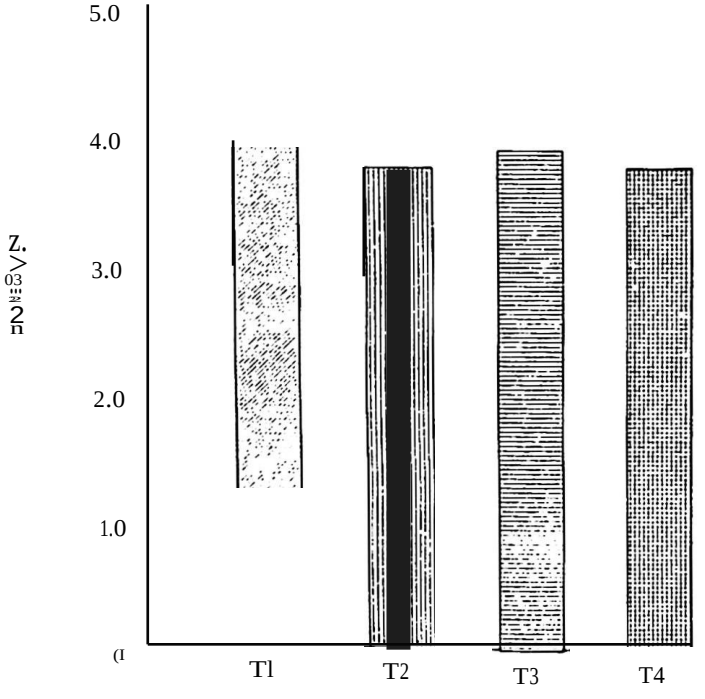

Figure 6. *Average Feed Consumption per Bird in Kilograms as Affected by Different Indigenous Plants aas Supplement to Commercial Feeds*

Legend: Tl - 100% Commercial Feeds (cf)
T2 - 90% cf + 10% ground ipil-ipil leaves
T3 - 90% cf + 10 ground katuday leaves
T4 90% cf + 10% ground aragan

Table 6a. Analysis of Variance on the Average Feed Consumption **Per Bird in** Kilograms

Source of Variance	df	SS	MS	CFV	T .05	F	V .01
Replication	1	.011	.011	2.00			
Treatment	3	.0675	.0225	4.09	**9.28**	29.46	
Error	3	.0165	.0055				
Total	7	.095					

CV = 1.97% Sx = .074 ns = not significant

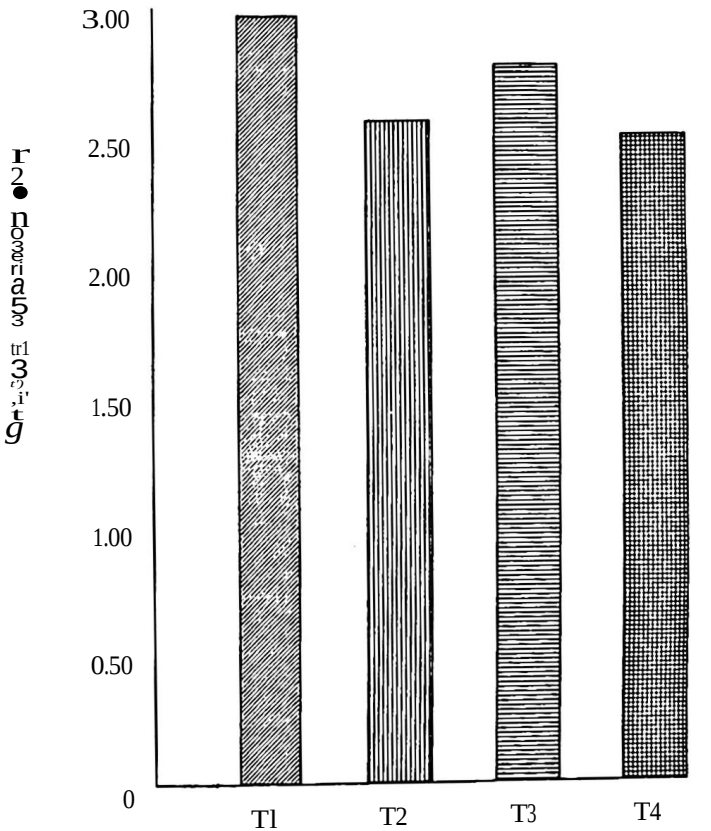

Figure 7. *Average Feed Conversion Efficiency per Bird as Affected by Different Indigenous Plants as Supplemetn to Commercial Feeds*

Legend: T1 - 100% Commercial Feeds (ct)
T2 - 90% cf + 10% ground ipil-ipil leaves
T3 - 90% cf + 10% ground katuday leaves
T4 - 90% cf + 10% ground aragan

Feed Conversion Efficiency Per Bird. The average feed conversion efficiency per bird is presented in Table 7 and further illustrated in Figure 7. As shown in the table, birds fed with ground aragan as supplement to commercial feeds (T4) registered the most efficient converter of feeds into meat with a computed feed conversion efficiency of 2.51, followed by T2 (90% cf + 10% ground ipil- ipil leaves); T3 (90% cf + 10% ground katuday leaves); and Tl (pure commercial feeds) with computed feed conversion efficiency of 2.56, 2.76 and 2.98 respectively. The mean feed conversion efficiency is 2.70.

Table 7. **Feed** Conversion Efficiency **Per Bird**

	REPLICATION			
Treatments	J	JI	Total	Mcan
Tl	3.03	2.92	5.95	2.98
T2	2.67	2.45	5.12	2.56
T3	2.82	2.69	5.51	2.76
T4	2.49	2.53	5.02	2.51
Total	11.0	10.59	21.60	
Grand Mean				2.70

Analysis of variance as shown in Table 7a revealed a significant difference among treatment means as shown by a computed F value of ll.125 which is greater than the tabulated F value of 9.28 at .05 level but lower than the tabulated value of 29.46 at .01 level of significance. This implies that a difference in the ability of the birds to convent feeds into mcat was notcd, because birds that were given pure commercial feeds significantly consumed more feeds as compared to those that were given feeds supplement.

Table 7a. Analysis of Variance on the Feed Conversion Efficiency Per **Bird**

Source of Variance	df	SS	MS	CFV	T .05	F	V .01
Replication		.0225	.0225	2.81			
Treatment	3	.266	.089	11.125°	9.28		29.46
Error	3	.235	.008				
Total	7	.312					

CV = 3.31% Sx = .089 = significant

Further subjecting the different treatment means to the Duncan's Multiple Range Test (DMRT) of significance, the feeds conversion efficicncy of birds alloted in T4 (90% cf + 10% ground aragan) and T2 (90% cf + 10% ground ipil-ipil leaves) were comparable but not comparable lo the means of the other two treatments. Likewise, birds fed with 90% cf+ JO% ground katuday leaves (T3) was incomparable to those that were fed with pure commercial feeds (Tl) as revealed by the uncommon letters opposite their means. This goes to show that birds given feed supplement performed better performance than those that were fed with pure commercial fecds.

Table 8. Test of Significance on the Feed Conversion Efficiency **Per Bird**

Treatment	Mean
Tl	2.98c
T2	2.56a
T3	2.76b
T4	2.51a

Means followed by common letters arc not significant at .05 level using DMRT.

Cost and Return Analysis. The cost and return analysis of the study is presented in Table 8a further illustrated in Figure 8.

A. Cost of Production Per Birds. As shown in table 8a, birds fed with pure commercial feeds (Tl) registered the highest computed expenses of P 71.99 **per** bird, followed by T3 (90% cf + 10% ground katuday leaves); T2 (90% cf + 10% ground ipil-ipil leaves); and T4 (90% cf + 10% ground aragan) with computed cost of production of P 67.05: P 65.89 and P 65.60 per bird, respectively. Birds given with pure commercial feeds exhibited the highest production cost because of the high cost of commercially ready-mixed feeds as compared with those birds fed with feed supplement.

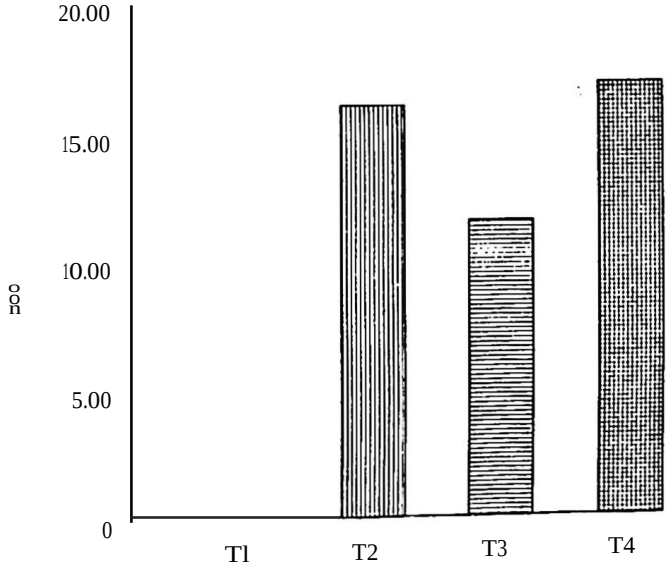

Figure 8. *Computed Net Return per Bird in Pesos as Affected by Different Indigenous Plants as Supplement to Commercial Feeds*

Legend:
TI - 100% Commercial Feeds (cD)
T2 - 90% cf + 10% ground ipil-ipil leaves
T3 - 90% cf + 10% ground katuday leaves
T4 - 90% cf + 10% ground aragan

Table 8a. Cost and Return Analyis Per Bird in Pesos

A. Cost of Production Per Bird

Treatments	Nature of Expense 1	2	3	4	5	Total
Tl	19.50	2.35	1.50	41.71	6.93	71.99
T2	19.50	2.35	1.50	35.61	6.93	65.89
T3	19.50	2.35	1.50	36.77	6.93	67.05
T4	19.50	2.35	1.50	35.32	6.93	65.60

Legend: 1 - Cost per chick 2– Cost of Antibiotics
3 - Cost of electric Current 4 - Cost of Feeds
5 - Cost of Labor

B. **Net Return Per Bird. As** shown in Table 8b, birds fed with 90% commercial feeds + 10% ground aragan (T4) registered the highest computed net return of P=I7.07 per bird. It was followed by T2 (90% cf + 10% ground katuday leaves); and TI (pure commercial feeds) with computed net retum is derived when feed supplement is added to the commercial ration of broilers because of lower expenses in the cost of feeds without drastically affecting their growth performance.

B. Net Retum Per Bird

Treatments	Final Weight	Gross Sale	Expenses	Net Gain
Tl	1.353	74.42	71.99	2.43
T2	1.485	81.68	65.89	15.79
T3	1.430	78.65	67.05	11.60
T4	1.503	82.67	*65.60*	17.07

• P 55.00/kilogram liveweight

FINDINGS

Based on the objectives of the study, the following findings were observed and recorded:

I. The birds upon arrival registered a grand mean weight of 47.94 grams per bird.

2. The newly alloted birds registered a grand mean weight of 310.91 grams per bird just after brooding them for two weeks.

3. Birds that were fed with 90% commercial feeds + 10% ground aragan (T4) registered the heaviest two weeks after allotment with a mean of 1,045.00 grams per bird.

4. Likewise, birds fed with 90% cf + 10% ground aragan (T4) registered the heaviest final weight with a mean of 1.50 kilograms per bird.

5. Similarly, birds fed with a ration of 90% cf + 10% ground aragan {T4) exhibited the highest total gain in

weight with a mean of 1.455 kilograms per bird.

6. Birds fed with pure commercial feed ration (TI) registered the highest amount of feeds consumed with a mean of 3.88 kilograms per bird.

7. Birds fed with 90% commercial feeds + 10% Aragan (T4) were the most efficient meat converted with a compuled feed conversion efficiency (fee) of 2.51 per bird.

8. Birds given with pure commercial feed ration (Tl) registered the highest computed cost of production at P71.99 per bird, .while birds fed with 90% cf + 10% ground aragan (T4) gave the highest computed net return at P 17.07 per bird.

CONCLUSIONS

Based on the findings, the following conclusions were drawn:

I. Insignificant difference between treatment means was noted on the initial weight per bird with a computed f-value of 0.41 because they just arrived and hatched in one incubation period.

2. Likewise, insignificant difference between treatment means was also noted on the first bi- weekly weight of the birds with a computed F value of 0.336 because they were just alloted and they belonged to only one breed.

3. Similarly, no significant difference was observed between treatments on the second bi-weekly weight per bird as shown by a computed f value of 1.66 which is lower than the tabulated f values at .05 and .01 level.

4. Again, insignificant difference between treatments was registered in the final weight of birds as revealed by a computed f value of 0.375 which is lower than the tabulated f values at both levels of significant.

5. Highly significant difference among treatments was noted on the total gain in weight of the experiment birds as justified by the computed f value of 90.00 which is very much greater than the tabulated f value at 1.05 and .01 levels with birds fed with 90% cf+ 10% ground aragan (T4), outranking the rest of the treatments.

6. Insignificant difference between treatments was observed on the average feed consumption per bird as justified by a computed F value of 4.09 which is lower than the tabulated F values at both levels. However, birds alloted in Tl or feel with pure commercial feeds consumed the highest amount of feeds per bird.

7. Significant difference was noted on the feed conversion efficiency (fee) as revealed by a computed F value of 11.125 which is higher than the tabulated F value of 9.28 at .05 level, but lower than the tabulated F value of 29.46 at .01 level of significance. Birds given with 10% ground aragan as feed supplement registered the best feed converter into meat.

8. Birds fed with 90% commercial feeds + 10% ground aragan (T4) gave the highest computed net return because they were the most efficient converter and exhibited the heaviest weight at the termination of the study.

RECOMMENDATIONS

Based on the findings and conclusions of the study, the following recommendations are advanced.

1. Ground aragan (sargassum) was discovered to be the best among the indigenous plants used as feed supplement. Hcncc, it is recommended to be utilized by broiler raisers as supplement to commercial feeds in order to produce heavier birds after six weeks and thereby reducing the cost of feeds and increasing the net retur.

2. In the absence of sargassum plant, ground ipil-ipil leaves could bc utilized as feed supplement because it is comparable to aragan with regards to their effect especially for those raisers who are in the countryside and away from the seashore especially if they have ipil-ipil plantation.

3. Itis further recommended that a similar study be conducted utilizing other kinds of water hyacinth like balbalulang, tarabang, ballaiba, kawkawayan, etc. by using also other breeds adapted in the locality for basis of comparison.

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