

TECHNICAL SERVICE



BULLETIN



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BIOGRO SUPER® VS. ASIAN FISHMEAL IN BROILER RATIONS

The actual quality of many Asian fishmeals differs substantially from their assumed nutrient profiles (see **BIOGRO SUPER® - A HIGH QUALITY ALTERNATIVE TO FISHMEAL**). It is not uncommon for Asian fishmeal to be advertised as containing 60 percent protein, but to analyze at 56 to 59 percent.

Moreover such Asian fishmeals may be contaminated with high levels of Non-Protein Nitrogen which, being of no nutritive value to poultry and pigs, reduces the "true" protein level to 51 to 53 percent.

A research study was conducted by Dawe's Laboratories USA to compare the effects of feeding typical Asian fishmeal with those of **BIOGRO SUPER®**. The test was conducted at Dawe's Biotest Research Center in Fort Dodge, Iowa. Cockerel chicks were used in the study to eliminate sex variability.

Broiler starter diets were formulated to contain either 4 percent Asian fishmeal or 2 percent **BIOGRO SUPER®**. Diets were isocaloric, isonitrogenous and isolysinic. The calculated analysis of the diets was:

Protein	22.50%
Lysine	1.30%
Methionine & Cystine	0.90%
Metabolizable Energy	3130 Kcal/kg
Calcium	0.95%
Available Phosphorus	0.45%

Seven day-old chicks were blocked according to weight and then randomly assigned to treatment. There were six replications per treatment, with ten chicks in each replication. Chicks were housed in wire cages and provided with feed and water ad libitum. The test was conducted over an 18 day period, ending when chicks were 25 days of age.

Results of the study are presented in the following tables:

WEIGHT GAIN PER BIRD (gms)

<u>REPLICATION</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>AVG</u>
4% FISHMEAL	636.3	628.2	650.5	667.3	614.4	578.7	629.2
2% BIO. SUPER	626.8	630.5	606.0	609.1	636.8	613.9	620.5

FEED/GAIN RATIO

<u>REPLICATION</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>AVG</u>
4% FISHMEAL	1.55	1.56	1.51	1.48	1.59	1.72	1.57
2% BIO. SUPER	1.55	1.57	1.64	1.62	1.55	1.57	1.58

It is interesting to note that, for both gain as well as feed conversion, the best and worst observations were for fishmeal. Results with **BIOGRO SUPER®** were more consistent, which is to be expected with a manufacturing procedure under strict quality control. Fishmeal—a natural product—may vary widely in its consistency, with resulting inconsistency in animal performance.

Some feed manufacturers may be tempted to add more fishmeal to the ration, in the belief that it will improve quality. Actually the addition of more poor-quality fishmeal may lower animal production. More fishmeal will increase ash, thereby flushing the GI tract of important water-soluble nutrients. More fishmeal may cause amino acid imbalances: In particular, excessive lysine from fishmeal will compete with arginine and histidine for gut absorptive sites. Young animals, in particular, may suffer. And if the fat in poor fishmeal is not fresh, the animal will need additional Vitamin E and Selenium to maintain its level of performance.

The test results were subjected to statistical analysis, using a computer software program. This program determines statistically significant differences between treatment groups for these variables, using the Analysis of Variance (ANOVA) procedure. The ANOVA procedure was used to determine whether the differences in mean weight gain and feed/gain ratio between the groups receiving 4% fishmeal or 2% **BIOGRO SUPER®** were due to actual treatment effects, or simply due to random variation during the testing procedure. Random variation would be the variation (error) common to all treatment groups in the test.

The results of the statistical analyses of the data indicate that differences in weight gain and feed/gain ratio between chicks fed 4% Asian fishmeal and 2% **BIOGRO SUPER®** were due only to random error not to differences in the effects of these ingredients. In other words, feeding 4% Asian fishmeal or 2% **BIOGRO SUPER®** resulted in no statistically significant differences in weight gain or feed efficiency. Therefore, 20 kg. of **BIOGRO SUPER®** may replace 40 kg. of Asian fishmeal in broiler starter diets. The growth of young layer pullets will benefit similarly.