



## BIOGRO SUPER® COMPARES WELL WITH PERUVIAN FISHMEAL

Previous research conducted at Dawe's Laboratories' Biotest Research Unit established that 2% **BIOGRO SUPER**® added to broiler starter feed results in equal performance to 4% Asian fishmeal added to the same diet (TSB #265-E). These results have now led to testing **BIOGRO SUPER**® against high-quality Peruvian fishmeal.

A test was designed to compare the performance of broiler cockerels fed starter diets containing either no fishmeal; 4% Peruvian fishmeal; 4% **BIOGRO SUPER**®; or 2% Peruvian fishmeal with 2% **BIOGRO SUPER**®. The results indicate that **BIOGRO SUPER**® can substitute effectively for all or part of high-quality fishmeal in feeds of equal nutrient content.

Two-hundred-forty, 5-day-old broiler cockerels were used in this test. Chicks were blocked according to weight, with 10 cockerels randomly assigned to each of 24 pens in a battery of cages at Dawe's Biotest Research Unit. One of the four treatment diets was assigned to each pen within replication, with a total of six replications per treatment.

All treatment diets were designed to be equal in protein, amino acid, and energy content, using varied levels of corn, soybean meal, and animal fat. The calculated nutrient composition of all four diets was:

Protein	22.50%
Lysine	1.30%
Methionine & Cystine	0.90%
Metabolizable Energy	3130 Kcal/kg
Calcium	0.99%
Available Phosphorus	0.45%

Chicks were given ad libitum access to water and feed throughout the 16-day experiment. Initial and final weights of feed and birds were determined and used to calculate weight gain/bird and feed efficiency (feed/gain).

### GAIN/BIRD

TREATMENT	Replication						AVG	SD
	1	2	3	4	5	6		
Control <sup>a</sup>	270.5	261.3	267.0	263.1	256.4	251.6	261.6	6.29
4% Peruvian Fishmeal <sup>b</sup>	268.6	279.0	295.4	297.4	304.0	270.7	285.5	13.70
4% BIOGRO SUPER <sup>b</sup>	267.5	304.7	281.7	274.6	287.6	294.9	285.2	12.37
2% Peruvian Fishmeal/ 2% BIOGRO SUPER <sup>b</sup>	286.1	271.4	291.8	280.9	286.6	273.9	281.8	7.22

<sup>a,b</sup>: Treatments with different superscripts are significantly different (P<.05).





## FEED/GAIN

TREATMENT	Replication						AVG	SD
	1	2	3	4	5	6		
Control <sup>a</sup>	1.54	1.66	1.63	1.62	1.68	1.63	1.63	.044
4% Peruvian Fishmeal <sup>b</sup>	1.54	1.53	1.43	1.37	1.51	1.65	1.51	.088
4% BIOGRO SUPER <sup>b</sup>	1.52	1.49	1.60	1.57	1.43	1.49	1.52	.056
2% Peruvian Fishmeal/ 2% BIOGRO SUPER <sup>ab</sup>	1.54	1.52	1.50	1.58	1.52	1.64	1.55	.047

<sup>a,b</sup>: Treatments with different superscripts are significantly different (P<.05).

Compared with the control diet, WEIGHT GAIN per bird was increased 9.3% when 4% Peruvian fishmeal was fed, 9.0% when 4% **BIOGRO SUPER**<sup>®</sup> was fed, and 7.7% when 2% Peruvian fishmeal/2% **BIOGRO SUPER**<sup>®</sup> was fed (P<.05). FEED EFFICIENCY was improved 7.4% when 4% Peruvian fishmeal was fed, and 6.7% when 4% **BIOGRO SUPER**<sup>®</sup> was fed, compared with the control diet (P<.05). Feeding 2% Peruvian fishmeal plus 2% **BIOGRO SUPER**<sup>®</sup> also tended to improve feed efficiency compared with the control diet, although this improvement was not statistically significant.

As in previous experiments, **BIOGRO SUPER**<sup>®</sup> reduced some of the variation in weight gain and feed efficiency often seen when fishmeal is fed. Standard deviation (SD), as presented on the preceding tables, is a measure of variability in this test. The smaller standard deviation for average gain/bird and feed efficiency of birds fed **BIOGRO SUPER**<sup>®</sup> may indicate IMPROVED CONSISTENCY of this product compared to Peruvian fishmeal.

To summarize: This study indicates that 4% **BIOGRO SUPER**<sup>®</sup> will produce results similar to 4% Peruvian fishmeal. In addition, performance tends to be similar when 2% **BIOGRO SUPER**<sup>®</sup>/2% Peruvian fishmeal replaces 4% Peruvian fishmeal.

Both results confirm that **BIOGRO SUPER**<sup>®</sup> can either REPLACE OR SUPPLEMENT top-quality fishmeal when supplies of such fishmeals must be conserved. Moreover, there is strong evidence that **BIOGRO SUPER**<sup>®</sup>, a carefully-controlled industrial product, produces MORE CONSISTENT results than fishmeal which, as a natural by-product, may vary in its benefits.

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