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Bactracin Supplements for Egg Production

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Antibiotics have been used in feed supplements for laying hens for over 25 years. Where controlled studies have been conducted, their use has been shown to improve reproductive performance, especially under adverse conditions. From time to time feeding trials have been conducted at this laboratory to evaluate their potential and perhaps to obtain some leads as to their mode of action.

The most recent study involved 980 commercial laying hens (Babcock 300) from 20 weeks of age through 13 4-week periods of egg production. The treatments involved bacitracin-methylene disalicylate added to a low density dietary series (2500 Cal. M.E./kg., 13% protein) as well as a high density series (2900 Cal. M.E../kg., 16% protein) of complete layer feeds. Each treatment was fed to 8 groups of 12 hens in wire cages within a windowless house with feed and water supplied ad libitum. Egg production and mortality data were obtained daily. Data for feed consumption, egg weight and Haugh Unit values on internal quality were obtained each 4-week period. The data have been summarized by period and averaged for the entire study.

The plan of the study and averaged results are shown in Table 1. For hens on the low density diet, a significant improvement in egg production was obtained from 10-, 25- and 50-gram levels of bacitracin. No beneficial responses were noted from bacitracin with hens on the high density diet. Whereas the data for all treatment groups suggested improved feed utilization from bacitracin with the low density diet, this was not evident with the hens on the high density diet. The latter diets were much more efficient and supported superior production.

Whereas there did not appear to be a marked effect of the treatments on the other criteria indicated, hens on the high density diets were heavier at the end of the study. These hens had consumed approximately 12% more calories calculated on a daily intake basis. Mortality was less for those hens fed the higher antibiotic levels. Also, the hens on the low density diets showed a trend for lower mortality. This work is being repeated with zinc bacitracin.

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[1]Professor and Leader, Poultry Research and Extension and Assistant Professor (retired), respectively.

Table 1. Performance of Laying Hens As Influenced by Bacitracin MD

Criteria-Diet	Treatment (grams/ton) 0	10	25	50	100
Egg production, % hen-day[1]					
Low density[2]	56.8a[4]	59.6bc	60.5bc	61.0c	57.9ab
High density[3]	69.9e	70.8e	69.5e	68.6de	65.7d
Feed/dozen eggs, kg.					
Low density	2.17	2.08	2.09	2.04	2.10
High density	1.78	1.75	1.80	1.84	1.90
Egg wt., grams					
Low density	63.5	62.4	63.2	63.0	62.4
High density	63.2	61.7	63.1	63.0	62.8
Mortality, %					
Low density	12.5	14.6	9.4	13.5	5.2
High density	14.6	21.9	15.6	7.3	11.5
Terminal body wt., kg.					
Low density	1.75	1.70	1.77	1.72	1.66
High density	1.87	1.89	1.89	1.93	1.89
Haugh Unit					
Low density	74.6	76.0	74.1	74.4	77.8
High density	73.5	72.6	71.9	75.2	73.7

[1] Averaged over 13 4-week periods.
[2] 2500 Cal. M.E. per kg., 13% protein.
[3] 2900 Cal. M.E.. per kg., 16% protein.
[4] Data followed by unlike subscripts are different at the 5% level of significance.