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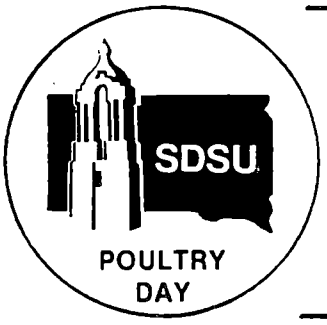

EFFECT OF FEED ADDITIVES ON THE GROWTH OF TURKEYS

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POULTRY 82-2

The use of feed additives is a common practice for almost all species of animals raised under man's control. Addition of 60 ppm copper as copper sulfate to turkey diets improved growth rate to 8 weeks of age when low protein diets were used (POULTRY 81-2). This level of copper (60 ppm) along with Neo-Terramycin and Bacitracin was used in a factorial experiment to compare copper (Cu) and these two antibiotic supplements on the growth rate of turkeys receiving low or high protein diets.

A total of 1200 day-old Nicholas White tom turkeys were randomly distributed into 36 pens for this experiment. Individual weights and group feed consumption data were obtained at 4-week intervals. Birds on low protein diets (Guenthner et al., 1978; 23, 20, 18, 16, 14 and 12% protein, dropped at 4-week intervals) received either 75 or 125% of the NRC (1977) recommended sulfur-containing amino acid (S-AA) levels. A high protein diet (Waibel, 1975; 32, 26, 20, 19, 18 and 16% protein, dropped at 4-week intervals) provided 125% of the NRC recommended level of S-AA. Supplements of Neo-Terramycin at 200 grams per ton (Terramycin at 80 grams per ton after 12 weeks) and Bacitracin at 50 grams per ton (25 grams per ton after 8 weeks) were used in this study.

Table 1 shows the average body weight at 4, 12 and 24 weeks of age. At all stages, turkeys receiving the high protein diet showed significantly ($P<0.05$) heavier body weights compared to those on the low protein diets. Poults on diets with the 125% NRC levels of S-AA grew at a significantly increased rate over that of birds on the 75% S-AA diets at 4 and 12 weeks of age. Addition of Neo-Terramycin caused a significant increase in body weight at 4 and 12 weeks of age over that of birds receiving 60 ppm Cu in their diets or no feed additives at all. Also, at 12 weeks of age, birds receiving Bacitracin had significantly heavier body weights compared with those on the supplemented Cu diet. At 24 weeks of age, no significant differences were observed due to the addition of any feed additives studied, although there was some numerical increase in body weight due to the addition of Terramycin or Bacitracin.

Table 2 shows the accumulative feed conversion obtained in this study. Turkeys on high protein diets consumed significantly less feed per unit of gain compared with those on low protein diets. All feed additives improved feed conversion with Neo-Terramycin showing the most effect.

This study showed that Neo-Terramycin and Bacitracin can be added to turkey diets for better performance.

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Table 1. Effect of Three Feed Additives on the Growth of Turkeys

Diet	S-AA content as % of NRC	Control	Neo-Terramycin (200 to 80 g/ton)	Baci-tracin 50 to 25 g/ton)	Cu (60 ppm)	Average
		Body Weight at 4 Weeks, g				
Low protein	75	775	803	776	754	777[a]
Low protein	125	789	857	834	808	822[b]
High protein	125	1029	1033	1018	1012	1023[c]
Average		864[a]	898[b]	876[ab]	858[a]	
		Body Weight at 12 Weeks, kg				
Low protein	75	5.79	6.03	5.99	5.67	5.87[a]
Low protein	125	6.26	6.44	6.28	6.14	6.28[b]
High protein	125	7.19	7.40	7.36	7.16	7.28[c]
Average		6.41[ab]	6.62[c]	6.54[bc]	6.32[a]	
		Body Weight at 24 Weeks, kg				
Low protein	75	13.41	13.91	13.40	13.24	13.49[a]
Low protein	125	13.62	13.96	13.88	13.21	13.67[a]
High protein	125	16.09	16.77	16.37	16.33	16.39[b]
Average		14.37	14.88	14.55	14.26	

[a,b,c] Means with different superscripts are significantly different ($P<0.05$).

Table 2. Effect of Feed Additives on the Accumulative Feed-gain Ratios

Diet	S-AA content as % of NRC	Control	Neo-Terramycin	Baci-tracin	Cu	Average
Low protein	75	3.22	3.08	3.10	3.15	3.14[b]
Low protein	125	3.12	3.01	3.08	3.06	3.07[b]
High protein	125	2.62	2.55	2.51	2.59	2.57[a]
Average		2.98	2.88	2.90	2.93	

[a,b] Means with different superscripts are significantly different ($P<0.05$).