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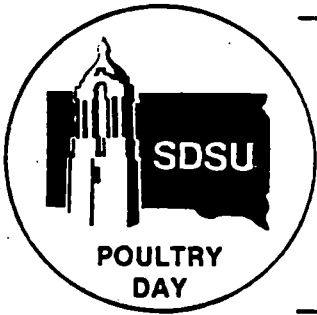
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VIRGINIAMYCIN, TERRAMYCIN AND COPPER
FOR GROWING TURKEYS

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POULTRY 84-3

During the past three decades many studies have been reported which show positive growth responses to dietary antibiotics in turkey nutrition. Different feed additives have been used extensively in poultry diets at this station to study their effects on poultry performance. Copper (Cu) has been shown to stimulate growth, reduce the incidence of aortic rupture and prevent crop mold growth in turkeys. The affects of Bacitracin, Terramycin and Virginiamycin on growth rates of turkeys have been reported by many investigators. Turkeys have been shown to give better responses from antibiotics in old environments or on lower energy diets or when some nutrients were marginal or even deficient in diets.

This report summarizes the results of feeding the above mentioned feed additives on the growth of 3780 male and 216 female Nicholas White turkeys in 4 experiments. Females were only used in the last experiment. The poults were housed in floor pens with shavings for litter and individual weights and group feed consumption data were obtained at 4-week intervals. All birds that died were necropsied for cause of death.

In experiment 1, the effects of 60, 120 or 240 ppm Cu were studied as might be altered by 75, 100 or 125% of the NRC (1977) recommended levels of the sulfur containing amino acids (S-AA). Low protein diets as recommended by Guenther et al. (1978) provided 23, 20, 18, 16, 14 and 12% protein for each successive 4-week period. The addition of 60 ppm Cu increased body weights by nearly 3% at 8 weeks of age while 120 or 240 ppm Cu significantly decreased body weights at this age. However, the differences due to the addition of Cu disappeared after this time. Those turkeys receiving 75% of the NRC level of S-AA had significantly lower body weights compared to those on the 100 or 125% S-AA diets but only up through 16 weeks of age (see Poultry 81-2).

In the second experiment 60 ppm Cu was compared to Neo-Terramycin @ 200 gm/ton (80 gm/ton Terramycin after 12 weeks) and to Zn-Bacitracin @ 50 gm/ton (25 gm/ton after 8 weeks). Low protein diets similar to those used in experiment 1 and a high protein series of diets (Waibel, 1975) 32, 26, 20, 19, 18 and

1

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16% protein dropped at 4-week intervals were used in this experiment. Turkeys on the low protein diets received either 75 or 125% of the NRC levels of S-AA and the high protein diet provided 125% of the NRC levels of S-AA. Addition of 60 ppm Cu did not cause any increase in body weights in this study. Turkeys on the Neo-Terramycin containing diet were 4% heavier than the controls at 8 weeks of age. At 24 weeks of age, the toms that had received Terramycin were 3% heavier and those on Bacitracin were 1% heavier than the controls (see Poultry 82-2).

The third experiment was designed to study the effect of Neo-Terramycin at 200 gm/ton (80 gm/ton Terramycin after 8 weeks) and a combination of Neo-Terramycin and 120 ppm Cu. At 8 weeks of age, the combination of Cu and Neo-Terramycin produced birds that were 1% heavier than those which received Neo-Terramycin alone, suggesting that the effect of these 2 drugs could be additive. However, the copper effect was lost by 15 and 24 weeks (see Poultry 83-8).

Experiment 4 was conducted to determine whether or not Virginiamycin could improve weight gain in the presence of amprolium, an anticoccidial agent. A total of 180 males and 216 females were used in this study. A dietary series to supply protein as recommended by NRC (1977) provided 28, 25, 22, 19 and 16.5% protein for each successive 4-week period. Turkeys received 0.025% amprolium or a combination of 0.025% amprolium and 20 gm/ton Virginiamycin. Hens and toms were on the experiment for 16 and 20 weeks respectively. The combination of amprolium and Virginiamycin increased the weight of males by 3% and that of females by 4.3% at 16 weeks of age. No differences in tom body weights were observed at 20 weeks of age (table 1).

Feed conversion data were calculated for all experiments. The turkeys in the first experiment on 60 ppm Cu showed 6% better feed efficiency and those on 120 or 240 ppm Cu were 10.6% more efficient than the controls in converting feed. In the second experiment, turkeys on Terramycin, Bacitracin or Cu were 3.5% better feed converters as compared to those birds on the control diet. No differences were observed between these drugs as to feed efficiency. Diets with Terramycin or the combination of Terramycin and Cu showed no conversion superiority over the control diets in the third experiment. Results from the last experiment showed that at market weights females on Virginiamycin converted feed 2% better than the controls; whereas, males showed no effect. Up through 16 weeks the toms on Virginiamycin had been somewhat more efficient but were markedly less efficient during the last period.

Table 1. Effect of Virginiamycin on Performance of Turkeys

Period	Controls		Virginiamycin ¹	
	♂	♀	♂	♀
Avg Weight - Kg				
4 wks	.93	.81	.97	.87
8 wks	3.38	2.73	3.46	2.89
12 wks	6.36	4.94	6.56	5.30
16 wks	9.80	7.14	10.10	7.46
20 wks	12.35	--	12.23	--
Feed/Gain				
4 wks	1.51	1.53	1.47	1.44
8 wks	2.10	2.15	2.08	2.07
12 wks	3.10	3.21	3.05	3.10
16 wks	3.66	4.47	3.58	4.58
20 wks	4.40	--	5.19	--
0-20 (0-16) wks	3.19	3.12	3.17	3.06

¹ 20 gm/ton, amprolium at .025% was in all diets.