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Some Effects of Copper Sulfate, Copper Oxide,
4-nitrophenylarsonic Acid and Ipronidazole
on Growth, Aortic Ruptures and Liver Copper
in Turkeys

E. Guenther and C. W. Carlson¹

A low protein series of diets were fed to 600 male and 300 female Large White poults with the protein ranging from a 23% starter to a 12% finisher. Three copper treatments were used, normal (8-12 ppm) and two sources of copper (120 ppm) from copper sulfate and copper oxide. Each copper treatment was fed with the recommended levels of "4-nitro" and ipronidazole for blackhead control. The poults were started in electric batteries for 2 weeks and then moved to floor pens with cob litter and gas brooders. The hens were marketed at 15 weeks and the toms at 24 weeks of age. The experimental plan and results are shown in Table 1.

As in the previous trials, adding 120 ppm copper to the diets significantly increased weight gains at 15 and 24 weeks and, again, the source of copper (sulfate or oxide) did not affect gains.

When the two blackhead treatments were compared, it was found that turkeys on ipronidazole gained 0.421 kg more at 15 weeks and 0.602 kg more at 24 weeks of age.

Analyses of the livers indicated no differences in copper content due to copper treatments. Although the hen livers appeared to contain more copper (1.9 ppm) than the tom livers, the amount was not statistically significant. All sample values were within the normally expected range.

In this test, 9, 2 and 0 aortic ruptures were associated with the normal, Cu_2O and CuSO_4 treatments. The number of aortic ruptures observed again was very low. In previous tests a higher incidence of ruptures was usually associated with the higher protein diets. Since only the low protein diets were fed in this test, a lower incidence of aortic ruptures was expected.

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Table 1. Effects of Cu_2O , CuSO_4 , 4-nitrophenylarsonic acid and Ipronidazole on Growth, Aortic Ruptures and Level of Liver Copper in Turkeys

Treatment variables	Market weight	
	15 weeks	24 weeks
	Mixed sex	Males
	kg	kg
Copper		
Normal Cu 8-12 ppm	6.33a ¹	11.10a
Cu_2O 120 ppm	6.38ab	11.56b
CuSO_4 120 ppm	6.47b	11.43b
Blackhead preventative		
4-nitrophenylarsonic acid 0.01875%	6.19a	11.07a
Ipronizadole 0.00625%	6.61b	11.67b
Cu content of liver		
Normal Cu	Hens ppm 17.7	Toms ppm 15.3
Cu_2O	16.4	15.7
CuSO_4	<u>18.4</u>	<u>15.7</u>
	Average 17.5	15.6
Aortic ruptures		
Normal Cu	Number -	Number 9
Cu_2O	-	2
CuSO_4	-	0

¹Unlike letters indicate significant differences at the 5% level of probability.