

Egg Production of Pullets Fed on a Ration containing Aureomycin

ANTIBIOTICS and 3-nitro-4-hydroxyphenylarsonic acid have been reported by various workers to stimulate the growth of chicks when added to their rations in low concentrations. Most of these experiments covered only the first four to twelve weeks of life, and male chicks were generally used. In short-term experiments, the addition of aureomycin to the ration of growing pullets enhanced the response of serum calcium and serum riboflavin to injected α -strogens, and it was suggested that the response of endogenous α -strogens might be similarly affected¹.

The present investigation was designed to test whether aureomycin would have a stimulating effect on early growth when the ration was of the type commonly used in Great Britain, and whether, if the supplement continued to be fed, egg-production and egg-size would be affected. In order to provide conditions supposed to favour the aureomycin effect, the levels of animal protein sources in the rations were reduced but not eliminated, while the level of total protein was raised above that commonly employed. A strain of Buff Rock birds with a tendency to broodiness was used. It might be supposed that any hormonal influence of aureomycin on egg-production might be intensified in such a strain.

Day-old chicks were housed intensively and allotted at random to six groups, each of fourteen chicks. They were fed *ad lib.* on the rations shown in Table 1. Three groups received the rations shown according to age, and with aureomycin supplements. The remaining three groups received the same rations without the antibiotic supplements. A commercial aureomycin concentrate ('Aurofac') was used in the laying ration. This has been reported to be as efficient a growth-stimulant for chicks as the pure antibiotic, fed at an equivalent level². Full experimental details will be described elsewhere as part of a series of reports on the vitamin and amino-acid requirements of birds³.

Experimental results are given in Table 2. Birds fed on the 'antibiotic' starting ration were 18 per cent heavier at six weeks of age than birds fed on the unsupplemented ration, a highly significant

Table 2. EFFECT OF AUREOMYCIN ON GROWTH, EGG PRODUCTION AND BROODINESS OF PULLETS

	Unsupplemented rations	Rations containing aureomycin	
Live-weight at	{ 6 weeks of age 12 " " " 382 gm. 21 " " " 1,165 " 21 " " " 1,821 " 42 " " " 2,394 "	453 gm.	
		1,265 "	
		1,962 "	
		2,403 "	
Egg-production	28th week	28th week	
		1. Mean age at which 5th egg was laid	
		2. Mean egg production—24-64 weeks	
3. Mean egg-weight	137	127	
	58.0 gm.	57.8 gm.	
Broodiness	1. Mean number of days broody	10.4	11.1
	2. Mean number of times broody, per bird	1.24	1.85

difference of the same order as reported by workers using maize-soyabean rations of the American type. By forty-two weeks of age, the birds fed on the unsupplemented rations had caught up in body-weight with those that had been receiving aureomycin.

Sexual maturity, as gauged by the age when the fifth egg was laid, was not advanced by the accelerated growth-rate. Egg production was 7 per cent less in the groups receiving aureomycin during the first forty weeks of laying; but the difference was not significant. Increased body-weight at the onset of egg-laying did not lead to the laying of larger eggs. The addition of aureomycin to the rations did not result in a more efficient utilization of feed calculated in terms of growth up to twenty-one weeks of age, or subsequent egg-production. Mortality was low (six out of eighty-four birds) and not significantly different on the two sets of rations.

The average periods of broodiness on the two types of rations were similar. Birds fed the rations supplemented with aureomycin became broody more frequently; but the periods of broodiness were of shorter duration. As many birds on each type of ration never became broody, it is not possible to make any special interpretation of this observation.

It is concluded that the addition of aureomycin to the rations of pullets during growth and subsequent egg production is of no economic value under the conditions tested.

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¹ Common, R. H., Keefe, T. J., Burgess, R., and Maw, W. A., *Nature*, **166**, 992 (1950).

² Jukes, T. H. (private communication).

³ Carpenter, K. J., and Duckworth, J., *J. Agric. Sci.* (in the press).

Table 1. COMPOSITION OF RATIONS FED AT DIFFERENT AGES

Component	Starting ration (0-6 weeks)	Growing ration (7-23 weeks)	Laying ration (24 weeks onwards)
Yellow maize meal	30	20	15
Sussex ground oats	—	11	14.5
Ground wheat	—	—	10
Ground barley	19.5	20	12
Weatings	17.5	20	20
Dried grass meal	5	5	10
White fish meal	2.5	—	2.5
Dec. ext. groundnut meal	21.5	19	9.5
Limestone	1	2	3
Bonemeal	1.5	1.5	2
Salt	0.5	0.5	0.5
Cod liver oil	1	1	1
Riboflavin (mgm./100 gm.)	(6.07)	—	—
Total	160	100	100
Crude protein (%)	21	18	16
For supplemented rations only, aureomycin hydrochloride (%)	0.01	0.002	0.001*

* Fed in the form of 0.25 per cent 'Aurofac', a commercial aureomycin concentrate.

Influence of Crushing on the pH of Grass Silage

THE communication by de Man¹ on this subject makes desirable a brief reference to laboratory experiments here, the results of which are in the press. We have shown that with minced material the influence of added molasses on lactic acid formation is small. Pilot-scale ensilage (15-cwt. quantities) has shown, in addition, that three silages made from