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SECOND-YEAR REPORT ON THE EFFECT OF AUREOMYCIN ON EGG PRODUCTION OF DOMESTIC DUCKS[1]

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ABSTRACT

The effect of aureomycin (chlortetracycline-HCl) on the egg production of domestic ducks (*Anas platyrhynchos* var. *domestica*) in the second year has been investigated. From this study the following conclusions are drawn: Aureomycin slightly increased the egg production and improved feed:egg ratio (kg feed per dozen eggs produced). Aureomycin also intended to alleviate the occurrence of molt which would be induced by the unfavorable weather conditions. In these cases, the effective dosage of aureomycin was at the level of 50 gm or more per ton of feed. From economic point of view, it would not be wise enough to keep laying ducks longer than the duration of the first laying year. The most effective influence of aureomycin on egg production was seen in the early stage of the first laying year.

This is the continuation of the First-Year Report on the effect of aureomycin (chlortetracycline-HCl) on growth and egg production of domestic ducks (*Anas platyrhynchos* var. *domestica*). According to the survey of JCRR (1), about 50 per cent of the ducks were used for egg production for two years and the remaining 50 per cent were used for three years. It, therefore, is worth while to investigate the effect of aureomycin on the egg production of domestic ducks in the second year.

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MATERIALS AND METHODS

Four pens of twenty ducks each, which had been used in the previous work, were used in this experiment. Each pen had the same ducks and the same aureomycin feeding level (TABLE I) as that did in the previous work. The composition of feed, however, was slightly

TABLE I
Antibiotic feed supplementation

Group no.	Treatment (gm aureomycin/ton feed)
1	0
2	25
3	50
4	100

* Aureomycin in this experiment provided by Aurofac-2A feed supplement.

changed as shown in TABLE II and ducks of each pen were allowed to eat 2 kg of green feed per day.

TABLE II
Compositson of the basal ration

Ingredient	Percentage
Dehydrated green feed	8
Dried yeast	3
Soybean oil meal	8
Sesame oil meal	4
Fish meal	3
Wheat bran	10
Ground yellow corn	46
Rice bran	12
Salt	1
Bone meal	2.5
Oyster shell meal	2.5
Protein content:	16.6

This experiment was started on January 6, 1963 and ended on December 7, 1963. During the experiment period, body weight and feed consumption were determined at 14-day intervals. Daily records of egg production and egg weight were kept and per cent production was calculated on a duck-day basis at the end of 14-day periods. Feed conversion (kg of feed consumed per dozen eggs produced) for each treatment was also calculated at the same time.

Each pen had a floor space of 7.5×1.5 feet and opened onto an exercise yard (10.5×7.5 feet) plus a small swimming pool (7.5×3.5 feet). Ducks were permitted to go to the pool as frequently as they liked. Feed and water were supplied *ad libitum* throughout the whole experiment.

RESULTS AND DISCUSSION

The effects of continuous feeding 0, 25, 50, and 100 gm of aureomycin per ton of feed to laying ducks from January 6, 1963 through December 7 of the same year, were summarized in TABLE III.

Ducks that received a ration supplemented with aureomycin at a level of 50 or 100 gm per ton of feed laid more eggs than did the ducks fed rations containing less than 50 gm feed-egg ratio (kg feed per dozen eggs produced) was also improved in groups fed a ration containing 50 or 100 gm of aureomycin per ton of feed. Of which, ducks in Group 4 fed a ration containing 100 gm of aureomycin per ton of feed, produced more eggs on average and took in less feed to produced a dozen eggs than did those in Group 3 which were fed a ration containing 50 gm of aureomycin per ton of feed. The egg size (average egg weight) of Group 3 was the largest among all groups. Average body weight was slightly decreased in all groups by the end of the experiment. Perhaps this was due to the fact that by the end of experiment, ducks just completed a duration of higher egg production and began to molt and thereby lost their weight.

It seemed very likely that there were three molting periods in ducks within a year. When this experiment started, all duck has already recovered from the molt, occurred in November-December 1962. In early March of 1963, some ducks molted (TABLE IV). From the beginning of June through October, all ducks molted and had the highest ceiling of molt in August-September. By the beginning of December, few ducks began to molt again. Unfortunately, this experiment was ended by then and no data were available for this third period of molt. However, it might be reasonable to think that some ducks molted three times a year. Maybe, molt in March (and in December, too) was not the regular one since molt occurred about in a week after the coming down of the cold current from the north and not all ducks molted. Besides, the duration of molt in March usually did not exceed three weeks and the aureomycin treated groups had less ducks molted than did the control group. Perhaps, aureomycin played some role in

TABLE III

Effects of continuous feeding aureomycin on the productivity of domestic ducks

		Aureomycin (gm/ton feed)			
		Group 1 / 0	Group 2 / 25	Group 3 / 50	Group 4 / 100
Number of ducks	Initial	20	20	20	20
	Final	20	19	20	19
Average body weight (kg)	Initial	1.39	1.47	1.39	1.38
	Final	1.35	1.30	1.35	1.33
Numbers of eggs laid	Jan. 6—June 8	1,094	1,075	1,127	1,209
	June 9—Oct. 26	565	39[-](412)	625	537(548)
	Oct. 27—Dec. 7	249	166(174)	193	189(199)
	Total	1.878	1,638(1,661)	1,945	1,935(1,956)
	Average	93.9±23.3*	84.7±26.0*	97.3±26.8*	99.2±31.4*
Average egg weight (gm)		55.2	54.7	56.2	54.7
Average egg production (%)**		27.95	24.92	28.94	29.98
Kg feed per dozen eggs produced		5.33	5.93	5.17	5.05

Numerals in parenthesis indicate the eggs laid on the basis of 20 ducks throughout the experiment.

* Calculated on 19 ducks only.

** Calculated on a duck-day basis.

strengthing the resistance of ducks to stress from the unfavorable weather conditions as previously pointed out by the present authors in their First-Year Report (2). The period from June through October might be considered as the regular molt season since ducks generally took 4 to 5 weeks to complete molt and all ducks molted by then (TABLE IV). In some cases, "split molt" was observed: the initial stage of molt was interrupted by a stage of non-molt (the duration of non-molt was very variable: 2 or 3 weeks or more), which was then followed by another stage of molt. Ducks stopped laying during molt and usually would not recover laying in 4 to 3 weeks after the completion of molt. The egg production in this period (from June 9 through October 26) for Groups 1, 2, 3, and 4 were 565, 412, 625, and 548 respectively. It seemed very likely that aureomycin did not have any favorable effect on egg production in the molt period of June-October, the regular molt season.

When the data in the First-Year Report (2) were taken into account, the total sum of eggs laid in 48 weeks, from the beginning of laying on July 8 in 1962 to the onset of molting on June 8 in 1963, were 1955, 1948, 2578 and 2592 for Groups 1, 2, 3, and 4 respectively (calculated on 20 ducks' basis). In 26 weeks, from June 9 through December 7 in 1963, egg production were 784, 586, 818 and 747 for Groups 1, 2, 3 and 4 respectively. These amounts were 77, 287, 633 and 646 less than did they do in another 26 weeks, from July 8 of 1962 through January 5 of 1963, for Groups 1, 2, 3 and 4 respectively. Evidently, egg production was decreased in all groups after a regular molt season, especially in those ducks fed with a ration containing effective dosage of aureomycin. If the duration from July 8 of 1962 to June 8 of 1963 could be con-

TABLE IV

*Molting of ducks**

Groups	First period (March)			Second period (June-October)			
	No. of ducks		Average duration of molt (weeks)	No. of ducks		Average duration of molt (weeks)	No. of "split molt" ducks
	Molted	No molt		Molted	No molt		
1	5	15	2.4±0.5	20	0	4.5±1.8	6
2	1	19	2.0±0.0	19	0	4.2±2.2	5
3	2	18	2.0±0.0	20	0	4.2±1.1	4
4	3	17	3.0±1.0	19	0	4.4±1.2	5

* Data for the third period were not available since the experiment was ended at the the onset of the third molt.

sidered as the first laying year (unfortunately, there was a molt period of 4–5 weeks in November-December of 1962 for some ducks), it would be profitable to start to raise ducks in spring and thereby to get them started laying in autumn and escaped the regular molt season, and then to keep ducks not longer than the duration of the first laying year. In analysing the egg production of the first laying year, it was most likely that the most effective effect of aureomycin on increasing egg production was seen in the early stage of the first laying year.

On July 17, 1963, a typhoon had hit Taipei area. She did not have any effect on egg production. Probably, this was due to the facts that (*A*) the wind was not strong enough to cause some physiological stress on ducks and (*B*) some ducks were already in molting state without any egg laid and others were about to molt and stopped laying.

LITERATURE CITED

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