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EFFECTS OF PROBIOTIC ON TURKEYS AND LAYING HENS

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Previous studies (A.S. Series 78-7, 77-20 and 76-10) have shown probiotics to have beneficial effects upon growing turkeys under some conditions of stress. There was no response with laying hens in a study reported on last year (A.S. Series 78-7).

Turkeys

For the turkey study, Probiotic No. 2 was used at three levels for both hens and toms of the Nicholas strain grown to 24 weeks of age. The diets used were the high protein series of Guenther and Carlson (1978) [32, 26, 20, 19, 18 and 16%, i.e. dropped at 4-week intervals]. Six hundred turkeys of each sex were used in this trial. They were individually weighed and feed consumption tabulated at 4-week intervals. In the 6 x 10 foot pens, 50 birds of each sex were started at 12 weeks of age, reduced to 25 per pen and those removed were transferred to another facility. Here the pens were 10 x 14 feet in size. Birds that had been on the control diet were retained and those receiving the 227-gram level changed to feeds containing 114 grams per ton. Birds removed on the other two treatments were slaughtered.

The results shown in Table 1 indicate that the probiotic was without beneficial effect when kept at a constant level. For those groups where the level was reduced, there was a 0.7-kg weight increase response for toms. This was accompanied by a 0.2 unit improvement in feed conversion, as was also shown by the 227-gram level fed continuously above. It would be possible that the extra space provided the birds that were moved allowed for the improvement noted.

Laying Hens

A total of 1728 laying hens of the Hyline strain was used in this study. Equal numbers were fed one of eight diets and observations made over 13 4-week periods for production, feed consumption, body weight and mortality. Three days' production each period was used to measure egg weight, Haugh units, shell thickness and yolk color with the Roche color fan.

The results shown in Table 2 are remarkably consistent within dietary groups. No response to the probiotic was noted either on the 12 or 16% protein diets. Neither were there differences in Haugh unit, shell thickness or color scores not shown here. Hens on the high protein series laid significantly more eggs on significantly less feed, but their Haugh unit values and color scores were significantly lower.

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Table 1. Effect of Probiotic No. 2 on Turkeys to 24 Weeks of Age

Probiotic level	Avg wt., kg		Feed/gain (16-24 wk)	
	Toms	Hens	Toms	Hens
None ^a	13.1 (6.0) ^b	8.3 (4.8)	4.6 (2.6)	5.7 (2.8)
114 g/ton	12.5 (6.1)	8.3 (4.8)	5.2 (2.6)	5.5 (2.8)
227 g/ton	13.1 (5.8)	8.5 (4.7)	4.4 (2.8)	5.5 (2.8)
340 g/ton	12.4 (5.8)	8.1 (4.6)	5.1 (2.8)	5.9 (3.0)
None ^c	13.1	8.7	4.4	5.3
227 g to 12 weeks, 114 g/ton to 24 weeks	13.8	8.8	4.2	5.1

^a Fifty per pen in each of three pens to 12 weeks of age, reduced to 25 per pen at 12 weeks.

^b Data in parenthesis are averages at 12 weeks of age.

^c Twenty-five per pen taken from respective treatments above and moved to another facility, pens 2 1/3 times larger.

Table 2. Effect of Probiotic No. 2 on Laying Hens
Through 13 4-Week Periods

Probiotic level	Hen-day produc- tion %	Feed per hen-day g	Feed per dozen eggs kg	Egg weight g	Mortal- ity %
16% protein series					
None	72.6	95.8	1.61	59.7	12.1
114 g/ton	72.6	96.4	1.62	60.0	13.1
340 g/ton	72.7	95.6	1.61	59.9	11.7
558 g/ton	72.1	96.4	1.63	60.0	16.4
12% protein series					
None	68.7	98.9	1.74	58.7	13.9
114 g/ton	68.8	100.4	1.77	58.5	11.1
340 g/ton	67.9	99.3	1.77	59.0	13.4
558 g/ton	68.9	100.9	1.77	59.2	13.8
Average					
None	70.6	97.3	1.63	59.1	13.0
114 g/ton	70.3	97.7	1.63	58.8	12.1
340 g/ton	70.3	97.4	1.64	59.4	12.5
558 g/ton	70.5	98.6	1.65	59.5	15.1