

Protein Requirements of Crowing Pullets

Intended for Layers

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Over the past decade great improvements have been made in the formulation of rations for broiler chickens giving faster growth rates and better feed efficiencies. At the same time little attention has been paid to the requirements of pullet chickens intended for layers to determine whether similar diets are suitable for them.

An experiment has been conducted at Werribee to determine whether feeding for fast growth with a high (20 per cent.) protein diet in the first 6 weeks has any effect on sexual maturity, egg production or mortality during the laying season. Pullets fed for fast growth in the first 6 weeks were then fed high. (17 per cent.) protein rations (H/H groups) and low (12.5 per cent.) (H/L) protein rations from 7 weeks until commencement of lay. The results from the two groups were compared with those from pullets grown slowly for the first 6 weeks on a 16 per cent. protein ration and then fed the 12.5 per cent. protein ration from 7 weeks to commencement of lay (L/L groups) to determine whether the protein content of the ration had any influence on the time of onset of lay. When the first egg appeared all groups were fed a standard Saying mash for most of the first laying season-the experiment was terminated when the birds were 496 days of age. The rations fed are shown in Table I.

The results of this experiment are shown in Table II. These results indicate that there is no advantage in feeding a high protein ration in the growing period. The age at first egg was the same for all treatments but the H/H groups consumed an average of 5.1 lb more feed per bird than those in the L/L groups and 4.1 lb more feed per bird than the H/L groups, apart from the greater cost of the high protein ration.

There was no effect on production during the laying period due to the earlier treatments. Egg production in the different pens on the same treatments was very variable so that 2.9 doz. eggs difference between treatments was required for significance at the 5 per cent. level. Feed conversion was also variable. Monthly egg production figures indicated a slower start of egg laying for the L/L treatment, but better winter production. There was no difference in average egg weights.

The figure for liveability was taken as the total number of days which pullets in a pen survived, expressed as a percentage of the possible. Again there was great variability within treatments masking differences, but one group on the H/H treatment had only 71 per cent. liveability as compared to the average of 89 per cent. over all treatments.

The pullets grown slowly in the first 6 weeks caught up with those that had grown quickly by the time they were sexually mature. However the pullets on the low ration diet were very uneven in size at 6 weeks and it is probable that they would have less resistance to stress factors such as chilling and disease. The small amount of feed consumed in the first 6 weeks (4-5 lb) does not make it worth while to skimp on the protein content of that feed.

From this experiment it is concluded that pullets intended for laying stock should be fed a low protein ration from 6 weeks until start of lay, on the grounds of economy, as it does not have any effect on later performance.

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TABLE I.
The Composition of the Experimental Rations.

	0-6 weeks		7 weeks—laying	%
	%	%		
Commercial chick pellets	30	34	(Commercial) Layers', Pellets	—
Crushed wheat	36	41		55
Bran	18	21		30
Crushed oats	—	—		10
Meatmeal (55% protein)	12	—		5
Livermeal	3	3		—
Bone meal	—	—		1
Salt	0.5	0.5		0.5
Vitamin A & D ₃	+	+		+
Penicillin and carrier	0.5	0.5		—
Calculated protein %	20.6(H)	15.9(L)	17.0(H)	12.5(L)

TABLE II.
The Effect of Protein Level on Growth and Production.

Protein level of feed in growing period		Feed/bird 7 wk.-laying (lb)	Age at first egg (days)	Eggs-bird to 495 days*	Feed per doz. eggs for laying period†	Liveability‡ for laying %
0-6 wk. %	7 wk.-laying %					
20(H)	17 (H)	22.7	147	171	7.02	86
20(H)	12.5(L)	18.6	145	157	8.12	90
16(L)	12.5(L)	17.6	150	182	7.45	92

*By analysis of variance difference of 35 eggs between treatments is required for significance at 5% level. This was due to great variability between pens within treatments. Figure given is hen-housed average.

†Difference required for significance at 5% level is 0.95 lb, at 1% level, 1.44 lb.

‡Actual number of days birds survived expressed as percentage of possible laying days. Variability between pens within treatments too great for significant differences.