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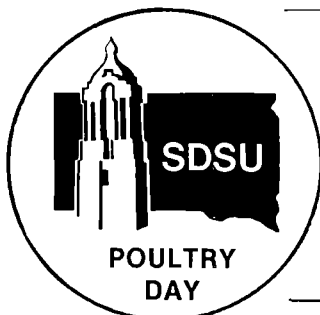
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Performance Of Layers As Affected By Grower Diets And Pelleting 12 And 16% Protein Diets

R. A. Nelson, A. B. Kashani., And C. W. Carlson¹

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Previous studies at this station have shown significant advantages for using grower diets relatively higher in fiber content. This study was conducted in part to evaluate the use of oat hulls for which frequently there is no demand for this purpose. During the layer phase, the effects of pelleting were examined.

Pullets that had been reared in growing cages on 12% protein diets from 10 weeks of age were transferred to laying cages at 20 weeks of age. The major energy source in grower diets came from corn with 12% oat hulls included in the diets for one-half of the pullets. Diets for the laying phase were 12 to 16% protein corn-soy type diets used previously at this station with lysine and methionine supplements for the 12% protein diet to supply 0.65% lysine and 0.55% SAA (see Table 1). Each diet was fed as the mash and as pellets to 576 pullets for each treatment.

The reduction in gain shown by pullets on the diet containing oat hulls was only 15 g but was calculated to be significant. However, feed conversion was increased by 1 unit per unit of gain (Table 2).

Egg production through fourteen 28-day periods showed a 1.3% advantage for the birds reared on the oat hull-containing diet (Table 3). Egg size, body weight, mortality and egg quality were not affected by grower diet. A slight but significant improvement in feed conversion was shown by the birds reared on the corn-oat hull diet. The 12% protein layer diet caused the pullets to produce fewer and smaller eggs less efficiently. However, performance was quite satisfactory and depending on the relative costs of lysine, methionine, soybean meal and corn, the 12% protein diet could show economic potential.

Pelleting showed no effect on rate of production, egg weight or quality, body weight or mortality. Hens fed pelleted feeds ate less feed and were significantly more efficient. This calculates to be about a 4% improvement, not likely enough to pay for the increased costs of pelleting, however.

The use of fiber from oats in the rearing diet again has been shown to affect improved subsequent performance. The use would be recommended especially for growing pullets in cages.

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Table 1. Diets used in pelleting study

	Grower		Layer	
	Corn	Corn and oat hulls	16% protein	12% protein
Yellow corn	80	67	64.8	79.5
Oat hulls	--	12	--	--
Soybean meal	8	9	20.2	9.06
Dicalcium phosphate	2	2	2	2
Limestone	1	1	6	6
Dehydrated alfalfa	6	6	2	2
Yellow grease	2	2	4	--
Salt mix	0.5	0.5	0.5	0.5
Vitamin mix	0.5	0.5	0.5	0.5
DL-methionine	--	--	--	.19
L-lysine	--	--	--	.25

Table 2. Effect of grower diet on growth and feed utilization

Grower diet	20 week	10-20	Feed/gain
	weight	weeks	
	g	g	
Corn	1504	587	9.5
Corn and oat hulls	1486	572*	10.5*

* P<0.01.

Table 3. Effect of grower diet, protein level or pelleting of layer diet on performance (fourteen 28-day periods)

	Grower diet					
	Corn and oat hulls		Protein level, %		Feed form	
	Corn	hulls	16	12	Mash	Pellet
Hen-day production, %	75.6	76.9	77.7	74.8**	76.1	76.5
Feed/day, g	116.6	117.0	116.2	117.4	118.9	114.7
Feed/dozen, kg	1.82	1.79*	1.76	1.85**	1.84	1.77**
Egg weight, g	63.8	63.5	64.0	63.3*	63.7	63.6
Body weight, kg	1.70	1.71	1.72	1.69*	1.71	1.70
Mortality, HH, %	11.0	11.6	11.5	11.0	11.6	11.0
Haugh units	82.5	82.4	81.8	83.0	82.3	82.5
Grams egg/day	48.2	48.9	49.7	47.4**	48.4	48.7
Grams egg/g feed	.42	.42	.43	.41**	.41	.43**

*, ** Significantly different from the corresponding control at the .05 and .01 levels of significance.