1983

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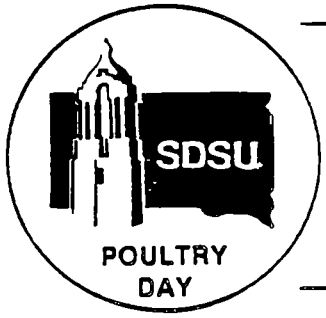
Ali B. Kashani
South Dakota State University

C. Wendell Carlson



FULL-FAT SUNFLOWER SEEDS FOR GROWING PULLETS

Ali B. Kashani and C. Wendell Carlson[1]

Department of Animal and Range Sciences
Agricultural Experiment Station

POULTRY 83-6

In a previous study (POULTRY 82-1), full-fat sunflower seeds (FFSS) containing 42.0% ether extract depressed pullet growth and delayed sexual maturity as indicated by egg production records for the early stages of production. The FFSS fed was at 38% of a corn-based, 12% protein diet from 10 to 19 weeks of age. The same sample of FFSS at 19% of the complete diet along with 4% soybean meal was satisfactory with respect to growth and the onset of egg production. The egg production rate during later stages appeared to be unaffected by the FFSS content of the grower diet.

A different sample of FFSS (lower in fat and higher in fiber, Table 1) was used as a protein supplement to replace half (Treatment 1) or all of the soybean meal (Treatment 2) in a 12% protein corn-based diet again this year. A level of .09% of lysine was added to the diet of Treatment 2 to determine whether this amino acid was a limiting factor. A diet of mostly oats was used as the control (Table 2). Ten-week-old pullets of a commercial strain were fed one of these diets in groups of 10 replicated 15 times. As shown in Table 3, pullets on the oats diet weighed significantly less than the other three groups. The addition of lysine resulted in a slight improvement in body weight gain. Feed consumption was significantly higher for the oats diet, which resulted in poorer feed conversion as compared with the other groups.

Pullets on all treatments appeared to have been well developed and came into production at fairly rapid rates. The average rate of egg production was 1% at 18 weeks, 20% at 19 weeks, 46% at 20 weeks, 58% at 21 and 80% at 22 weeks of age. Although the pullets on Treatment 1 produced 6% more eggs during the 19 to 22 weeks of age period than the controls, there were no significant differences beyond that period. The diet again was an oats-based layer diet (POULTRY 82-3).

The differences between the results of the previous experiment and those of the current one in response to FFSS may be largely related to the 13+% difference in ether extract content of the two samples (Table 1). The higher fat contents may have been undesirable in the earlier study.

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[1] Superintendent, Poultry Research Center, and Professor and Leader, Poultry Research and Extension, respectively.

Table 1. Proximate Analysis of Sunflower Seed Samples

	Sample used in 1982 study	Sample used in 1983 study
Moisture	6.5	7.3
Crude protein	16.9	16.6
Crude fiber	14.6	25.8
Ether extract	42.4	29.0
Ash	3.3	2.9
Nitrogen-free extract	16.3	18.4

Table 2. Composition of Grower Diets

Ingredients	Control	Treatments 1	2	3
	%	%	%	%
Oats	87.0	--	--	--
Yellow corn	--	67.0	52.0	52.0
Soybean meal	1.0	4.0	--	--
Full-fat sunflower seed	--	19.0	38.0	38.0
Dehydrated alfalfa	6.0	6.0	6.0	6.0
Grease	2.0	--	--	--
Dicalcium phosphate	2.0	2.0	2.0	2.0
Limestone	1.0	1.0	1.0	1.0
Salt premix	.5	.5	.5	.5
Vitamin premix	.5	.5	.5	.5
Lysine	--	--	--	.09
Total	100.0	100.0	100.0	100.0
Calculated analysis, %				
Crude protein	12.0	12.0	12.0	12.0
Ether extract	5.9	8.33	13.22	13.22
Crude fiber	10.9	7.8	12.24	12.24
Calcium	.94	.94	.96	.96

Table 3. Effects of Sunflower Seeds on Weight Gain, Feed Consumption, Feed/Gain and Early Egg Production

	Init. body wt	Gain	Final body wt	Feed consumption	Feed/gain	Percent hen-day egg production, 19-22 wk of age
	g	g	g			
Control	819	610[a]	1429[a]	4.96	8.1[a]	34.3
Treatment 1	818	672[b]	1490[b]	4.68	7.0[b]	40.4
Treatment 2	819	662[b]	1481[b]	4.61	7.0[b]	36.5
Treatment 3	818	683[b]	1501[b]	4.52	6.7[b]	37.0

[a,b] Means with the same letter are not significantly different ($P<.05$).