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Amino Acids and Layers

E. J. Novacek
South Dakota State University

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South Dakota State University
Brookings, South Dakota

Animal Science Dept.
Poultry Section

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AMINO ACIDS AND LAYERS

E. J. NOVACEK

Studies conducted over a four-year period with low protein diets for caged layers are summarized in Table 1. The data indicate that the 9.4 percent protein diet with added methionine, lysine and tryptophan would support a rate of egg production nearly the same as a 15.4 percent protein diet. The rate of production from a 12.4 percent protein diet was not improved by raising the protein level to 15.4 percent. Further addition of protein after the amino acid deficiency has been corrected should only cause an increase in loss of nitrogen in the excreta.

Egg quality(Haugh unit) was unaffected by the various protein levels, even when methionine, lysine and tryptophan were not made adequate. This gives further evidence that if an egg is formed, it will be complete. However, egg size was smaller for the unsupplemented 9.4 percent protein diet.

Efficiency of feed utilization as gram/day or pound/dozen was improved by the three amino acids and may have been further improved by some of the protein supplements. It appeared that in order to maintain production the hen must consume from 300 to 320 mg. of methionine/day and from 625 to 635 mg. of lysine. Consideration must be given to the total sulfur amino acid requirement(ca, 525 mg.) of which at least 300 mg. should be methionine.

Body weight and mortality were not affected by the diets. However, differences in body weight were apparent between hens fed the same diet and these differences can mask the effect of the diet.

It was concluded that a 12.4 percent protein diet made up largely of corn and soybean meal and either of several sources of protein should be satisfactory for layers providing that methionine, lysine and tryptophan levels are approximately 0.300, 0.625 and 0.15 percent respectively.

Prepared for the First Annual Poultry Field Day, September 19, 1969

SUMMARY OF FOUR DIFFERENT EXPERIMENTAL SETS OF FEEDING TRIALS WITH CAGED HENS FED LOW PROTEIN DEITS.

Supplement To Basal	Protein	Hen-Day Prod. Last 2	Hen-Day Prod. 10 mo	Egg Weight Last 2	Egg Weight 10 mo	Feed		Meth.	Body Wt.	Death Loss
	%	%	%	gm	gm	gm/day	lb/doz	mg/day	Kg	%
Basal	9.4	38.9	43.0	57.0*	55.7	88.2	6.17	150	1.61	16.7
Methionine	9.4	56.2**	60.9**	60.7	61.0	115.3	4.85	369	1.80	16.7
Lysine	9.4	55.5**	61.1**	59.7	60.0	101.7	4.27	325	1.73	8.3
Tryptophan	9.4	54.7**	63.5**	59.7	59.0	104.5	4.35	334	1.67	8.3
Basal MLT	9.4	54.5	58.2	59.3	58.2	93.1	4.22	360	1.73	23.1
Corn	12.4	50.0	59.8	63.8	61.9	88.5	3.91	310	1.88	30.8
Soybean Meal	12.4	54.5	58.3	63.3	61.8	90.8	4.12	320	1.82	19.2
Soybean Meal	15.4	57.7	59.1	64.6	62.5	92.2	4.12	290	1.89	26.9
Basal MLT	9.4	49.9	58.1	62.6	59.1	106.7	4.85	373	1.73	10.7
Corn	12.4	48.7	65.0*	63.2	59.6	103.4	4.20	287	1.84	13.1
Milo	12.4	54.4	62.9	61.4	58.3	104.4	4.39	310	1.89	10.7
Wheat	12.4	52.9	67.8**	61.3	58.6	101.7	3.96	305	1.88	8.0
Barley	12.4	55.2	65.5*	61.6	58.3	99.5*	4.02	272	1.80	13.4
Oats	12.4	46.4	59.2	62.5	59.6	91.7**	4.09	270	1.79	8.9
Soybean Meal	12.4	52.6	65.1*	62.5	59.5	104.1	4.22	317	1.88	8.9
Basal MLT	9.4	43.2	56.8	61.6	55.9	95.6	4.45	335	1.92	22.9
Methionine	9.4	51.8**	59.6	60.6	55.6	96.4	4.28	386	1.85	20.8
-Lysine	9.4	29.6**	41.7**	60.8	56.9	97.5	6.21	341	1.98	31.3
NF-180	9.4	53.2**	55.5	61.6	56.7	96.0	4.57	336	1.85	20.8
Corn-Soybean M	12.4	55.3**	63.3*	62.4	57.5	99.8	4.17	299	1.93	8.3
Corn-Soybean M	15.4	58.8**	65.1**	63.0	57.9	101.4	4.12	304	2.01	16.7
Hydrolyzed Feather Meal	12.4	52.0**	57.2	62.0	56.6	96.4	4.45	296	1.91	16.7
Fish Meal	12.4	61.7**	66.3**	62.8	57.4	104.9	4.18	336	2.02	20.8
Meat & Bone Scraps	12.4	50.4*	61.0	61.4	56.7	99.8	4.32	319	1.84	12.5

*Significant difference at the .05 level
**Significant difference at the .01 level