L-594

Feeding

Laying Hens

The laying hen is the most efficient converter of feed to food protein of any of our domestic food animals. To do this requires a highly concentrated and carefully balanced feed for maximum performance, at least cost. Her diet must be changed for her age for the season, for her body weight and for her rate of lay.

TEXAS A&M UNIVERSITY
TEXAS AGRICULTURAL EXTENSION SERVICE
TEXAS AGRICULTURAL EXPERIMENT STATION
College Station, Texas

Feeding Laying Hens

J. H. Quisenberry, C. R. Creger, and J. R. Couch*

A number of different methods of feeding laying hens for maximum conversion of feedstuffs to eggs have developed during the past 10 years. One is feeding a standard well-balanced laying ration containing 16 percent protein throughout the laying season. A second type consists of adjusting the protein, calorie and calcium levels for stage of production and season of the year. Feed accounts for one-half to two-thirds of the total cost of producing eggs. Constant concern with improvement of egg production and feed efficiency makes it necessary for egg producers to keep abreast of ration changes due to nutritional findings. The rations printed in this leaflet have resulted in optimum performance at the Texas Agricultural Experiment Station.

The diet shown in Table 1 is a preferred one and for a phase feeding program can be altered easily for protein and energy increase or reduction, depending on stage of production and season, as follows:

1. Laying diets for pullets hatched in spring (February to May)

17% protein for 3 months
16% protein for 3 months
17% protein for 3 months
18% protein for 3 months

2. Laying diets for pullets hatched in fall (September to November)

17% protein for 2 months
18% protein for 4 months
17% protein for 2 months
16% protein for 4 months

If egg-shell quality deteriorates during hot weather, calcium should be fed free choice in the form of oyster shells.

The amount of feed a laying hen consumes depends to a large extent on the energy content of the diet. A range from 900 to 960 kilocalories of productive energy per pound of feed is recommended

*Head, associate professor and professor, Department of Poultry Science, Texas A&M University.

throughout the year, with the higher calorie level being during the cooler seasons of the year, and the lower calorie level, during the warmer seasons. The calorie level of the feed can be adjusted easily by increasing the protein content from 16 percent to 17 percent and decreasing the amount of corn or milo in the diet accordingly. Addition of a fat source to the laying diet is not necessary.

Diets of laying hens should contain at least 3.0 percent calcium in the winter months, and 3.5 percent during the summer months; oyster shell can be fed free choice. The inorganic phosphorus content of the diet (phosphorus in fish meal, poultry by-product meal, meat and bone scraps, defluorinated rock phosphate, and in dicalcium phosphate) should be at least 0.45 percent of the total ration. The diet

Table 1. Formulas for laying hen diet and concentrate

Ingredients	Laying hen diet	Laying hen concentrate	Laying hen concentrate diet
		Pounds per ton	
Yellow corn	450		400
Sorghum grain	949		950
Soybean oil meal (50% protein)	260	636	
Fish meal (60% protein)	50	200	
Poultry by-product meal (58%)	50	300	
Dehydrated alfalfa meal (20% protein)	60	270	
Phosphorus source (18% P; 32% Ca)	35	110	
Limestone or oyster shell flour	130	420	
Salt	5	20	
Manganese sulfate	½	2	
Zinc sulfate	½	2	
Vitamins-antibiotics-arsonic-premix[1]	10	40	
Laying hen concentrate			650
		Calculated analysis[2]	
Protein %	16.50	34.00	17.10
Fat %	2.59	3.16	3.05
Crude fiber %	2.53	3.72	2.65
Calcium %	3.33	11.48	3.75
Inorganic phosphorus %	0.45	1.54	0.50
Calories (P.E.)	933	543	919
Calorie-protein ratio	57:1	16:1	54:1

[1]See the section on vitamins, antibiotics and arsonics for the composition of the premix.
[2]Hubbell, 1967 (Feedstuffs)

also should be supplemented with at least 50 ppm of zinc and 50 ppm of manganese. If a fish meal high in salt is used, reduce the supplementary salt accordingly.

The vitamin premix should be packaged in a 10- or 25-pound package, so that the micronutrients can be distributed evenly in the finished feed. It should contain the following amounts for each ton of finished feed: stabilized vitamin A, 8,000,000 I.U.; vitamin D_3, 2,000,000 I.C.U.; vitamin E, 5,000 I.U.; vitamin K (menadione sodium bisulfite) 2 grams; riboflavin, 4 grams; d-calcium pantothenate, 8 grams; choline chloride, 600 grams; niacin, 25 grams; vitamin B_{12}, 12 milligrams; antibiotics, 10 grams; antioxidant (manufacturer's recommended level); and 3-nitro-4-hydroxyphenylarsonic acid, 45 grams.

ONE OF A SERIES

This is one of a series of six leaflets on feeding poultry under Texas conditions. Titles of the leaflets are:

L-592, *Feeding Broilers*

L-593, *Feeding Flock Replacements*

L-595, *Feeding Chicken Breeders*

L-596, *Feeding Turkey Breeders*

L-597, *Feeding Growing Turkeys*

Additional copies of the five leaflets are available from offices of Extension agents located in each Texas county or from the Department of Agricultural Information, Texas A&M University, College Station, Texas 77843.

Cooperative Extension Work in Agriculture and Home Economics, Texas A&M University and United States Department of Agriculture cooperating. Distributed in furtherance of the Acts of Congress of May 8, 1914, as amended, and June 30, 1914.
5M—5-68, Revised.