Feeding

Broilers

Feeding broiler type chickens is a specialized operation. Management procedures and feed formulations are geared toward the production of meat. The goal is to produce a finished bird in the shortest time with the least cost. An efficient job can be done only if adequate amounts of the feed ingredients required are supplied in the proper balance.

L-592 March 1963

THE AGRICULTURAL AND MECHANICAL COLLEGE OF TEXAS
TEXAS AGRICULTURAL EXPERIMENT STATION
TEXAS AGRICULTURAL EXTENSION SERVICE
College Station, Texas

Feeding Broilers

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

DEVELOPMENT OF THE present Texas broiler industry has been accomplished through the cooperation of the breeder, the nutritionist and the veterinarian. The time required to produce a broiler has been reduced by one-third in the past 14 years. The energy content of broiler feeds has been increased to the point that further change is now controlled primarily by economics and not by nutrition.

The accompanying broiler starter, finisher and concentrate formulas have given excellent performance in practical use. Appropriate modification of the grain and protein sources can be made, depending on their price and availability. Directions for the use of the concentrate by mixing it with corn and sorghum grain are given. Growers with a large volume of production and who have grinding and mixing facilities may prefer to use the concentrate with grain.

The composition of the vitamin premix is given in detail. The small feed manufacturer or large grower should have it mixed and packaged in the sizes indicated so that the 10 or 25-pound package will supply an adequate quantity of the micro-nutrients and so that an even distribution in the finished feed will be obtained.

PROTEIN

Broiler starter feed formulas should contain approximately 23 percent protein from sources that will provide a balanced mixture of the essential amino acids required by the chick. The broiler starter is fed the first 4 to 5 weeks, then a broiler finisher is fed until the birds are marketed. The finisher usually contains 21 percent protein. Some drugs and coccidiostats require a 5-day withdrawal period. If such ingredients are in the finisher used, a separate

*Professor, assistant professor and head, Department of Poultry Science.

BROILER FEED FORMULAS AND BROILER CONCENTRATE

Ingredients	Starter	Finisher	Concentrate	Concentrate with grain	
				Starter	Finisher
	- - - - - - - - - -		Pounds per ton	- - - - - - - - - -	
Yellow corn	550	600		600	700
Sorghum grain	600	600		560	585
Soybean oil meal (50% protein)	540	445	1252		
Fish meal (60% protein)	100	75	250		
Dehydrated alfalfa meal (20% protein)	50	75	125		
Corn gluten meal (42% protein)	50	75	125		
Stabilized fat	50	75	100		
Dicalcium or defluorinated rock phosphate	45	40	110		
Salt	5	5	12		
Manganese sulfate	½	½	⅔		
Zinc sulfate	⅜	⅜	½		
Vitamin-antibiotic-arsonic premix[1]	10	10	25		
Broiler concentrate				840	715
		CALCULATED ANALYSIS			
Protein, %	23.13	21.00	43.03	23.06	20.91
Fat, %	5.16	6.45	6.62	4.68	4.50
Crude fiber, %	2.89	3.10	3.92	3.10	3.01
Calcium, %	1.06	0.94	2.55	1.09	0.93
Total phosphorus, %	0.90	0.75	1.77	0.92	0.78
Inorganic phosphorus, %	0.55	0.47	1.34	0.56	0.48
Calories (productive energy per pound)	997	1027	846	998	1011
Calorie-protein ratio	43:1	49:1	20:1	43:1	48:1

[1]See the section on Vitamins, Antibiotics and Arsonics for the composition of this premix.

withdrawal finisher without the drugs is required.

ENERGY

Energy for broiler starter formulas is derived primarily from corn and sorghum grain. A higher energy level is required for finishers, which usually is supplied by the addition of dietary fat. A convenient method of formulating broiler feeds is to supply the levels of protein suggested and include sufficient grain and fat as energy sources to obtain a calorie-protein ratio of 42-44 to 1 in the starter and 48-50 to 1 in the finisher diet. Experimental and practical feeding tests show that best results are obtained when for each percentage of protein in the starter diet approximately 42-44 calories of productive energy are included.

PIGMENTATION

Yellow pigmentation in and under the skin of broilers is desirable since it is related directly to consumer acceptance. This is reflected often by the processor and the federal inspector in a higher grade score and a higher price. Satisfactory pigmentation usually can be obtained during the final 2 to 3 weeks of the growing period. Pigmentation will be decreased by outbreaks of chronic respiratory disease and coccidiosis as well as by outbreaks of other diseases upsetting the flock and decreasing feed consumption. Pigmenting ingredients in the accompanying formulas are yellow corn, dehydrated alfalfa meal and corn gluten meal. Pigmentation can be increased by raising the level of these ingredients in the formulas.

MINERALS

Supplementary sources of calcium, phosphorus, manganese and zinc should be added to broiler diets. The formulas given have been compounded to provide an adequate level of calcium and available phosphorus. The required level of manganese can be provided by one-half pound of feed-grade manganese sulfate and the zinc by three-eighths pound of zinc sulfate per ton.

VITAMINS, ANTIBIOTICS AND ARSONICS

To insure uniform distribution of these micro-nutrients, 10 pounds of the vitamin, anti-

biotic and arsonic acid premix should be added per ton of starter and finisher feeds. This premix should contain: stabilized vitamin A, 6,000,000 IU; vitamin D_3, 2,000,000 ICU; vitamin E, 5,000 IU; riboflavin, 4 grams; D – calcium pantothenate, 10 grams; niacin, 30 grams; vitamin B_{12}, 12 milligrams; choline chloride, 600 grams; menadione sodium bisulfite (vitamin K), 2 grams; antibiotics (aureomycin, terramycin, penicillin, bacitracin or streptomycin, singly or a combination) 20 grams; and arsonic acid (45 grams 3-nitro-4-hydroxyphenylarsonic or 90 grams arsanilic acid). For mixing the concentrate, two and one-half times these amounts should be mixed in a 25-pound package and one package used for each ton. Two and one-half of the 10-pound premixes could be used, but would be less economical.

COCCIDIOSTAT

A good coccidiostat should be included in every broiler diet. The choice of a specific one usually is determined after experience has shown which gives the best results for the local situation. Every coccidiostat should be used according to the directions of the manufacturer, including withdrawal where necessary.

• • • • • • • • • • •

ONE OF A SERIES

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

Feeding Broilers
Feeding Flock Replacements (in process)
Feeding Laying Hens (in process)
Feeding Chicken Breeders (in process)
Feeding Turkey Breeders (in process)
Feeding Growing Turkeys (in process)

Additional copies of the six leaflets will be available as issued from the offices of the extension agents located in each Texas county, or from the Agricultural Information Office, the A&M College of Texas, College Station, Texas.

Cooperative Extension Work in Agriculture and Home Economics, the Texas A&M College System and the 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—3-63