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Feeding

Flock Replacements

Pullet chicks should be fed a good all-mash starter diet containing approximately 20 percent protein for the first 8 weeks of age, after which time any one of the feed restriction programs may be employed. The exact method of restriction used would depend on the individual producer. A number of methods which will accomplish the desired degree of growth retardation and delay of sexual maturity will be described. All diets should be amply fortified with vitamins, minerals, antibiotics and a coccidiostat.

Feeding Flock Replacements

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ADEQUATE NUTRITIONAL REARING PROGRAMS for replacement pullets are available to the poultry producer. The accompanying starter and grower rations give excellent results in practical use. Appropriate modifications of the grain and protein sources can be made, depending on price and availability. Directions for the use of the concentrates by mixing them with grains are indicated.

The composition of the vitamin premix is given in detail. The small feed manufacturer, or large producer engaged in on-farm mixing, should assure that the 10 to 50-pound premix packages supply an adequate quantity of the micronutrients, so that an even distribution of micronutrients in the finished feed will be obtained.

Feeding Practices

Nutritionists generally agree that it is highly desirable to feed a well-fortified chick-starter ration from 0-8 weeks of age. This diet should contain 20 percent protein and about 900 Calories of productive energy per pound and approximately 0.45 percent inorganic phosphorus and 1.0 percent calcium. From 8 weeks to lay, poultry producers now have a choice of feeding programs that can be best adapted to their particular case and needs. One of the first restricted feeding programs for heavy breed replacement pullets was the *ad libitum* feeding of a high fiber developer. A diet of this type was supposedly designed to slow down the rapid rate of growth of replacement pullets, thereby delaying sexual maturity, decreasing the body weight and onset of egg production and decreasing the number of small pullet eggs obtained in the early part of the egg production period. However, this program has not proven to be successful as the pullet mainly eats to satisfy her energy requirements, and consequently will merely eat more of the diet containing large amounts of fiber, thus cancelling the major effects for which the diet was originally formulated. However, certain conditions may warrant this

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TABLE 1. REPLACEMENT PULLET FORMULAS AND CONCENTRATES

Ingredients	A	B	C	D	E	F	G	H
	Chick starter heavy and light breeds 0-8 weeks	Chick starter heavy and light breeds concentrate 0-8 weeks	Concentrate with grain (use concentrate B)	Pullet grower heavy and light breeds ³ 8 weeks-5% production	Pullet grower heavy and light breeds concentrate 8 weeks-5% production	Concentrate with grain (use concentrate E)	Pullet grower heavy breed ⁴ high fiber 8 weeks-5% production	Concentrate with grain and fiber source (use concentrate E)
	----- Pounds per ton -----							
Sorghum grain (9.5% protein)	1259		1200	1484		1500	574	500
Soybean oil meal (44% protein)	525	1413		240	800		450	
Fish meal (60% protein)	50.0	150.0		50	300		50	
Dehydrated alfalfa meal (17% protein)	100.0	240.0		160	571		100	
Fermentation product (30% protein)	10.0	30.0		10	50		10	
Fiber source ¹							750	700
Phosphorus source (32% Ca; 18% P)	40.0	120.0		40	200		50	
Salt	5.0	15.0		5	25		5	
Manganese sulfate	½	1.5		½	2.5		½	
Zinc sulfate	⅜	1.0		⅜	2		⅜	
Vitamin-antibiotic-arsenic-premix ²	10.0	30.0		10	50		10	
Concentrate			800			500		800
Protein %	20.03	38	20.90	15.34	32.13	15.16	15.14	15.23
Fat %	2.30	1.49	2.28	2.61	2.42	2.71	1.33	1.67
Crude fiber %	4.16	7.76	4.42	4.38	9.96	4.24	18.05	16.14
Calcium %	0.95	2.76	1.28	1.20	4.63	1.18	1.08	1.85
Total phosphorus %	0.80	1.79	0.90	0.77	2.63	0.88	0.87	1.12
Inorganic phosphorus %	0.45	1.34	0.53	0.45	2.31	0.65	0.54	0.92
Calories (productive energy per pound)	928	638	915	952	516	954	518	482
Calorie per protein ratio	46:1	17:1	46:1	61:1	16:1	63:1	34:1	32:1

¹Rice hulls, oat hulls, ground corn stalks, ground sugar cane stalks and others.

²See section on vitamins, antibiotics and arsonics for the composition of the premix.

³Can be fed *ad libitum* or fed on a restricted intake basis.

⁴Should be full-fed.

type of program. A diet and concentrate especially designed for "high fiber feeding" is shown in Table 1.

A second and much more economical rearing program is the feeding of a diet containing approximately 15.0 percent protein and from 850 to 900 Calories of productive energy per pound on a restricted intake basis. This, however, necessitates the actual measuring of the feed every day in order to restrict mechanically the amount of feed consumed by each bird. This system can be used for both the light and heavy breed replacement pullets. A disadvantage of this system is the labor involved in actually measuring out the feed for the birds. Moreover, the weak birds in the pens may not consume enough of the feed and would die or be killed by the other birds. It is also necessary to increase the amount of feed as the birds grow older. A restriction to approximately 70 percent of what the birds would normally eat delays the onset of egg production. A diet of this type, Table 1, can also be full-fed to either heavy or light breed pullets and has met with considerable success and favor. If this diet is fed, because of its comparatively low protein content, it must necessarily contain some source of fiber. However, the amount of fiber added to this diet should certainly be limited, or the poultryman will again try to restrict his birds purely on a fiber basis, and this as mentioned before, because of excessive feed consumption, becomes economically unsound.

Vitamins, Antibiotics and Arsonics

Certain precautions must be taken in feeding replacement pullets. Slowing down the age of sexual maturity does not mean feeding the birds a nutritionally inadequate diet. It is still essential to supply the necessary vitamins and minerals. To insure uniform distribution of these micronutrients, 10 pounds of the vitamins, antibiotics and arsonic premix should be added per ton of starter. This premix should contain 6,000,000 IU of stabilized vitamin A; 2,000,000 ICU of vitamin D₃; 2,000 IU of vitamin E; 4 grams of riboflavin; 10 grams of calcium pantothenate; 25 grams of niacin; 10 milligrams of vitamin B₁₂; 500 grams of choline chloride, 2 grams of vitamin K (menadione sodium bisulfite); 5 grams of an antibiotic and either 45 grams of 3-nitro-4-hydroxy-phenylarsonic acid or 90 grams of arsanilic

acid. In the pullet developer the vitamins can be decreased slightly, however. The following are recommended per ton of feed: 5,000,000 IU vitamin A; 1,500,000 ICU vitamin D₃; 2,000 IU vitamin E; 3 grams of riboflavin; 8 grams of calcium pantothenate; 20 grams of niacin; 8 milligrams of vitamin B₁₂; 400 grams of choline chloride; 2 grams of vitamin K (menadione sodium bisulfite); 5 grams of antibiotics and either 45 grams of 3-nitro-4-hydroxyphenylarsonic or 90 grams of arsanilic acid.

Coccidiostats

Good coccidiostats are available for replacement pullet diets. The choice is the producer's and is usually determined after experience has shown which one gives the best results for a particular area. Every coccidiostat should be used according to the direction of the manufacturer including withdrawal when 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

Feeding Laying Hens (in process)

Feeding Chicken Breeders

Feeding Turkey Breeders

Feeding Growing Turkeys

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, Texas A&M University, College Station, Texas.

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