

FACT SHEET

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MANAGING AND FEEDING EGG STRAIN REPLACEMENT PULLETS

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The profitability of many laying flocks is often predetermined in the pullet house weeks before an egg is laid. Greater realization of this aspect coupled with the development and maintenance of a strong, practical pullet development program can increase net income levels significantly for many commercial egg producers.

Careful investigations usually reveal that an operation with repeatedly high performing flocks consistently houses good quality replacements. Such flocks are usually from reputable, well managed sources with rearing programs synchronized to laying programs. In contrast, some egg producers have little or no control over, or knowledge of, the rearing program to which replacement pullets are subjected. Invariably these producers house occasional flocks which never meet expectations even under an excellent laying house management program. Such flocks may peak too early or at a lower rate of lay than expected. Production may drop too rapidly. Attaining body weight and egg size may be a problem. Shell and/or interior quality may be poor. Feed efficiency may be poor and production may be affected by positive or suspected disease outbreaks.

Such typical shortcomings in properly managed laying flocks are almost invariably caused by one or more deficiencies in the rearing program. Deficiencies may include inadequate ration formulation or severe feed restriction, crowding, improper lighting, poor flock health management and vaccination practices, improper debeaking or one or more other preventable stresses.

Nutrition

Acceptable, well reared pullets should approximate the recommended body weight average and

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range for the strain throughout the growing period and at housing. Deviation from recommended weights will affect performance — production, egg size and feed efficiency. Underweight pullets seldom peak properly. An increase in shell quality problems and a greater incidence of fatty liver are often seen later in the laying cycle of flocks that are underweight when egg production begins. Check body weight and development at least monthly after 8 weeks of age. This can be done easily by weighing representative samples of pullets.

In the South, pullets usually must be fed according to climatic conditions if recommended size is to be attained. Chickens eat to satisfy energy rather than amino acid requirements. Flocks reared or entering production during the warmer months frequently consume less feed than is necessary to provide the essential amino acid levels required for satisfactory development and performance. From October through April proper development can be attained by feeding properly fortified starter, grower and developer rations such as those in Table 1. The starter (21 percent protein) is recommended from 0 to 8 weeks, grower (18 percent protein) from 9 to 12 weeks and developer (16 percent protein) from 13 to 18 weeks of age. Periodic body weight checks may indicate an occasional need to deviate from this schedule. During May through September pullets should receive the starter ration (21 percent protein) from 0 to 8 weeks and the grower ration (18 percent protein) from 9 to 18 weeks of age to assure adequate nutrients.

These nutritional recommendations will produce a properly developed pullet approximating 2.75 to 3.0 pounds (depending on strain) at 18 weeks, provided stress factors are minimal. A slightly overweight pullet at this age is no detriment since a body weight loss of 0.1 to 0.2 pound generally occurs at housing.

Regardless of season, give pullet flocks a ration containing 2.5 percent calcium at 19 weeks of age.

Table 1. Replacement pullet formulas

Ingredients	Starter 0 to 8 weeks	Grower 9 to 12 weeks	Developer 13 to 18 weeks	19 weeks to 10% production
Sorghum grain or corn (9%)	1212.00	1382.00	1493.00	1392.00
Soybean meal (44%)	530.00	360.00	250.00	270.00
Poultry byproduct meal (60%)	100.00	100.00	100.00	100.00
Dehydrated alfalfa meal (17%)	100.00	100.00	100.00	100.00
Defluorinated rock phosphate (18% P, 32% Ca)	30.00	30.00	30.00	30.00
Calcium carbonate oyster shell flour (38% Ca)	10.00	10.00	10.00	90.00
Salt	4.00	4.00	4.00	4.00
MnSO ₄	0.50	0.50	0.50	0.50
ZnSO ₄	0.50	0.50	0.50	0.50
DL-methionine	3.00	3.00	3.00	3.00
Vitamin mineral premix ¹	10.00	10.00	10.00	10.00
Coccidiostat	*	*	*	
Protein %	21.00	18.05	16.00	16.00
Kilocalories (ME/lb)	1275.00	1320.00	1350.00	1275.00
Lysine %	1.10	0.85	0.70	0.71
Methionine %	0.48	0.42	0.40	0.42
Cystine %	0.30	0.28	0.26	0.26
Total phosphorus %	0.72	0.72	0.72	0.73
Inorganic phosphorus %	0.36	0.36	0.36	0.36
Calcium %	1.00	1.00	1.00	2.50

¹Vitamin premix should contain:

Vitamin A (stabilized)	8,000,000 IU
Vitamin D ₃	3,000,000 ICU
Vitamin E	2,000 IU
Riboflavin	4 g.
Calcium pantothenate	10 g.
Niacin	25 g.
Vitamin B ₁₂	15 mg.
Choline chloride	454 g.
Vitamin K (menadione sodium bisulfite)	2 g.

*Follow manufacturer's recommendations on use and amount per ton.

Continue this ration until replaced with a laying ration when 5 to 10 percent production is attained. Serious kidney problems can develop if pullets are fed calcium levels exceeding 1 percent before they reach 18 weeks of age.

Replacement pullet rations must be fortified with the vitamins listed in Table 1. All rations for floor-reared pullets must contain an effective coccidiostat to prevent coccidiosis. The coccidiostat selected must be fed from the first day and be recommended by a competent poultry diagnostician who is familiar with area conditions. The coccidiostat must be used according to manufacturer's directions.

Crowding

At all developmental stages, pullets must have adequate floor, feeder and waterer space. Crowding is a major cause of weight variation and maturity distribution seen in some young laying flocks. Such flocks typically peak lower than normal and have a

greater egg size variation since maturity occurs over a longer period. Environmental and intestinal problems often are intensified in crowded pullet flocks. Allow 1 square foot of floor space for each chick in floor houses up to 8 weeks of age. After 8 weeks, 2 square feet are recommended. Provide sufficient feeder and waterer space to allow all birds ample opportunity to eat and drink. Closely follow manufacturer's recommendations on space requirements for cage-reared pullets.

Lighting

Optimum laying performance dictates that sexual maturity and proper physical development of pullets coincide. Satisfactory control of both necessitates an effective light program since light has a major effect on age of sexual maturity and production. For growing pullets, increasing day length hastens sexual maturity while decreasing day length slows maturity. Thus, never increase day length for replacement flocks between 12 and 20 to 22 weeks of age.

Pullet and layer lighting programs can conflict. Egg producers can minimize this possibility by doing business with reputable pullet growers who follow a light program which meets producer requirements. Follow closely the particular lighting program suggested for the strain of birds and housing utilized.

Optimum lighting of pullets is possible in dark houses where light exposure can be controlled. In open and dark houses, pullets may be exposed to 23 to 24 hours of light daily during the initial 3 to 7 days to minimize brooding problems. From this age to 10 to 12 weeks, natural day length or 8 to 12 hours of light are generally provided. At 12 weeks of age pullets in dark houses are provided 8 to 10 hours of light, depending on the recommended program for the strain. Give pullets in open houses a constant or decreasing day length to 20 to 22 weeks of age. At this age, give pullets in dark and open houses an abrupt increase in light up to 14 hours. Light increments of 15 minutes weekly or 30 minutes biweekly are then recommended until a constant day length of 15 to 17 hours is attained. An abrupt increase in light can create a high incidence of prolapse or blowouts. This is most prevalent in flocks brought to the point of laying before muscles of the oviduct have developed elasticity and strength, and in flocks with excessive erratic ovulation and accompanying double-yolked eggs.

Flock Health Management

A good flock health management program for pullets can be quite profitable. Reduced laying house performance resulting from early health problems can far exceed the cost of a good pullet health management program. The following recommendations, if implemented, will minimize health problems in pullet flocks.

- Keep flock age differences on a pullet farm to a minimum. If possible, follow an "all-in, all-out" program. Other fowl should not be allowed on pullet farms.
- Change litter, thoroughly clean and sanitize housing and equipment and exterminate rodents between flocks to minimize disease and parasite problems. This is especially critical if the farm has experienced a health problem.
- With every flock, follow a precise vaccination and internal parasite control program approved by an area poultry diagnostician.
- Discourage outsiders from visiting the farm.

- If a disease problem develops, obtain an early, reliable diagnosis and follow the recommended treatment.
- Incinerate dead birds. Remove and destroy culls.
- Maintain an accurate health record of each flock. This should include vaccination history, disease problems and medication used.

Debeaking

Debeaking is considered mandatory to effectively control cannibalism and feed waste in pullet and laying flocks. Studies show poorly debeaked and undebeaked birds may waste as much as 5 pounds of feed per bird during the growing and laying periods. Practically all pullet producers debeak laying stock while birds are chicks and again during the growing period. Debeaking crews must be trained properly and supervised closely to minimize debeaking errors which can cause cull layers.

Debeak day-old chicks or when 7 to 14 days of age. Some producers recommend debeaking day-old chicks at the hatchery. Chicks are handled more easily at this age and hatchery debeaking is convenient. Others feel stress is minimized if debeaking is delayed until chicks are 7 to 14 days old. Debeaking 7- to 14-day-old chicks is usually more uniform and effective for a longer period. At this age, a special attachment must be used with regular debeakers to prevent removing too much beak.

Debeak or "touch up" pullets a second time between 12 and 22 weeks of age. Many producers with consistently good flocks debeak a second time between 12 and 17 weeks of age. Pullets debeaked at this stage achieve complete recovery before the onset of sexual maturity. Debeaking after 17 weeks can cause problems. Pullets generally lose body weight at debeaking. This additional stress on sexually maturing pullets can be detrimental, especially in lightweight flocks, and has been blamed for low production peaks. Pullets debeaked at housing also may have difficulty with beak tenderness and adjusting to cup-type waterers. Increased mortality, excessive weight loss, smaller eggs and lower production can result.

Sufficient emphasis on proper pullet nutrition, housing management, lighting, flock health management and debeaking practices can be quite profitable for egg producers. The extra effort required to produce quality pullets will pay off in quality performance in the laying house.

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