

Management of Poultry Layer birds



Introduction

Many years of genetic research have resulted in the production of docile, colour-sexable, brown egg-layer birds with excellent feed efficiency and good liveability, producing superior high quality brown eggs.

The use of sound poultry husbandry and management practices; properly controlled feeding to regulate body weight and careful adherence to lighting recommendations and good sanitation will help attain a high degree of the genetic potential of these improved egg-type breeds.

Rearing replacement pullets

The physical condition of the pullet at the time of sexual maturity may determine its productivity during the laying period which usually lasts for about a year. Most producers rear their own pullets from day old stage until the point of lay. This allows the producer to plan the periodic replacement of his laying stock with birds that have been raised under their own standards of housing and

management. Other producers may specialise in raising pullets and then sell them off when they reach point of lay.

Pullets are reared almost exclusively using the deep litter system. Their feeding program should be carefully managed so that they do not gain weight excessively and reach sexual maturity prematurely. This would result in reduced egg production during the laying year. The nutrient requirements of growing pullets are shown in Table 6. Rations can be formulated on farm (which is the cheaper option) or purchased from commercial stockfeed manufacturers.

One way of controlling growth rate is by practicing feed restriction. This is done a number of ways; the first and most common method is to give a known amount of feed once in two days – skip-a-day feeding regime. The other method is to lower the protein content in a feed so that consumption is reduced and growth slowed. The latter method has the disadvantage that birds tend to overeat to compensate for nutrient deficiencies.



The average target live weights and cumulative feed intake for rearing pullets is summarised in the table below.

Age in weeks	Live weight in grams	Est. cum. feed intake and feed type
1 to 4	285	600 g Chick Starter Mash
5 to 8	620	1800 g Chick Starter Mash
9 to 12	960	3400 g Layer Grower Mash
13 to 18	1460	6500 g Layer Grower Mash

Vaccination programme for pullets

The vaccination program for pullets varies between places and is based on the disease situation in the area. A veterinarian should be consulted in order to formulate a vaccination program which is adapted to the local disease situation.

De-beaking

Proper de-beaking can reduce feed wastage and it can also minimise vices such as feather picking, vent pecking, bullying, cannibalism and egg eating. De-beaking is done at 6 to 10 days of age and, or repeated between 8 to 12 weeks if need be. About one-half of both the upper and the lower beak is removed and cauterised using a cherry red hot blade on a de-beaking machine. Always provide water-soluble vitamins and minerals a few days prior to the de-beaking and for a week afterwards to help eliminate stress and allow faster healing.

Lighting for replacement pullets

Light intensity, the length of the day light period and the pattern of daily change produce biological responses associated with egg production in layers. Decreasing day length during rearing will delay onset of laying, while increasing day length will hasten sexual maturity and the onset of laying. Sexual maturity or egg production generally depends on the following (i) minimum age 18 weeks which is determined genetically, (ii) a minimum body weight, (iii) a nutrient intake to support egg production and (iv) a constant or increasing day-length of more than 12 hours. This light stimulation can be provided artificially when the minimum weight (Approx 1.5 kg) has been achieved.

In Zimbabwe, if the pullets are raised to reach point-of-lay in winter (June/July), then they are in-season flock as the natural day-length will be naturally decreasing during period. However, if the pullets are raised when the natural day-length is increasing, say from July to December, they the flock is out of season, and the most practical way is to use the open type housing for rearing pullets.

The recommended light intensity and duration (photoperiod) for pullets from day-old to end of lay is epitomised as follows:

<u>Time</u>	<u>Light intensity</u>	<u>Photoperiod</u>
0 – 4 days	20 lux	23 hours
5 – 18 weeks increased to	5 lux	8 hrs up to 14 wks; 16 hrs by 18 weeks.
Laying period less)	5 lux	16 hrs (or more, but NOT less)

Others to be factors concerning lighting are:

- Keep the light bulbs clean,
- Do not expose the birds to direct sunlight,
- Replace faulty lamps regularly, and
- A light source with a clean reflector is better than one without a reflector.



Feeding Management for Layer birds

It is assumed that layers, unlike birds raised specifically for meat, regulate their feed intake. Layers are generally reared on full feed (*ad libitum*). Amounts vary between **120 and 135 grams of feed per bird per day** (or 45 kg /bird / year) depending on genetics, type of laying facility, age of stock and environmental conditions (Table 6). Under large commercial set-ups, the feed is offered to birds via the chain system. The chain system transports feed into the metal feeder at precise times during the day. In general, 2 inches of feeder space is allotted per pullet and 2.5 inches or more for each adult laying hen. Table 6 illustrates the dietary protein and energy recommendations and feed requirements based on age in of typical layer. Young birds are fed a high

protein diet (20 percent) during the first few weeks of life.

This level continuously decreases until it reaches approximately 12 to 15 percent proteins during egg production. In addition to monitoring dietary protein, producers must closely examine other ingredients. During the laying phase, lysine, methionine, calcium, and phosphorus are precisely monitored to support maximum egg production. Once egg production begins, energy intake is the critical factor controlling egg numbers. Therefore, the diet must contain an adequate concentration of calories if small birds are going to be expected to perform to their full genetic potential at peak and as the laying cycle continues. Feed should be blended for a few days during change-over from one phase to next in order to allow smooth transition and to avoid upsetting the birds' digesting system.

If greater egg profits are to be realized during an entire laying cycle, it is essential that replacement pullets attain proper body weight. Note that light breeds reach point-of-lay earlier (20 weeks) than heavier breeds (22 weeks). A bird that remains small will lay small eggs at the onset of egg laying. Once egg production begins, it is too late to correct body weight problems in a flock. The smaller birds will remain small and the larger birds will remain large throughout the laying cycle. Since feed intake is correlated with body weight increases, the decreased egg size often seen in some young flocks is most likely a result of feed intake.

<i>Nutrient</i>	<i>Starter</i> (0-6 weeks)	<i>Grower</i> (6-8 wk)	<i>Developer</i> (8-15 wk)	<i>Pre-Layer</i> (15-18 wk)	<i>Layer</i>
Protein %	20.0	18.0	16.0	14.5	15.0
Met. Energy, Kcal/0.5kg	1325-1375	1350-1400	1375-1425	1350-1400	1300-1450
Feed requirements	2 kg /bird	5 kg/bird			120 – 135 g /b/d

Egg producers will normally attempt to get the largest number of high-quality eggs of the correct size from each hen housed in the shortest period of time at the lowest cost. There are numerous feeding and management programs that have an effect on their investment. Feeding programs are designed to meet the nutritional needs of the hens. However, the profit margin is different with each type of feeding program.



Restricted feeding for pullets and layers

The feeding programme has to be adapted to the target weight-for –age and to attain a high uniformity (75 to 80 %) at point-of-lay. Limited feeding in rearing pullets is important for the following reasons: to prevent over-consumption, birds will be more docile, less stress during production, better feed utilisation, higher production and less wastage of feed. Restricted feeding during rearing is desirable but not at point of lay. Restricted feeding can be achieved through the “skip-a-day” feeding regimen which saves feed costs by about 20 %.

If a feed restriction program is implemented, it is important to formulate the diet to supply adequate amounts of critical nutrients each day to the hen. The amino acid, vitamin and mineral concentrations in the diet are more critical with limited feeding than with full feeding. In limited feeding programs, the objective is to limit only energy without limiting the intake of critical nutrients. The use of nutrient-dense diets is necessary for a “limited every day” feeding regime. Energy intake cannot be altered effectively by simply varying diet energy concentration. This is because, in general, the laying hen will consume the amount of feed necessary to meet her metabolisable energy requirement.

When young pullet flocks appear to have stopped their production increase or have plateaued (leveled off for several consecutive days), they will respond when “challenged” with additional feed amounts of 0.5 kg per 100 birds added to their daily feed allowance.



Laying hens fed an energy-restricted diet have a lower maintenance requirement, and a hen consuming less feed is more efficient and profitable. If a feed restriction program is used, it is usually not started until the majority of the eggs being produced fall into the large size category. Research has shown that during the laying period, the skip-a-day birds laid the same number of eggs as the hens on a full feeding regime, but their total egg mass output was greater. Initiation of a feed restriction program should commence later for layer strains of lower body weight, particularly during periods of hot weather.

Note that during periods of stress, disease and medication, place birds on full feed. Return to controlled feeding as soon as the flock has recovered.