

Poultry housing and management in developing countries

Housing and management of layers

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CHICK MANAGEMENT

Modern hybrid layers can be reared successfully in floor and cage brooding systems in developing countries. However, they need more careful management than village chicks, which are better able to cope with temperature fluctuations. Prior to chick arrival, it is important to clean and disinfect the cages or the floor brooding area. The brooders should be set up the day before delivery, at 34 to 36 °C for cage brooding or 35 to 36 °C for floor brooding (Hyline International, 2009). Drinkers need to be full or the drinking system in operation, to encourage birds to drink. If nipple drinkers are used, the water pressure should be reduced so that birds can see the drop of water hanging on the drinker. Feed should be placed on paper if birds are reared in cages. Feeders on the floor should be filled and kept under high light intensity for 20 to 22 hours per day for the first week, to attract the birds.

GROWING PERIOD MANAGEMENT

The first 17 weeks of a pullet's life are critical. Careful management during this period will allow the bird to meet her performance potential (Bell and Weaver, 2001). Although it is not always possible to grow pullets in strict isolation from older birds on village farms, it is recommended on semi-commercial and commercial farms. During the first six weeks, it is important to provide feed at least twice a day. After five weeks, feed consumption and body weights must be checked. It is good practice to weigh 100 pullets a week during the growing period, beginning at five weeks of age. Pullets should be moved to cages or the laying house at 16 weeks of age, before the onset of sexual maturity.

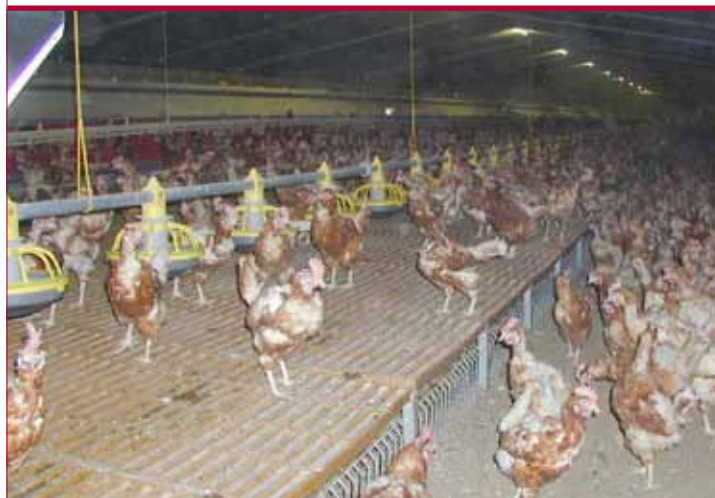
FLOOR SYSTEMS MANAGEMENT

Perches should be provided in the growing and laying house environment. This allows the birds to develop their leg and flight muscles, which is essential for their full utilization of the laying house environment. Perches reduce the social stress of birds interacting on the floor, by providing them with a place to roost and get away from other birds in the flock. It is also desirable that birds have access to the same type of feeder and water system in the growing house as they will have in the laying house, although this is not always possible.

Birds also need to adapt to the presence of humans, and walking through a poultry house regularly will socialize them. In the laying period, the lighting times need to be synchronized with those in the rearing facility. When birds are placed in the laying house they need to be encouraged to explore the nest boxes. Commercial-scale operations can do this with nest lights to train the birds to use the nests.



Rearing layer pullets in multiple-bird wire cages



Large-scale modern layer barn (above) and sector 2 layer production unit (Egypt, below)

LIGHTING PROGRAMME

The egg production of layers is very closely related to the changes in day length to which the pullets are exposed. Egg numbers, size and livability can be markedly influenced by the lighting programme (Lewis and Morris, 2006). An effective lighting programme for houses where outside daylight can be excluded involves giving pullets 20 to 22 hours of light a day at 30 lux in the first week, reducing this to 20 hours at 5 lux in the second week, and then reducing the photoperiod over the following weeks, to reach ten to 12 hours by seven to nine weeks of age.

In open-sided houses, lighting is increased to the longest natural day length from six to 17 weeks of age. It is useful to provide light stimulation when the body weight of commercial hybrids reaches about 1.5 kg. Light can be increased by 15 to 30 minutes per week, until 16 hours of light a day is reached. It is critical that light intensity in housing is increased to 10 to 30 lux. There should be no decrease in day length or light intensity for adult layers. In village poultry production, most birds are exposed to a natural day length, and farmers do not have lighting available to stimulate egg production in village hens.

In developing countries, layers are not generally reared or kept in light-controlled housing.

The onset of sexual maturity or egg production depends on reaching the minimum chronological age and a minimum body weight (usually about 1.5 kg in commercial hybrids), as well as having adequate nutrient intake to support production, and a constant or increasing day length of at least 12 hours.

An optional lighting technique for promoting increased feed consumption is night lighting. This involves turning the lights on for one hour in the middle of the dark period, to allow the birds to feed.

EGG SIZE MANAGEMENT

Egg size is largely genetically determined, but can be manipulated by lighting and feeding programmes. The larger the body weight at maturity, the larger the hen's eggs will be for her entire life. Egg weight is thus generally a reasonable indicator of body weight, but in general the earlier a flock begins production, the smaller the egg size will be, and the later the onset of egg production, the larger the egg size. Lighting programmes can be manipulated to influence rate of maturity (Bell and Weaver, 2001). A decreasing light pattern continuing past ten weeks of age delays maturity and increases average egg size. Egg size is greatly affected by the intake of energy, total fat, crude protein, methionine and cystine



Modern tier-step layer cages: the cages have automated watering, feeding and egg collection

and linoleic acid. Levels of these nutrients can be increased to improve early egg size, and then gradually reduced to control egg size at later ages.

MOULTING

Many producers practise induced moulting of the whole flock, which does not involve fasting of the birds. Commercial birds perform very well after a rest, particularly in the latter weeks of the moult cycle, when they achieve excellent shell quality and persistency. The optimum age for moulting is usually about 65 weeks.

REFERENCES

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- Lewis, P. & Morris, T.** 2006. *Poultry lighting: the theory and practice*. Nottingham, UK, Nottingham University Press. ISBN 0-9552104-0-2.
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Semi-intensive sector 3 type layer production (Afghanistan)