

Cost effective production of premium quality table eggs

Layers and breeders have a genetic potential for a high egg output. In order to produce mainly saleable and settable (hatching) eggs, egg shell stability is a crucial trait. Commercial layers producing noticeably above 330 eggs in a single laying cycle of 12 months is no exception under various field conditions.

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Layer breeders have also become more prolific during recent decades; they can easily produce up to 300 hatching eggs in 52 weeks of production. Both genetics and balanced nutrition play an important role in maintaining good egg shell stability. In order to achieve good profitability it is essential to maximise the output of premium eggs of the correct size and to control production costs.

Worldwide feed costs account for 60% or more of production costs (Fig. 1). Optimising feed rations and application of flock management procedures to prevent overweight birds are important tools to control production costs.

Table 1. Comparison of performance of white layers under a controlled (110g/b/d) and ad libitum feeding program at 20-35 weeks of age (Provimi, The Netherlands).

Feeding	Controlled		Ad lib	
Energy (kcal/kg diet)	2500	2650	2800	2700
Energy intake (kcal/h/d)	275	289	304	323
Energy requirement	292	293	293	305
Laying (%)	97.3	98.1	98.4	98.3
Egg weight (g)	59.1	59.0	58.8	61.0
Egg mass (g/h/d)	57.5	57.9	57.8	60.0
Feed intake (g/h/d)	110.2	109.0	108.6	119.4
Feed conversion ratio	1.915	1.884	1.878	1.992
BW start exp. (g)	1676	1671	1673	1752
Weight gain, start-end (g)	-35	0	39	150

During the productive period of a laying hen several stages can be observed.

● **Start-up of egg production:** During early lay no control of nutrient intake should be done, instead feed intake needs to be stimulated due to the low appetite of the birds. The first laying ration usually has a higher nutrient density than later on.

● **Peak period where hen-day performance is reaching its maximum:** Almost all birds produce an egg every day. Flocks are very sensitive to any change in feed during this stressful period from 25 to approximately 35 weeks of age.

● **After peak period from 45 weeks of age onwards:** During this period laying performance gradually declines. In this stage birds should be prevented from gaining excess bodyweight by a change to lower density rations and controlled feeding programs.

Under ad libitum feeding procedures, hens tend to consume more feed than they actually require for body maintenance (60-70%), egg production (30-40%), slight bodyweight increase (maximum 3-5%) and activity.

Table 1 shows that birds consuming more energy than required will increase their bodyweight and lay slightly larger eggs compared to

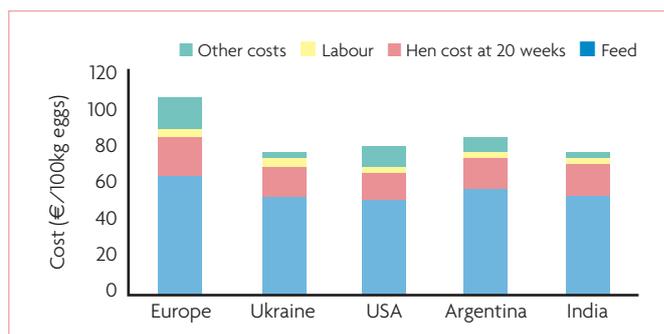


Fig. 1. Cost of table egg production in leading countries (€ per 100kg eggs) (LEI Wageningen, The Netherlands).

birds on a balanced intake. This over consumption has a negative impact on overall profitability. Therefore, nutrient intake and bodyweight control are essential during the post-peak production period. Overweight hens tend to deposit more abdominal fat which may cause more problems, such as prolapse.

A so-called phase feeding program with different nutrient density rations during the production period is essential to safeguard performance and can also save feed costs. The main aims are to maintain a good egg shell quality, control egg size, prevent overweight and balance nutrient supply to actual requirement.

Under closed house conditions flock management procedures can

also contribute to more cost effective production. Tailor made, so-called intermittent lighting programs can significantly reduce feed cost without negative impact on production (Table 2). Slightly increased house temperatures can also be applied to reduce appetite.

Companies who want to control feed cost and restrict body weight increase in production need to monitor their flocks carefully to prevent any disorders. Daily recording of feed and water intake and laying performance are essential, as well as regular checks of egg weight and body weight, both of which should not decline.

Controlled feeding and restriction of bodyweight increase are essential tools for economical management of laying flocks. ■

Table 2. Performance of white layers to 504 days of age with continuous light compared to an asymmetric intermittent lighting program (AILP) (Field results, Japan).

Trait	Continuous	AILP	Advantage
Egg number/HH	306.8	309.2	+ 2.4
Egg number/HD	310.7	314.5	+ 3.8
Egg weight (g)	63.7	63.7	---
Mortality (%)	2.5	3.5	+ 1.0
Feed intake (kg)	41.79	40.85	- 0.94
FCR (kg feed/kg eggs)	2.11	2.04	- 0.07
Abnormal eggs (%)	4.7	3.8	- 0.9
Income over feed costs (Yen)	1455	1517	+ 62