H&N »technical« TIPS

1 | 2017

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LAYER LONGEVITY STARTS AT REARING

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Nowadays the layers have extended their laying period, we usually see longer periods of time with high productivity in the farm. The production periods of the flocks have moved from just until 72 weeks of age in the past to over 90 weeks currently.

The longer longevity of the laying hens requires an improvement of management, nutrition and health practices. There is no doubt, that an optimal management to assure a long production cycle starts in the rearing. In this article we will focus on the main topics that should be taken into account during rearing to lay the foundation to face with guarantees the long production cycle of the layers.

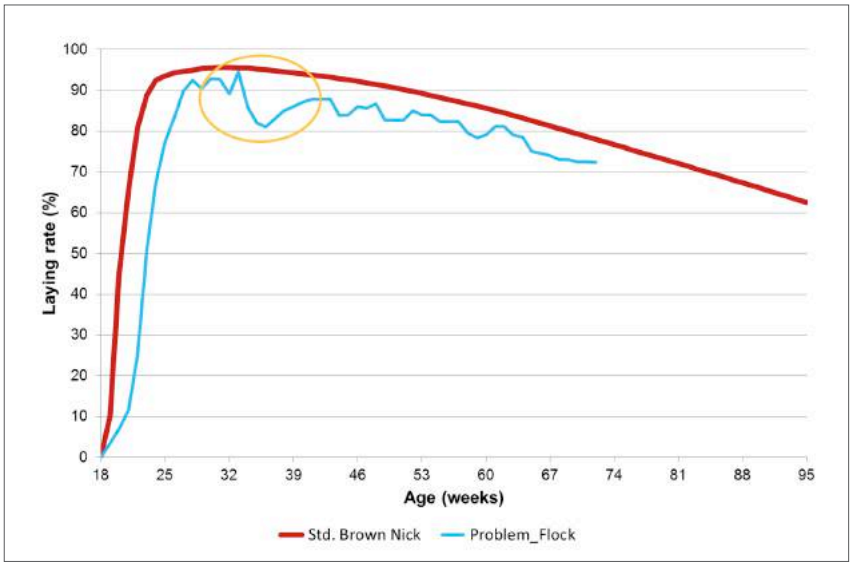
How longevity and rearing are link

The main objectives of the rearing are to finalize the process with a pullet with the proper body development, an adequate feed consumption combined with a good developed digestive system and a good immunity system.

When layers start the egg production, the pullet must be ready for an incredible challenge:

- Their demand of nutrients increases very rapidly, since their egg mass production will grow very fast.
- They still have a substantial body weight gain in the following weeks, as the sexual organs are developed.
- The medullary bone will start providing part of the Ca needed for the egg shell formation.
- On top of that, the birds barely can have enough feed intake due to a limited feed intake capacity.

This limited feed intake capacity produces a reduction of the growth rate or even a loss of body weight during the start of egg production if the feed intake capacity hasn't been properly developed. If the feed intake isn't good enough we will have drops of production after the pick of production **(see graphic 1)** as well as health challenges due to this additional stress. As the layer hens are extending their production time, this challenge in the beginning of production imply a stress for the birds thus depleting their reserves for the future and in consequence it will have a negative impact not only at this stage but also at the end of production.



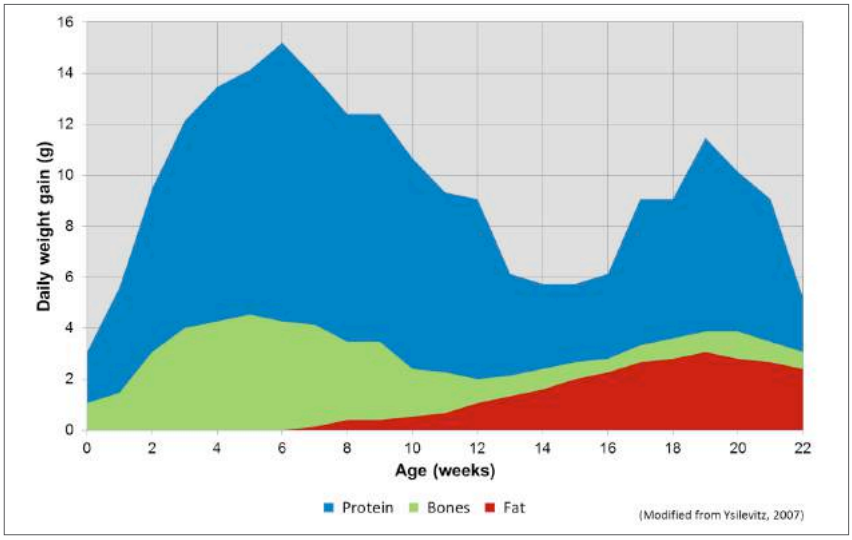
Graphic 1: *Production curve from a flock with low feed intake at the start of production.*

Pullets' body development and longevity

The body development of the pullet is one of the keys for a long-lasting layer. It is monitor through the body weight across the weeks of life. We also can evaluate the good skeleton development evaluating the keel or tarsus length, however due to the variability of these measurements, the body weight evaluation is enough to get a good information.

Pullet's tissues growth depends on the age, as we can see in the **graphic 2**, the main skeleton structure is built on the first 5-6 weeks of the pullet life. Therefore, it is important to have the pullets in target weight at this stage to have an optimum body development.

Until the 5-6 week of age there is a peak of growth of muscle and bones, it is the body structure of the pullet. The fat tissue starts growing around week 10th and there will be a peak of growth of all the tissues when the pullet gets into the sexual maturity.



Graphic 2: *Tissue development of the pullet.*

Most of the nutrients that will allow to have a proper bone development in the pullet will be the fine particles of the feed. It is important to have a homogenous particle size of the feed, however nutrients like vitamins and minerals will be the finest particle size. Therefore, it is important that the pullets are "trained" to eat these particles in daily basis. This training is about letting the pullets empty the feeder once per day during the noon so they can eat the fine particles that are so important for the bone development.

As the pullet grows the tissue development evolves, an underweight pullet during the first 9 weeks will have a poor body development. Even if these birds, with an underweight at the first weeks, achieve the target body weight during the last period of the rearing, the type of tissue growth will not be the proper one (Graphic 2). It will only deposit fat, and we will face problems of prolapse and obese layers in the production period. An example of a bad developed hen with too much fat deposition is shown in **picture 1**.

Picture 1: *Pullet with a bad body composition and too much fat tissue due to a compensatory growth after week 8.*

Feed intake capacity development

The feed intake capacity is one of the targets that must be trained in the hens during the rearing. We want to develop a bird with the highest feed intake capacity at the start of the lay so it can minimize the challenge of the high demands at the beginning of the laying period.

This management requires a developer feed, this feed will be given after week 9-10, once the pullets are in target weight. This feed will be a low density feed with high levels of fiber (**see Table 1** for details).

It is well documented that the fiber is a "nutrient" that can expand the size of the digestive tissues in comparison with the body weight of the birds (**see table 2**). The combination of the intake of a high fiber feed with the intake of water will make a mechanical effect of expansion of the different organs of the gut. A good development of the gut with this kind of feed is crucial for the birds to confront the challenges they will found during production.

Table 1: *Developer feed. Low density diet used in several developer feeds*

Nutrient	Levels
ME	2,750
Protein	14.5
Total Lys	0.65
Dig Lys	0.53
Total Met	0.34
Dig Met	0.28
CF	5.5

Table 2: *Effect of fiber in expansion of the gut organs.*

g / Kg BW	Control	Fiber
Crop	4.5	6.8**
Proventriculum	2.63	3.03*

Conclusions

The genetic selection has helped to obtain layers with an improved longevity and a higher persistency in egg production, implying longer production cycles. However, the great potential of the birds can only be expressed with the adequate management and nutrition practices. Some of these practices start at the rearing, having a good carcass development and proper feed intake capacity. Bear in mind that all the mistakes made in this period can be rarely solved during the production phase and that they will penalize the performance of the birds in their whole life. Little things, like having a good body weight at the first 6 week of age and assuring sufficient feed intake at the beginning in production, can make a big difference when we want to achieve the genetic potential of today's layers. We have to prepare the layers for a long productive life starting already during the rearing period.

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Imprint

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