EN

Hybrid Feed

Feeding for a smooth onset of egg production

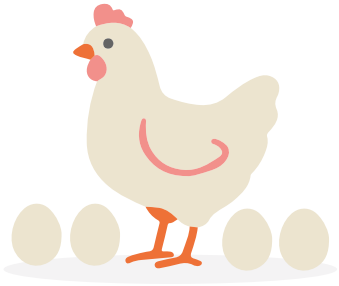
From rearing to laying

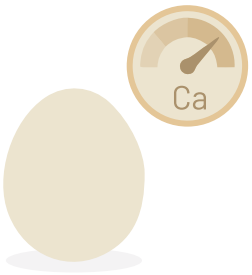
The onset of laying is one of the most critical phases in the life of a hen. This stage marks the transition from growth to production. Establishing a solid foundation during this phase of the bird's life is essential to unlock the hen's genetic potential and ensure maximum egg production, quality, and longevity.

Key factors at onset of egg production

Sexual maturity and onset of ovulation

The ovary, previously a small and inactive organ during the growth stage, becomes highly vascularized and functionally active. Proper timing of sexual maturity ensures optimal reproductive performance. Early or delayed onset of sexual maturity can affect long-term egg production and egg quality.



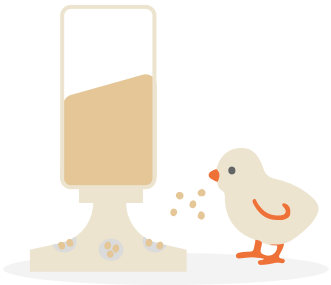


Mineralization of medullary bone

A vital calcium reservoir for eggshell production, also peaks during this time. The proper development of this specialized bone is essential to maintain eggshell quality, particularly during the later stages of lay. If calcium levels are insufficient, hens will deplete calcium from structural bone, increasing the risk of osteoporosis and fractures later in life.

Increase in nutritional demands

Nutrient requirements increase significantly during this time to support egg production, growth, skeletal development, and increased metabolic activity. Inadequate nutrient supply, and/or insufficient feed intake can impair egg production, shell quality, and hen health.



Hybrid feed

Start of light stimulation to 70% production

Hybrid feed is a strategic feeding approach designed to support pullet body development and help hens achieve the best possible start to egg production by suppling the nutrients needed for growth and the onset of laying.

The key nutritional components of hybrid feed are reported in Table 1.

Raw material selection is very important
(see details further)

Table 1. Nutrient recommendation for hybrid feed.

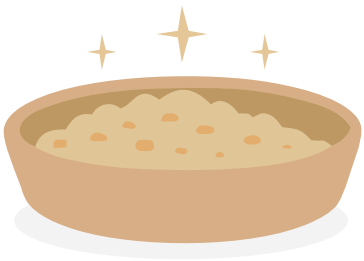
Nutrients	
Energy	2,700 kcal/kg
Dig. Lys.	0.80 %
Dig. Met.	0.40 %
Dig. Met. + Cys.	0.72 %
Dig. Thr.	0.56 %
Dig. Trp.	0.18 %
Dig. Ile.	0.64 %
Dig. Val.	0.70 %
Dig. Arg.	0.83 %
Crude fiber	2.75 %
Calcium	3.80 %
Av. Phosphorus	0.47 %
Salt	0.28 %
Fat adds	1.60 %

Key features of hybrid feed

Energy

↘ Low levels

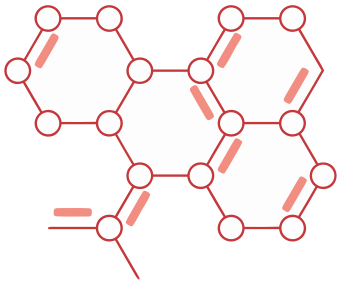
In order to prolong the **stimulation of feed consumption in hens** for as long as possible during the early weeks of lay.



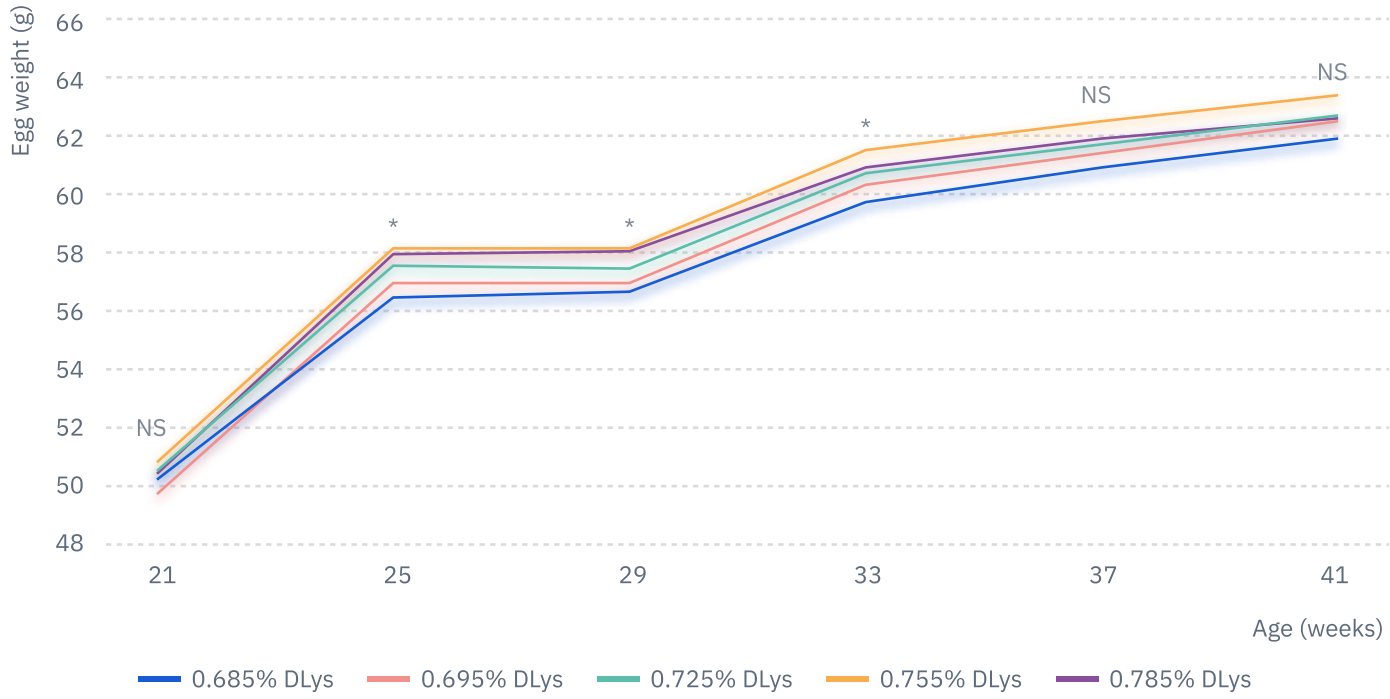
Amino acids

↗ | High levels

To promote the **optimal growth and development of the organs,** particularly the reproductive tract and liver, and to ensure a successful **start to production** in terms of performance and egg weight.



Graph 1. Effect of amino acid levels on egg weight development.



Recent research by Scappaticcio et al. (2022) reported that hens fed a diet high in amino acids (in which digestible lysine was used as the amino acid reference) during the onset of lay achieved 30% egg production and a desirable egg weight earlier than hens fed a low amino acid diet during the same phase. (**Graph 1**).

Calcium

↗ | High levels and coarse particle form

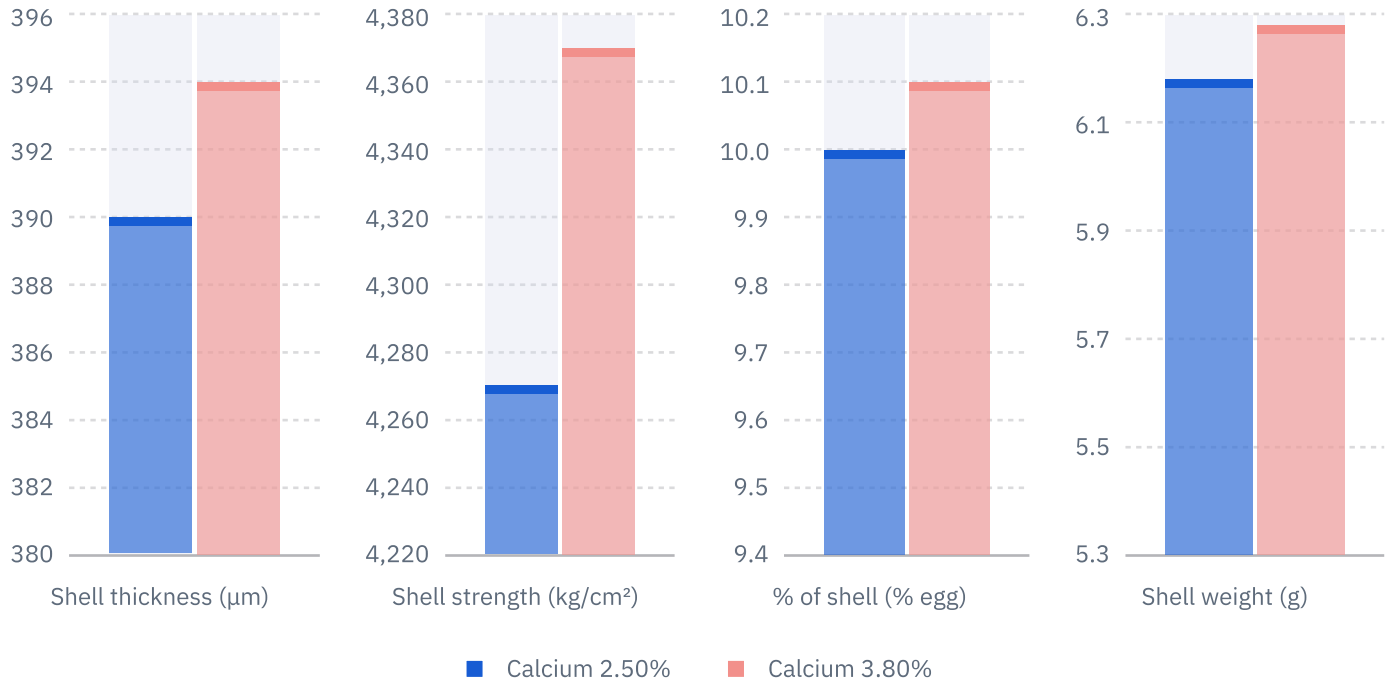
At the onset of egg production, it is essential to **provide laying hens with adequate levels of dietary calcium. At least 60% of the calcium carbonate in the diet should be provided in coarse particle form,** as coarse particles ensure a slower release and prolonged availability of calcium.

Ca

Calcium

Research by De Juan et al. (2023) compared two different calcium levels (2.5% and 3.8%) in diets offered to hens from 16 to 19 weeks of age. The results of the experiment demonstrated that providing adequate dietary calcium during the early lay phase is critical to support eggshell formation and had long-lasting benefits in terms of shell quality. (**Graph 2**).

Graph 2. Effect of dietary calcium levels used from 16 to 19 weeks of age on eggshell quality in hens from 19 to 63 weeks of age.



Crude fiber

Dietary fiber inclusion stimulates the growth and function of the digestive organs, such as the gizzard, proventriculus, and intestines. Fiber inclusion also **enhances nutrient absorption and overall feed consumption. The crude fiber content supplied in the hybrid diet should match that of the developer phase.**

NaCl

Sodium chloride

Salt

Sodium chloride (NaCl), commonly known as salt, plays two roles in poultry nutrition: it is essential for several key physiological processes and it **enhances feed palatability.** Salt is considered one of the key raw materials to stimulate feed intake in birds. **In the hybrid feed formulation, a minimum inclusion of 0.28% of the salt** is recommended to effectively stimulate feed intake.

Adding fats

Incorporating fats into the feed of laying hens during the early stages of egg production can enhance both egg-laying rates and egg weight. These improvements are attributed to the fact that fats act as an efficient source of energy and that their addition to the feed improves amino acid utilization, a key component for the development of egg weight. For more information on the benefits of dietary fat inclusion, see the Technical Tip on egg size by H&N International.

How to use hybrid feed?

Arrival	Light stimulation	70% production
Developer feed	**Hybrid feed**	**Phase 1**

The weeks during the onset of lay are the most critical phase of the hen's life. The implementation of hybrid feed in a conventional nutritional program on the farm is an easy option based on 4 steps:

01

Transfer the pullets from rearing to the production house. Afterwards, feed pullets a developer feed until the correct body weight for light stimulation is achieved (H&N recommendation: 1.250g for commercial Nick Chick, 1.260g for commercial Super Nick, and 1.450g for commercial Brown Nick).

02

Once the correct body weight is achieved, start light stimulation and contemporaneously change the diet from developer to hybrid feed, without supplying a pre-lay diet. **H&N International doesn't recommend the use of a pre-lay feed in the nutritional program of the laying hens.**

03

When 70% of lay is achieved, change the diet from hybrid to phase 1 feed.

04

Once the flock reaches 25 weeks of age, change the feed to match the production objective of the market.

The effects of hybrid feed

Results from the H&N International R&D farm

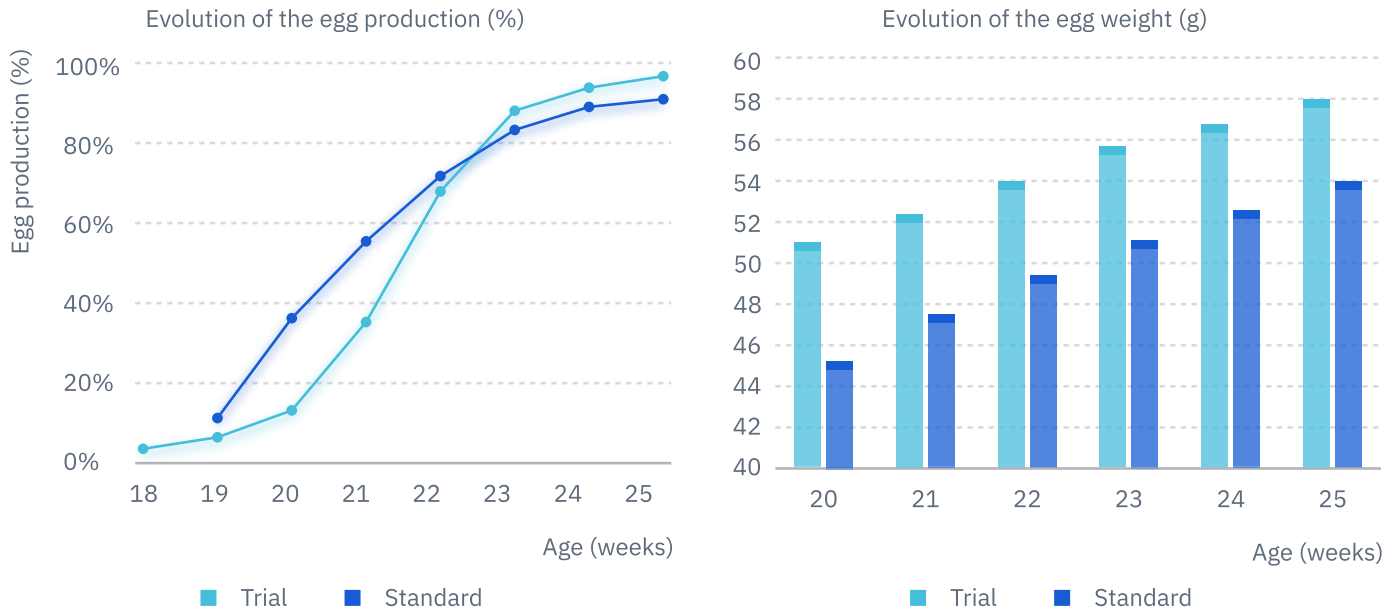
The use of hybrid feed during the onset of egg production was tested in Nick Chick white egg laying hens from 18 to 25 weeks of age to determine the impact of this new feeding strategy on hen performance.

Pullets were allocated to cages upon transfer to the H&N International Research and Development Farm at 16 weeks of age. Light stimulation began once hens reached the recommended body weight of 1,250g. An extra 2h/d was added to the light schedule during the first week, followed by an additional 1h/d every week after until a light period of 16h/d was achieved. During the weeks between light stimulation and the flock achieving 70% egg production, hens were fed a diet based on the hybrid feeding strategy (see Table 1 for the nutritional composition of the diet).

The results of hybrid feeding during the onset of lay on the evolution of egg production and egg weight are shown in Graph 3. The results from the experiment were compared against the performance standards reported for Nick Chick in the management guide provided by H&N International.

These results showed that the application of a nutritional **program based on hybrid feed improved hen performance** above the breed standard in terms of egg production past week 22 and egg weight. Consequently, the implementation of a hybrid feed program from the onset of lay until 70% production, followed by a phase 1 diet until 25 weeks of age is a nutritional strategy that can help ensure a quick increase in egg weight early at the beginning of the laying period.

Graph 3. Egg production and egg weight evolution.



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