

HOW TO OPTIMIZE LAYER BREEDER FLOCK PERFORMANCE?

The fundamental economic principle of a commercial layer hatchery is based on the productivity of the breeders and the percentage of use of hatching eggs to produce day-old chicks. As a layer breeding company, NOVOGEN has always prioritised these traits in its R&D programme to meet customer expectations. Nonetheless, in order to fulfil the genetic potential, close attention must be paid to the following criteria:

START-UP CONDITIONS

- Stocking density recommendations:

	From day old to 2 weeks of age		From 2 to 5 weeks of age		From 6 weeks to transfert		In production	
	Temperate climate	Hot climate	Temperate climate	Hot climate	Temperate climate	Hot climate	Temperate climate	Hot climate
Floor system	20 birds /m ²	20 birds /m ²	15 birds /m ²	12-15 birds /m ²	10 birds /m ²	8 birds /m ²	8 birds /m ²	6 birds /m ²
Cage system	130 cm ² / bird	140 cm ² / bird	220 cm ² / bird	250 cm ² / bird	350 cm ² / bird	390 cm ² / bird	750 cm ² / bird	800 cm ² / bird

- Climate recommendations:

Day-old chicks at arrival must be placed in optimum conditions to start out well; preparation of the rearing house is the first step in achieving the “good start”. Temperature, humidity and minimum ventilation control must be set with care.

Table: Temperature and relative humidity recommendations

	Under the brooder	Near the circular guard	Room temperature	Temperature in cages	Relative humidity
Before arrival (2-3 days)	30 °C	30 °C	30 °C	35	55 – 60 %
Before arrival (1 days)	35 °C	35 °C	35 °C	35	55 – 60 %
Week 1	35 – 33 °C	32 – 31 °C	30 – 28 °C	30 – 28 °C	55 – 60 %
Week 2	32 °C	30 – 28 °C	28 – 26 °C	28 – 26 °C	55 – 60 %
Week 3	28 °C	28 – 26 °C	26 – 24 °C	26 – 24 °C	55 – 60 %
Week 4			22 – 20 °C	22 – 20 °C	55 – 60 %
Week 5			22 – 20 °C	22 – 20 °C	60 – 65 %
Week 6			22 – 20 °C	21 – 19 °C	60 – 65 %
Week 7			22 – 20 °C	21 – 19 °C	60 – 70 %
Week 8			21 – 19 °C	20 – 18 °C	60 – 70 %
Till transfer			20 – 18 °C	19 – 17 °C	60 – 70 %

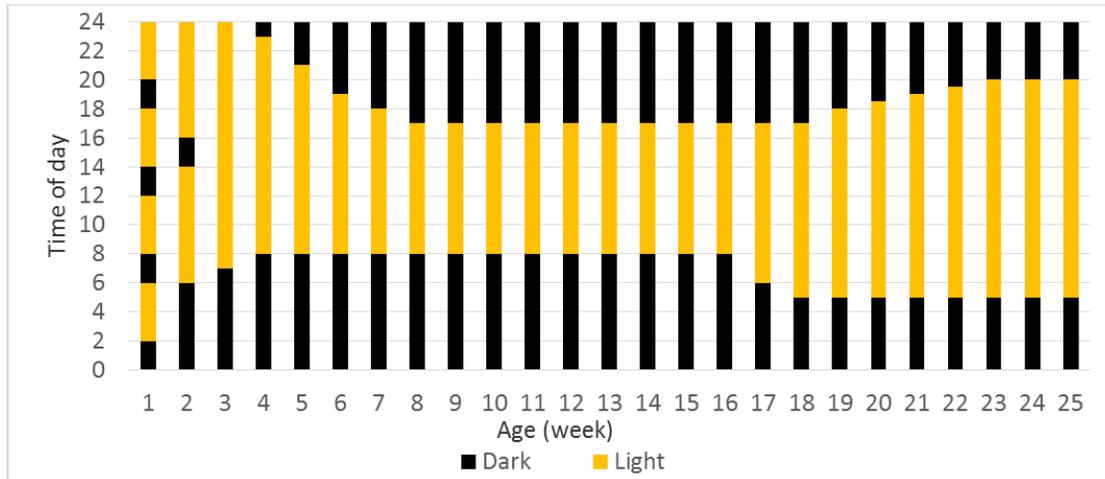
Optimal ventilation in the rearing house is important to obtain the right oxygen level, uniform air and temperature distribution and for the removal of dust and ammonia. Based on those settings, the recommendations for minimum ventilation result in:

- 0.7 m³ per kg of animal housed, when outside it is colder than 10°C.
- 1.0 m³ per kg of animal housed, when outside it is warmer than 10°C.

LIGHTING PROGRAMME

Application of the lighting programme from the beginning is essential to adapt the chicks to their new environmental conditions.

Graph: Example of a lighting programme in light-controlled rearing and laying houses

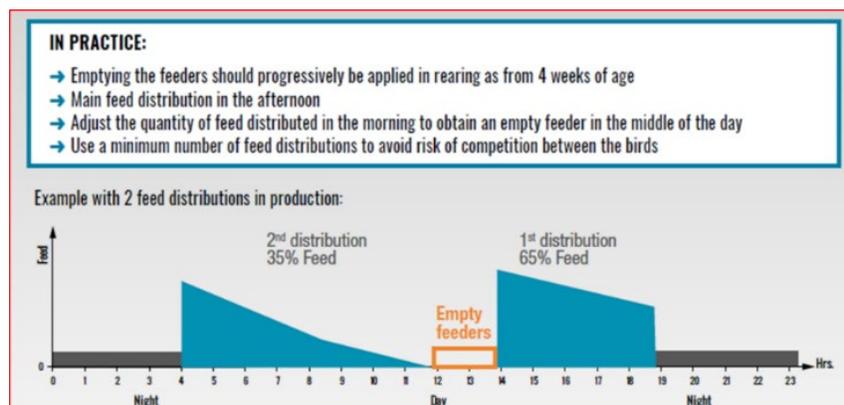


- Step-down programme: During the first weeks, never decrease the day length if the body weight is not on target! A slow step-down programme allows for a longer feeding time per day and thus favours early growth. In dark rearing houses (and when allowed by the local regulations), it is possible to use an intermittent lighting programme during the first two weeks of age. It allows for synchronisation of the chicks' behaviour for eating, drinking and resting. After two weeks, switch to a regular step-down lighting programme.
- Plateau duration could be from 8 to 12 hours of light according to the pullet growth.
- Light stimulation should not start before the flock reaches 5% of lay. It is not related to age!

FEEDING

In order to develop the animals' growth and especially their appetite, it is recommended to include a daily period when the feeders are empty, in the middle of the day from 4 weeks of age. This practice stimulates a fast daily intake of feed during the rearing period, which in turn induces good eating capacity at the onset of lay. The number of feed distributions should be reduced as much as possible in order to prevent the birds from selecting feed particles.

Graph: Example of feed distribution in production

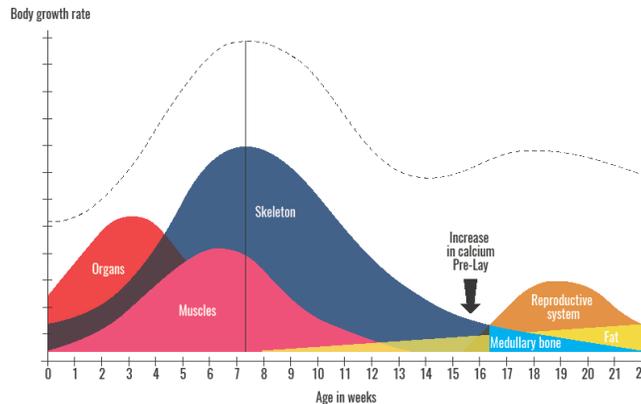


On the nutrition side, follow the breeder recommendations in terms of ingredients, quality and presentation of the feed. The feed requirement must satisfy the needs for growing, maintenance and production. The sanitary condition of the layer breeder feed must be free of pathogens and mycotoxins. In addition, the feed presentation is not a negligible parameter. An uneven, excessively fine presentation of the feed affects the daily ingestion of the feed.

MONITORING BODYWEIGHT AND UNIFORMITY

Gaining weight in rearing is essential, as the chicks around 7-8 weeks have already developed the structure of the future layer. A weight shortage in the first few weeks will impair production performance. As shown in the figure below, at 8 weeks of age most of the bone structure, muscles and organs are now completed. Therefore, investing in order to increase the pullet's body weight before 7-8 weeks of age is recommended to favour good breeder quality until the end of the flock.

Graph: Pullet growth development



In order to follow this growth evolution, it is strongly recommended to weigh the pullets weekly. Flock uniformity must also be measured with the target to be over 80%. High uniformity will induce a high peak of lay and persistency as well as good uniformity of the egg weight. The body weight will also drive the change of feed type, the adaptation of the lighting programme and the vaccination schedule.

MANAGING THE MALES

In modern parent stock breeders, males represent a small share of birds but they are responsible for half of the genetic value of the flock. During rearing, the target is to obtain the best male uniformity and quality in order to select the very best ones before the start of production. Once in production, the males' weight, uniformity, behaviour and activity must be controlled regularly. This will make it possible to immediately detect if the relationship between the males and females is correct in order to obtain a synchronism of sexual maturity.

BIOSECURITY AND PROPHYLAXIS

Biosecurity is fundamental in order to obtain pullets that are ready to produce in the best conditions. This involves preventing any risk of contamination or infection and using a vaccination programme adapted to local conditions. This facilitates flock management and allows pullet quality to be optimised. A strict control of all the diseases and parasites must be done in order to have the best pullets ready to lay and express the genetic potential of the breed.

CONCLUSION

All the points mentioned above must be taken with maximal attention; recording data daily is the basis for understanding what is happening in the breeder flock. The ability to obtain the best economic results and express the genetic potential of the breed also depends on the ability to react immediately to the different situations that may occur during breeding.