



TOOL
BOX
by LOHMANN

WEIGHT LOSS

A control point for a
perfect incubation



ENG

During transfer time at hatcheries, having a **perfect egg weight** loss is a good indication that we can expect good hatch results, but obtaining this target loss isn't as simple as it sounds. This is due to an array of variables present at the hatchery that impact egg weight loss considerably, such as:

-  General location
-  External condition
-  Flock age
-  Egg shell quality
-  Egg uniformity
-  Egg age
-  Storage conditions



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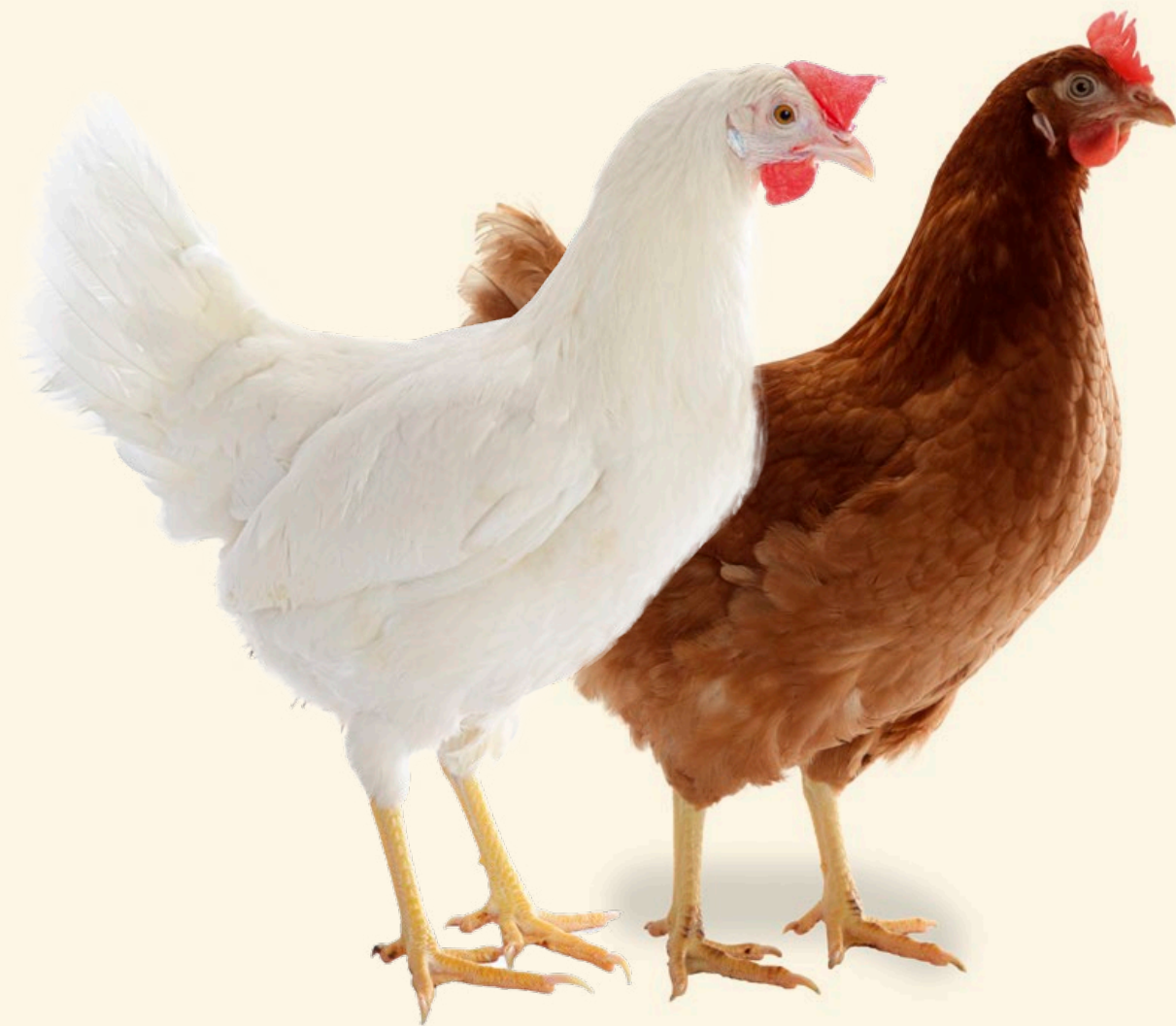


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We must remember that from the second our hatching eggs are laid, they start to lose weight. It is exactly for this reason that conserving them in a perfect condition to minimize the effect of the storage is paramount.

The following table shows the trend of egg weight loss during storage.

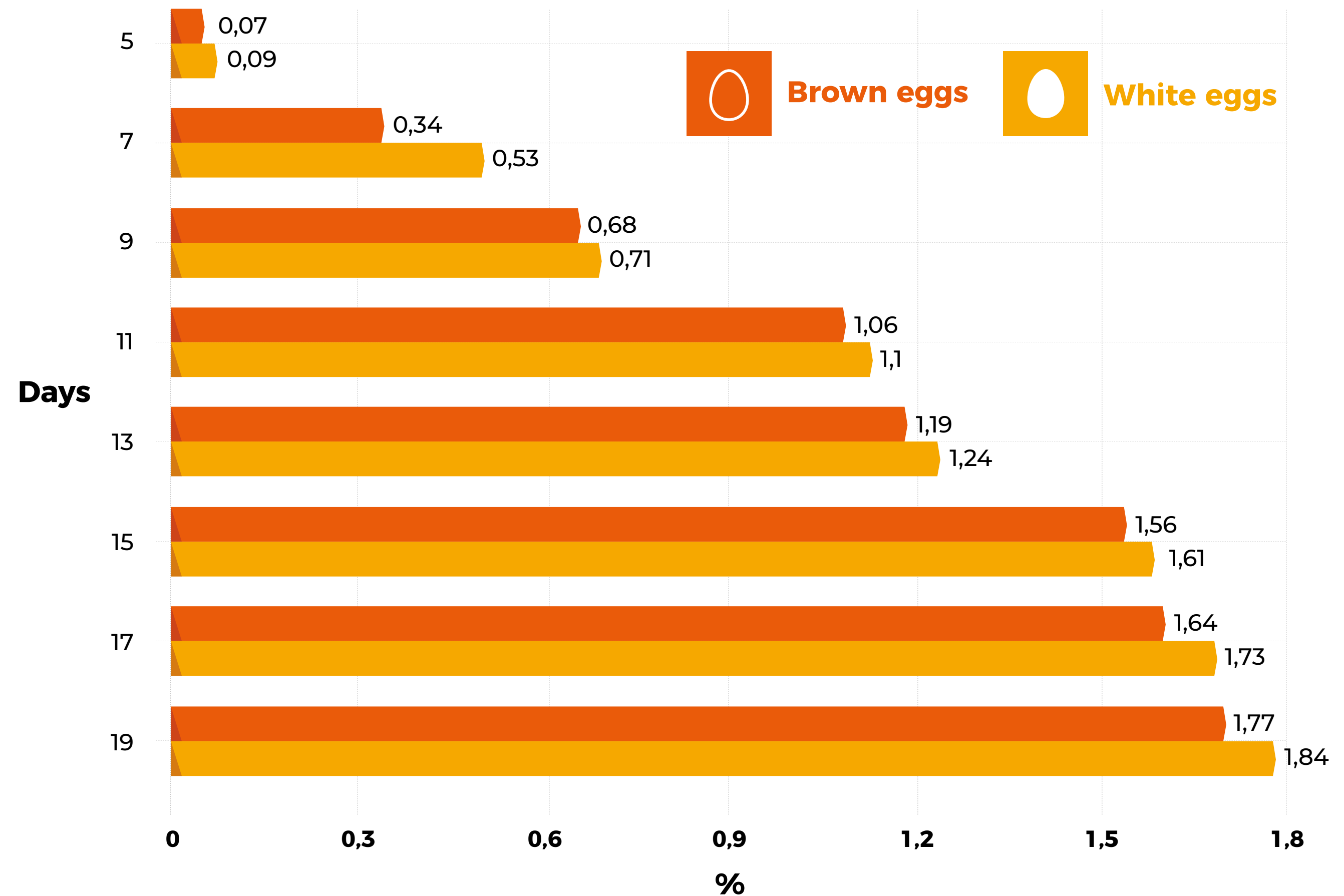


▼ **Figure.** D15% increased egg weight loss with each S.P.I.D.E.S.

Egg weight loss in storage time.

With every SPIDES, egg weight loss increases on average by 0.5%.

Egg weight loss in storage time










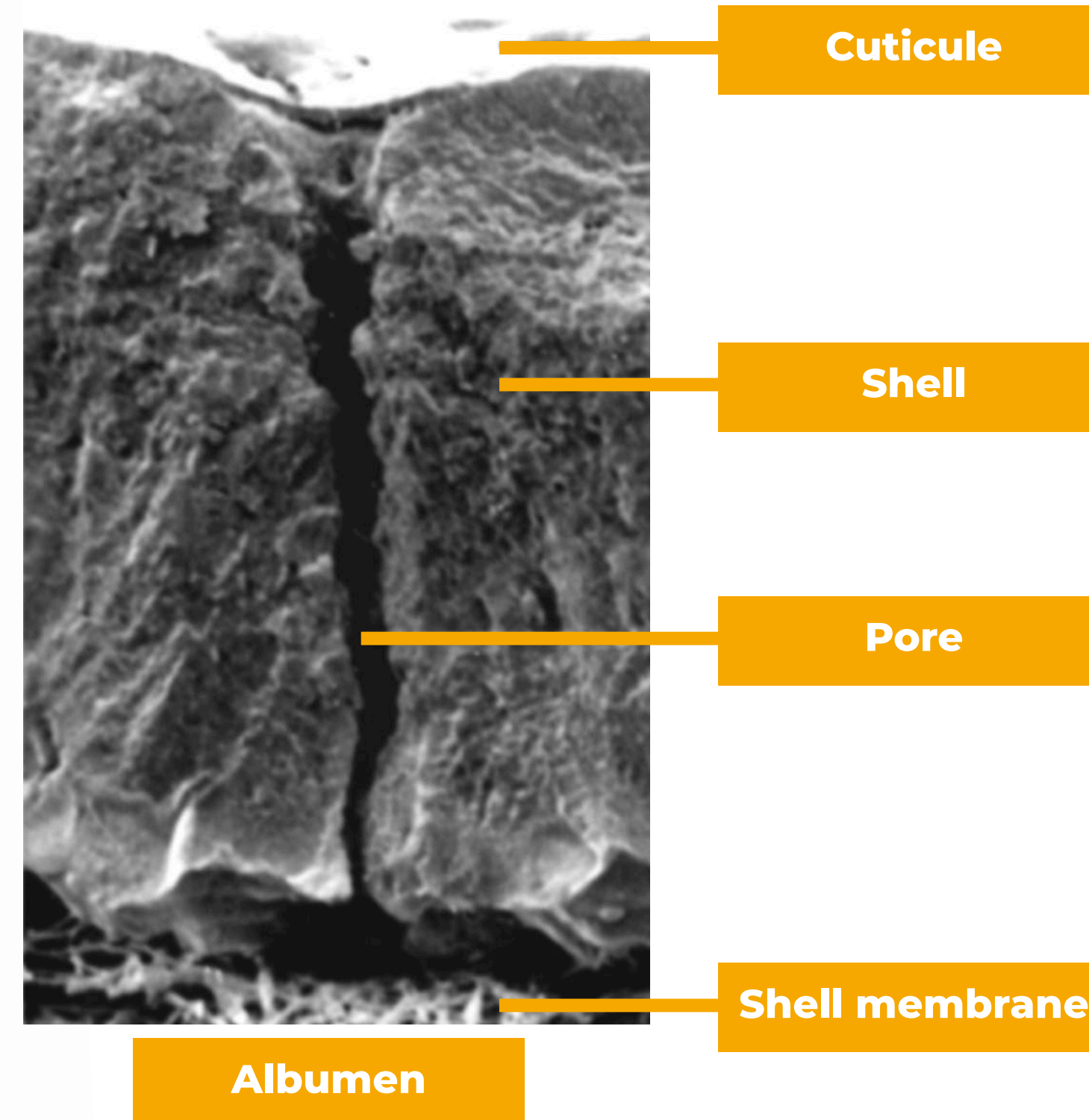
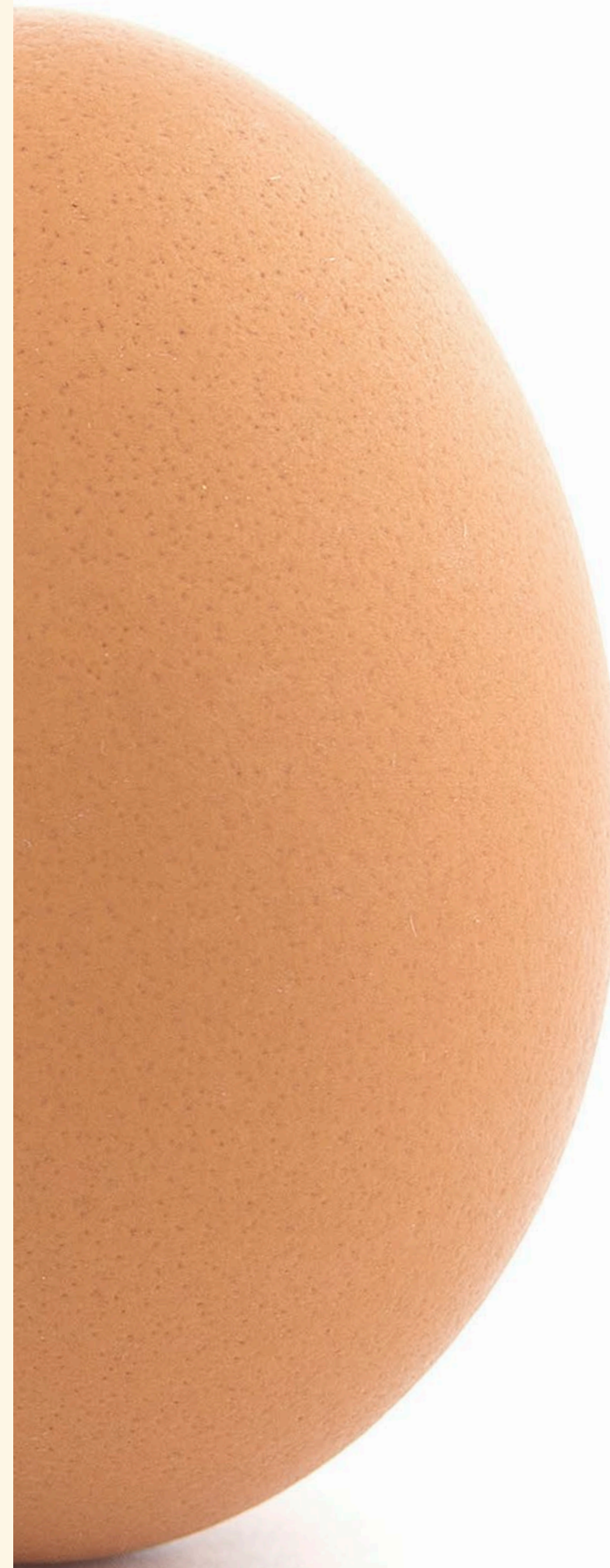
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The number of pores can range from 7.000 to 17.000, and can either exacerbate or help conserve egg weight loss.

The number of pores is influenced by:

-  Flock age
-  Eggs shell quality
-  Nutrition
-  Health conditions
-  Altitude of the farm relative to the sea level





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In this article, we analyze a Multi-Stage incubator philosophy, that heavily relies on “constant egg weight loss”, driven by the humidity and CO₂ set points, that the hatchery management can’t afford to underestimate.

Therefore, they have a dedicated setter that’s only used (as much as possible) for eggs of similar parameters like flock age or same fertility%.

This approach can help a lot to obtain the right egg weight loss value, with a simple change of the humidity set-point.

This is completely different when compared to a Single-Stage philosophy, where you can work with a “constant” or “diversified” egg weight loss.

Constant

The setters have a humidification system and works with respect to a fixed value of humidity set point, CO₂ set point and damper opening value.



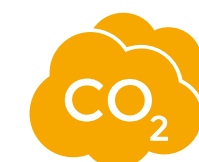
Diversified

In Hypercapnia (elevated CO₂) incubation, the setter is tightly sealed and uses the moisture content of the eggs to maintain the humidity value.



For this reason, humidity is high during the first phase of incubation (approximately 1 week), and decreases after the opening of the damper.

The latter is controlled by the presence of CO₂ in the early embryos, that have to help the life and dimension of embryo.



In both scenarios, the setter program makes a difference. **For this reason, it’s very important to know and test the real efficiency of our incubation program (profiles), and modify them based on the needs of our eggs.**

Damper opening time, humidity set point and air-flow velocity are all settings that can impact the% of egg weight loss.

Both systems mentioned have their pros and cons, however it is up to our knowledge and common sense to get the desirable results of egg weight loss.





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Accurate data recording and operating based on those data is the basis for success.

Therefore, in all LOHMANN hatcheries, eggs are weighed upon arrival so we can have a perfect control start point, and then again at storage before they receive their 444 hours of incubation, at then one last time during transfer at 18.5 days.

The following table demonstrates the perfect egg weight loss targets for LOHMANN hatching eggs:

▼ **Table.** Perfect egg weight loss targets for LOHMANN hatching eggs

	Weeks	Min.	Target	Max.
Young Flock	25 to 32	10.5%	11%	11.5%
Medium Flock	33 to 50	Min 11%	11.5%	12%
Old Flock	51 weeks until end	Min 11%	12%	13%





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Eggs weight loss control can be considered as a “control point” of incubation monitoring in general.

In other words, if the correct weight loss has been achieved by the right stage of incubation (usually transfer time), it becomes a good indicator that we will have a perfect hatch day in terms of chick quality and quantity.

The percentage of moisture required to transport nutritive elements and allow proper yolk sac assimilation will be met, thus ensuring the survivability of the embryos.

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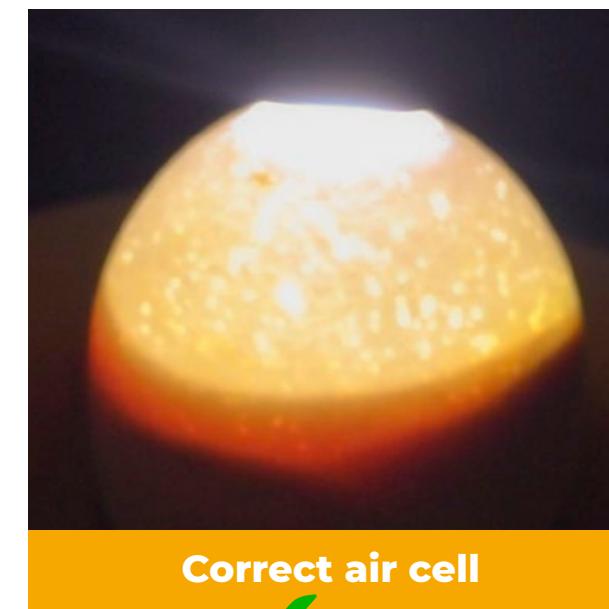
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Small air cell



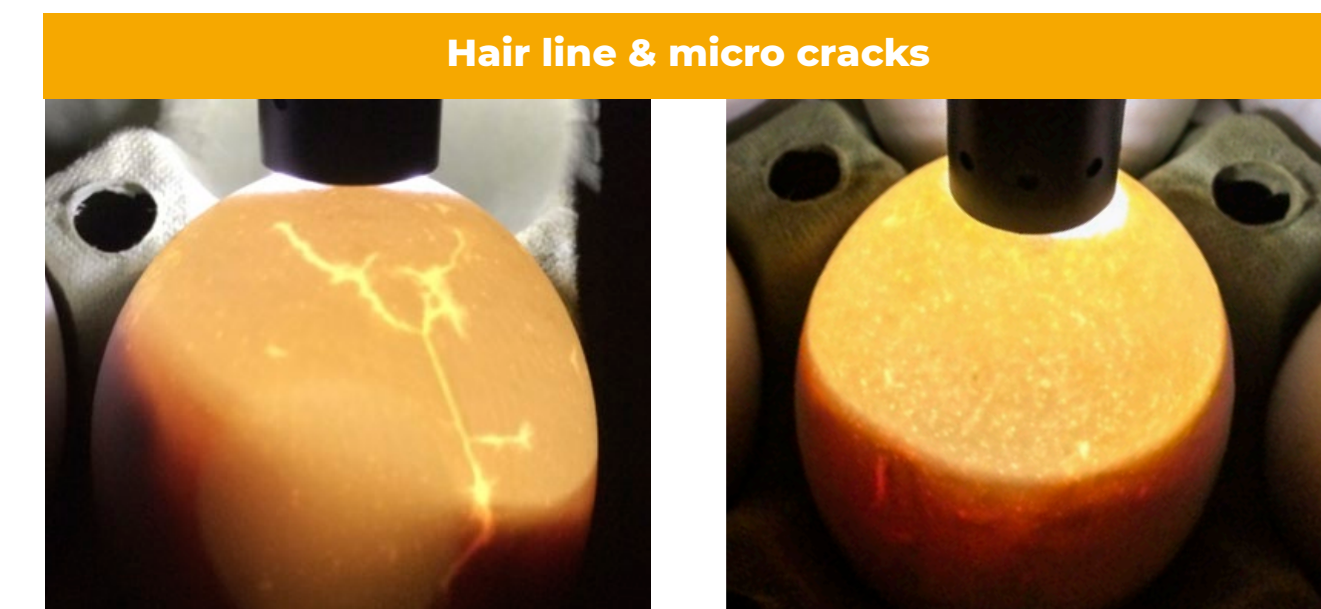
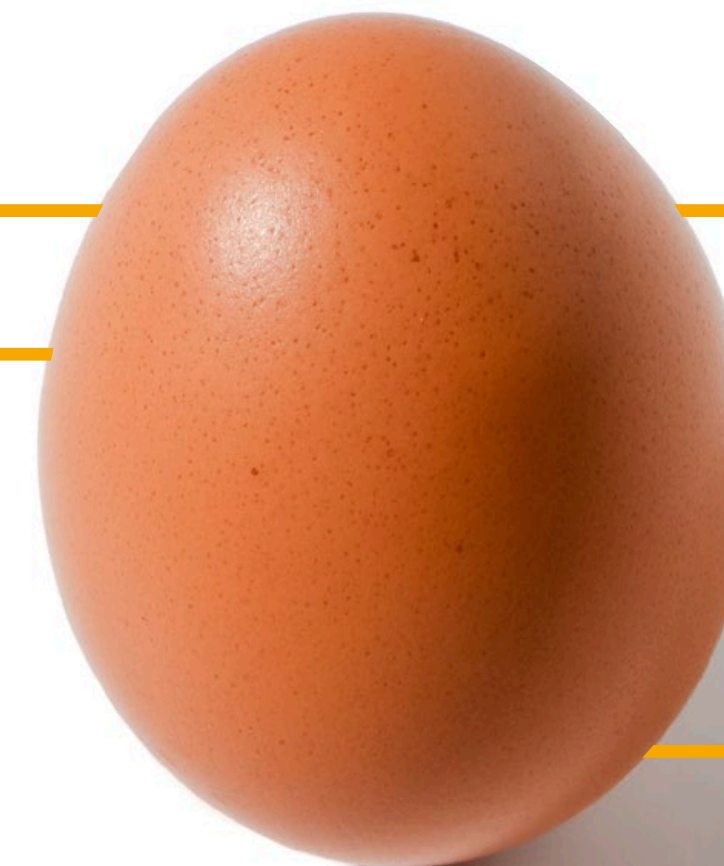
Correct air cell



Wrong positioned air cell



Big air cell



Hair line & micro cracks