

Implementation of the end of chick culling in Germany



Carmen Uphoff

Chief Operation Officer at respeggt GmbH.

Introduction



Every year, around **330 million one-day-old male chicks are culled in the egg industry in Europe after hatching. This is due to their inability to lay eggs and because their fattening is not economically profitable** compared to broilers.

The **pioneer country to put an end to this practice is Germany**, which banned chick culling in its hatcheries since first of January 2022. There are three solutions used in Germany to end chick culling: Dual-purpose breeds, brother layer fattening and the gender identification in the hatching egg. Latter can be implemented with different approaches: Optical processes, liquid-based processes, and genetic engineering processes.



Application example: the SELEGGT process



SELEGGT was the first process of the gender identification in the hatching egg in the world to offer its service to hatcheries starting in 2019. It is a liquid-based process that determines the gender by the analysis of the allantois fluid via an endocrinological analyses on the 9th day of incubation.

The process is divided into three parts:

a) Sample collection (SELEGGT Circuit):

On the ninth day of incubation the candled hatching eggs enter in the SELEGGT Circuit.

The **first station is the detection of the egg's blood vessels**, which determines the best place for the perforation. Then a small hole of 0.3 mm in made by laser in the eggshell. A sample of a few drops of allantois fluid are extracted by suction. After sampling, the hole is sealed with a beeswax seal.

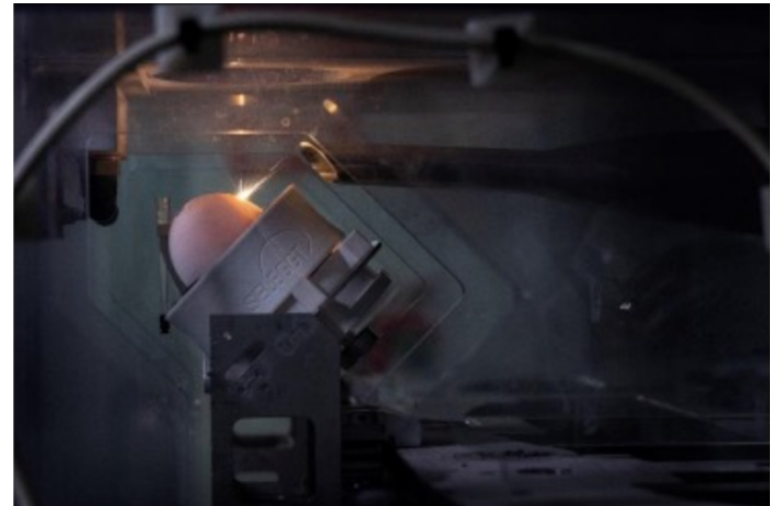


Figure 1. Lasering the samll hole in the eggshell.

b) Sample analysis (SELEGGT LAB):

The microtiter plates with the samples are taken to the attached SELEGGT LAB. **By an ELISA test and a patented marker, the level of estrone sulphate is measured in the samples.** A color change of the sample indicates a great quantity of hormone, which determines that the embryo is female.

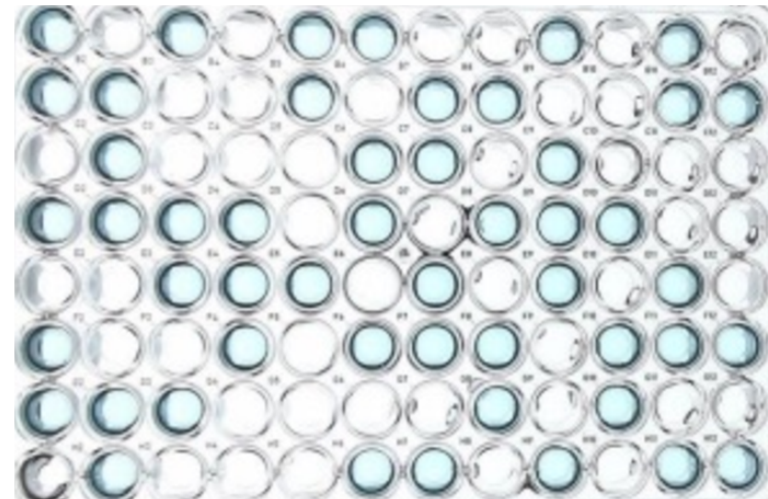


Figure 2. Microtiter plate with colour change.

c) Sorting of eggs (SELEGGT SORTER):

The tray with the sampled eggs advances on a conveyor belt to the SELEGGT SORTER. **The machine sorts the hatching egg into male and female according to the results of the analyses.** The female hatching eggs are returned to the incubator to continue the conventional incubation process. The male hatching eggs are discarded to be processed into high protein feed.

These are used as supplements in pet food, piglet feed and in aquaculture. They therefore play a very important role in the circular approach to nutrient use. The advantage of sealing the egg perforation with beeswax is that it is allowed as a feed ingredient and its use does not present any drawbacks.

The technical data of the process are:

- ▶ 99% accuracy
- ▶ Able to analyze eggs of all colors and genetics
- ▶ Detection of gender as early as possible available on the market today: on the ninth day of incubation.
- ▶ High performance pipetting leading to a sampling time of one hatching egg per second
- ▶ Non-invasive method
- ▶ Compatibility with all setter trays (150/88)

Videos of the process:

<https://youtu.be/2t86EUqX008>

<https://youtu.be/eGkGxQ-nBdc>



Debate on pain perception

There is a **great debate** in Germany about the **possibility of the embryos pain perception during a gender identification in the hatching egg**. Various scientific studies have confirmed that nociception, i.e. the embryo's perception of stimuli, is possible from the 7th day of incubation onwards. However, **nociception is not sufficient for emotional pain perception**.




It is assumed that there is a continuous development and that from the 15th day of incubation at the latest there is a connection to the brain so that emotional pain can be perceived. A new study by the Technical University of Munich is to be published in early 2023 and will provide new findings of the development between day 7 to 15 of the incubation.



Figure 3. Left: day 9 of incubation, size of embryo 3 cm.

Right: day 15 of incubation, size of embryo 15 cm.

Changes in the sector

 Ending chick culling has led to the following changes and challenges in the German poultry sector so far:

- ▶ **Laying hens are kept longer** (up to 120 weeks) because ending chick culling has led to higher laying hen prices.
- ▶ **Breeds with a higher lifetime performance are preferred** especially the ones with a long production of medium and large eggs.
- ▶ **Table egg prices have risen by 2-4 Eurocents per egg**
- ▶ Search for new market niches for the commercialization of broiler layer meat
- ▶ Need to promote a European law

Legislation in Europe:



Germany, France, Italy, Switzerland, and Austria have already formulated legal conditions to end chick culling. So far, these have only been implemented in Germany. Other European countries have converted their supply chains to "Free of Chick Culling" (e.g., the Netherlands, Belgium). There are very big differences in the requirements of different governments to end chick culling. Differences are: The accepted hatching day to perform gender identification, the handling of mis-sexed male chicks, the time validity of the laws, the preferences to the three solutions.



Conclusions

Today, **the SELEGGT process is the earliest process used in daily operation in hatcheries.** However, the use of the 9th day of incubation is not without controversy, as there is uncertainty about the onset of pain in the embryo. New studies should bring clarity in 2023. **Ending chick culling has led to far-reaching changes in the egg industry in Germany and other European countries.**

It shows that ending chick culling is difficult to implement at national level when countries are not self-sufficient in egg production. An EU regulation banning chick culling would be the best solution for the industry and for fair competition in Europe.



Thank you!

Grupo de Comunicación Agrinews S.L.

*Avinguda de Jaume Recoder, 17, 08301 Mataró,
Barcelona (España)*

info@grupoagrnews.com

Tel: +34 93 115 44 15