

Technical Information

New, More Effective Breakout Procedure

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Why to perform a breakout analysis?

A breakout analysis should be part of routine procedures in any hatchery operation. A breakout analysis provides insight into problems, especially when a hatch is disappointing. In a breakout analysis, candled and unhatched eggs are opened to determine why the embryo did not develop or hatch. The egg contents will reveal whether an egg was infertile, if contamination with bacteria or molds occurred, or at which stage of development embryonic mortality occurred.

A properly performed breakout analysis identifies whether the problem lies in seasonal variation, breeder flock issues, or hatchery and machine performance. However, many traditional breakout analysis programs make crucial mistakes that reduce the amount of information that can be obtained from the breakout. HatchTech's new breakout procedure will help you identify the cause of hatch loss, rather than just determine the moment of embryonic mortality. This can be used to ultimately improve your hatchability and chick quality.

Distinguish between good and bad eggshell quality

The first important step in HatchTech's breakout procedure is to distinguish between good and bad eggshell quality. It is not possible to hatch a good quality chicken from an egg with a bad eggshell quality. A thin, porous eggshell increases the chance of embryonic mortality. This mortality is often due to dehydration of the egg and embryo and may occur at any stage of incubation. Classifying mortality without considering eggshell quality is misleading because it

may suggest the embryo died because of, for example, incubator issues while the real problem is the eggshell quality. Each egg should, therefore, be distinguished as either good or bad eggshell quality.

Single diagnosis per egg

Once eggshell quality is distinguished, the egg receives a single diagnosis based on the contents. Each egg is evaluated for infertility, process or handling defects such as eggs that were set upside down or cracks, or stage of embryonic mortality. The aim is always to identify the cause of hatch loss. In case of high infertility, the problem should be sought in the breeder flock. In case of a good eggshell with cracks, it should be determined when the crack occurred: at the farm, during setting, or during transfer. Examination of the shape of the crack and the egg contents will reveal whether the crack occurred at the breeder farm or in hatchery processing.

Cause of embryonic death

In case of embryonic mortality, it is more important to determine the cause of death than the moment of death. Many breakout programs focus on identifying the day of embryonic mortality. Day of mortality, however, only tells you when the embryo died but it does not tell you when a problem occurred. An embryo will retard its growth and development in response to suboptimal conditions in order to survive and hatch as a poor quality chick or the embryo may die a few days later than the suboptimal conditions occur.

HatchTech uses embryo length for feathered embryos to determine when it retarded its growth and development. This pinpoints the moment a problem occurred better than the day of embryonic mortality. Embryo length is determined by stretching the embryo along a ruler and determining its length from the tip of the beak to the middle toe, excluding



the nail. At transfer, a broiler embryo (from a prime or old breeder flock) should measure at least 17 cm. If the broiler embryo is smaller than 17 cm, suboptimal conditions occurred in the setter, regardless of whether the yolk is protracted into the belly or not. If the broiler embryo is larger than 17 cm, suboptimal conditions occurred in the hatcher.

In HatchTech's breakout procedure, each egg is counted only once, and receives only one diagnosis. Each scoring category is mutually exclusive. For example, "bad eggshell – infertile" is a single category, separate from "good eggshell – infertile". This allows an accurate representation of the various causes of hatch loss without overestimates because an egg is scored twice, as both "bad eggshell" and "infertile".

A breakout analysis to maximize hatchability and chick quality

It is important to record and store your breakout analysis data properly. By building a database of your breakouts, you can graph data and compare it among breeder age groups, flocks, or seasons. The extent to which you can use your breakout data for comparisons with other breakouts depends largely on the way you performed them. That is why it's so important to count each egg only once, give each egg only one diagnosis, and determine the reason for hatch loss, not just the moment it occurred. With a problem oriented approach, HatchTech's breakout procedure can contribute to improved breeder farm and hatchery conditions, which will maximize hatchability and chick quality.