Hitting the chick yield target

The process of converting a fertile hatching egg into a chick is dependent on getting several key factors right.

Like some other of the incubation essentials (especially embryo temperature and moisture loss to 18 days), chick yield is something of a Goldilocks trait – the chicks should not be too dry, nor too wet but just right.

Chick yield is driven not only by incubation humidity and egg moisture loss but also by elapsed time in the incubator and it is important to remember this when considering the optimal chick yield for an operation, because chick yield doesn't only indicate hydration status, but also maturity. When chasing chick quality, both are important, and it is counterproductive to chase higher levels of hydration while sacrificing maturity.

We advise that chicks should fall into the band of 10.5-12.5% weight loss to 18 days and 67-68% chick yield at pull. Observation of trial hatches has shown that batches of eggs can be surprisingly good at recovering from 18 day weight losses which are too high or too low, ending up with an acceptable chick yield at hatch. Other batches achieved perfect 18 day moisture loss, but chick yields which were well outside target levels.

In a recent investigation, the Aviagen hatchery team audited hatcheries for a large scale integration. One of the factors considered was chick yield, and also the incubation time normally given at that hatchery (counted from the setter coming up to temperature until the chicks were pulled from the hatcher to be sent to the farm).

The incubators involved covered a huge range of types, from old multi-stage to brand new single-stage units.

Each hatchery manager decided what the incubation time should be, based upon his own knowledge and experience. Each hatchery was hatching the same broiler breeder line.

It can be seen from **Figure 1** that there was a considerable range in the hatching times – from 499 hours to 522 (21 days is 504 hours). Indeed, incubation time accounted for almost half of the variability in chick yield across the business. Subjected to regression analysis, other factors which might be expected to affect chick yield, such as weight loss to 18 days, and the number of days the setters were run sealed did not have a significant effect on chick yield at hatch.

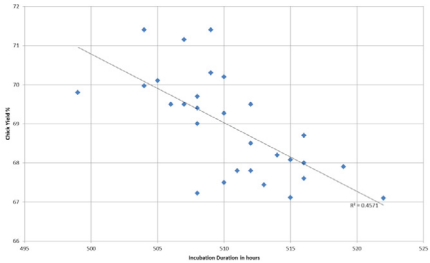

Chart 1 *Chick Yield vs Incubation Duration.*

Chicks which are pulled too early, with a chick yield over 69%, will have relatively poorly healed navels, and be more susceptible to handling and impact damage.

To reduce the chick yield by 1%, the chicks will need 5 hours longer incubation time. This is probably most easily achieved by setting the eggs earlier; taking good care that the hatcher temperatures are kept under tight control once the chicks are out, aiming to keep vent temperatures between 103 and 105°F (39.4-40.5°C).