

Doug is a hatchery manager for a small specialty hatchery. An order has just been placed from an upstart pastured poultry operation for 25,000 slow growing broilers. Doug knows that he has the incubator capacity and supply of fertile eggs to fill the order. Records of hatchability, hatch of fertile, early and late dead have been kept at the hatchery for evaluating hatchery personnel and equipment performance. He knows that on average he has a hatchability of 85.6% therefore he knows how many eggs that he needs to set (Question 1). Because this is a relatively large number of chicks to produce for this hatchery they will need to combine eggs from two breeder flocks and also use eggs that have been stored for 0, 3, and 5 days to meet the order (Question 2). After weighing an appropriate sample of the eggs to be set he determines that the younger breeder flock has an average egg weight of 2.0 ounces, and the older breeder flock has an average egg weight of 2.3 ounces (Question 3). To prepare the eggs for hatching the eggs are removed from the cooler where they were stored and are held at room temperature (Question 4).

At this hatchery single stage incubators are in place. This is an advantage for this small scale hatchery because of the relatively small number of employees, and also because temperature of the can be better customized and regulated for the size of egg, and age of egg that will be placed in the incubator. Also, the previous two flocks produced at this hatchery have hatched earlier than expected and have had a higher percentage of malformed chicks. Doug has made adjustments to incubator temperature to ensure correct timing of hatch for this important order (Question 5), and monitors how the eggs are placed into the setter flats closely (Question 6).

When the eggs have been placed into racks and racks have been placed on the buggies, the buggies are pushed into the setters. The rack is connected to... to ensure that the eggs will rotate during incubation (Question 7).

Relative humidity is also a critical component of the incubation process. Relative humidity is defined as the amount of water vapor present in air expressed as a percentage of the amount needed for saturation at the same temperature. The relative humidity can easily be measured by finding the intersecting point of dry bulb and wet bulb temperature on a psychometric chart. Relative humidity in the setter that is too high will result in large mushy chicks, while relative humidity that is too low will result in small dehydrated chicks. In both of these instances liveability and productivity of the flock will be sacrificed. In the hatchery, relative humidity is measured using the wet bulb temperature which is located on the control panel for the setter (QUESTION 8).

On d 18 of incubation eggs are transferred from the setter to the hatcher. At transfer, for quality control purposes eggs were weighed to determine percent moisture loss (Question 9). Also, eggs were candled to remove any clear, or infertile eggs, and any eggs that contained embryos that died early in incubation, known as early dead (Question 10). A break out was conducted on these eggs that were removed and it was determined that 1819 eggs were infertile and 289 eggs were early dead (Question 11, 12).

For hatching the eggs are placed into baskets (Question 13). Temperature in the hatcher is decreased compared to the setter and little or no supplemental heat is required because the chicks are exothermic at this point of incubation. Therefore, heat actually must be removed from the incubator to prevent overheating. As for relative humidity, in the hatcher, it can be increased and some data have indicated that this can ease hatching by softening the egg shell.

On d 21 the chicks hatch; once chicks have dried in the hatcher they will be removed from the baskets. Any egg that does not hatch will be termed “late dead.” (Question 14). Chicks will then be vaccinated and sorted into 100 count boxes for transportation to the farm. **(INSERT**

STILL IMAGES OF VACCINATION HERE). In total it was determined that this flock had a 90.30% hatch of fertile. (Question 15)

(INSERT VIDEO OF DOUG DISCUSSING HATCHERY MANAGEMENT)

(INSERT VIDEO OF CLIPS OF DESK WORK FIGURING CALCULATIONS)