

CARTON HATCHING EXPERIMENT

GENERAL PHILOSOPHY: Many individuals see the incubation of poultry eggs as a science and believe following guidelines established by experts is the best path to a successful hatch. In general, I agree BUT also believe that incubation is partially an art form. While I believe that my current methods are effective, I recognize that others may have good ideas and attempting some those ideas may improve my technique.

BACKGROUND: Some hobbyists have taken to placing chicken eggs inside egg cartons during the last phase of incubation. They claim that the cartons hold the egg in a desirable position and prevent unhatched eggs from being bumped by early hatchlings ultimately leading to an improved hatch rate. As a side benefit, the upright shells tend to contain the “gunk” associated with hatching making for easier clean-up.

QUESTIONS:

1. Does placing the egg in an upright position improve pipping and shell emergence?
2. Does limiting the bumping of unhatched eggs improve their chances of successfully hatching?
3. Does placing the egg in an upright position lead to a cleaner hatch requiring less clean-up?

CONCERNS: In Nature, eggs lay on their side during the hatching process and the chick rotates vertically to zip the end of the shell. Placing the egg in an upright position would require the chick to rotate horizontally which seems unnatural. Additionally, with the egg on its side, the hatchling uses its feet to push the shell away. With an upright egg, the bottom of the shell remains stationary while the hatchling must push its entire body out of the shell.

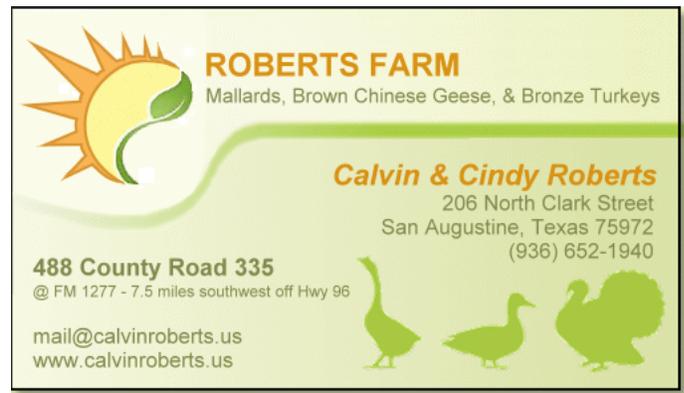
SETUP: Fifty eggs – 49 laying hybrids of $\frac{1}{4}$ Rhode Island Red and $\frac{1}{4}$ Rhode Island White heritages along with one Serama – were incubated for a period of 18 days on the same tray within a GQF 1500 incubator. No untold events occurred during the first 18 days of incubation. Prior to being transferred to the dedicated hatcher, 25 eggs were placed on their side in a hatching basket (TRADITIONAL) while the remaining 25 were kept in their incubation tray and the entire tray placed in a hatching basket (CARTON). The TRADITIONAL was placed in the hatcher on the third shelf while the CARTON was placed on the second shelf. Prior experience has shown that the second shelf is slightly warmer than the third and that eggs on the second shelf hatch a little earlier than those on the third. Humidity was maintained at ~68%.

INITIAL OBSERVATIONS: The first external pip occurred in the TRADITIONAL. Within two hours a total of five eggs had pipped externally with three being in the TRADITIONAL and two from the CARTON. Within 12 hours of the initial pip, a total of seven hatchlings had fully emerged with five being from the TRADITIONAL and only two from the CARTON. Additionally, multiple pips and nearly emerged hatchlings were observed in the TRADITIONAL with only two additional small pips noted in the CARTON. The initial observations caused concern as the hatchlings from the second shelf were expected to emerge sooner than those of the third.

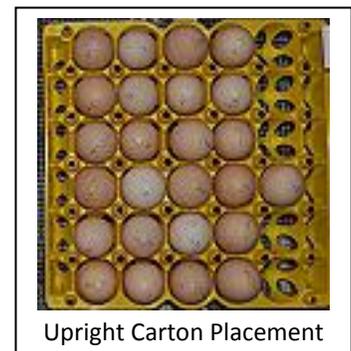
HATCH SUMMARY: Forty-one of the total 50 eggs hatched – 23 from the TRADITIONAL and 18 from the CARTON. Three from the CARTON were removed from the carton, the shell over the air cell removed, the eggs laid on their side, and the chicks permitted to exit under their own power. From the TRADITIONAL basket, the Serama egg was under-developed and the other unsuccessful hatchling had pipped and zipped the small end of the egg but failed to emerge. From the CARTON basket, two were under-developed, two had pipped internally but not externally, and the remaining three had failed to pip internally. One leg from a CARTON hatchling had become glued to the carton; the leg was dislodged, and, hopefully, the hatchling will make a full recovery.

CONCLUSIONS: In my opinion, the results are fairly conclusive. Eggs placed in an upright position for hatch does not improve pipping or emergence. In all likelihood, this unnatural positioning tends to inhibit internal and external pipping. Additionally, although the bumping of unhatched eggs may seem disruptive, such bumping does not appear to have a negative impact upon late hatching. As the “gunk” associated with hatching does remain in the bottom portion of the shell, less clean-up is required when eggs are hatched inside of cartons. However, utilizing porous shelf lining serves a similar purpose without the negative consequences.

SUMMARY: Hatching eggs using egg cartons to hold the egg in an upright position has a negative impact on the hatch rate and provides only minimal benefits in regards to clean-up.



Traditional Placement



Upright Carton Placement