

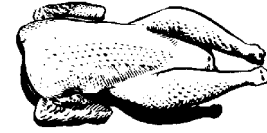


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**Cooperative Extension Service**

*College of Agricultural and Environmental Sciences / Athens, Georgia 30602-4356*

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## **PROCESSING TIP...**

### **EGG POSITION AND TURNING DURING INCUBATION**

Frequent turning and egg orientation are important during the first 14 days of incubation. Eggs incubated artificially should be held with their large ends up. It is natural for the head of the chick to develop in the large end of the egg near the air cell. The developing embryo will then orient itself so that the head is uppermost. This rotation occurs during the second week of incubation. When eggs are incubated with the small end up, about 60% of the embryos develop with the head near the small end. Thus, when the chick is ready to hatch, its beak cannot break into the air cell to initiate pulmonary respiration. Nearly half of the eggs set with the small end up fail to hatch and the quality of the chicks that do hatch is reduced. The cause of eggs set small end up is generally carelessness or inability to distinguish the large and small ends due to symmetry of the eggs. Older hens lay a larger percentage of eggs that are relatively symmetrical between ends. Although most commercial incubators don't allow for this, eggs positioned horizontally will incubate and hatch normally as long as they are turned frequently.

#### **Turning Eggs During Incubation**

In nature, the hen turns the eggs many times each day. For nearly all commercial incubators, the eggs are set large end up and rotated back and forth along their long axes for turning. Eggs should not be turned continuously in a circle; this ruptures the yolk sac resulting in embryonic mortality. Most eggs are turned to a position of 45° from vertical, then reversed in the opposite direction to 45° from vertical. One incubator turns them to a position of 90° from vertical, then reverses them to the opposite position. Less rotation than 45° is not adequate for high hatchability as Table 1 shows.

Interval of turning. During the first 14 days the eggs must be turned regularly and often. Table 2 shows the percent hatchability of eggs turned from two to ten times a day.

Although other experiments have shown that turning eggs as often as every 15 minutes is not detrimental to hatchability, nothing is to be gained by turning them more than six times a day when eggs are rotated back and forth along their long axes. Most commercial incubators provide for turning the egg automatically every 1 to 3 hours.

#### **PUTTING KNOWLEDGE TO WORK**

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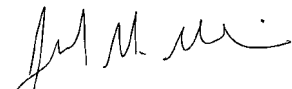
TABLE 1 Effect of angle of turning eggs during incubation.	
Angle Turned to Each Side of Vertical	Hatch of Fertile Eggs (%)
20o	69.3
30o	78.9
40o	84.6

TABLE 2. Effect of turning eggs on hatchability.	
Times Turned Daily	Hatch of Fertile Eggs (%)
2	78.1
4	85.3
6	92.0
8	92.2
10	92.1

Period of turning. Table 3 shows the effect of various periods of turning hatching eggs during incubation. The results indicate that turning the first week is the most important, and the second week next. Turning the last week seems to be of questionable value. In some models of multistage incubators, eggs of various ages are intermingled and all have to be turned together. Important: The turning process should be completed quickly, allowing the eggs to remain stationary until the next turning. Hatchability is lowered when eggs are kept in a constant back-and-forth motion.

TABLE 3. Effect of turning hatching eggs at various periods.	
Period Turned During Incubation (days)	Hatch of Fertile Eggs (%)
no turning	28
1-7	78
1-14	95
1-18	92

Tables 1, 2, and 3 taken from: Mauldin, J. M., 1999. Chapter 8: Factors affecting hatchability. In Commercial Chicken Production Manual (to be published in 2000).



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\*\*Consult with your poultry company representative before making management changes.\*\*

“Your local County Extension Agent is a source of more information on this subject.”