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HATCHERY/BREEDER TIP...

EXCESSIVE EGG STORAGE PRIOR TO INCUBATION

It's interesting to see how time changes our perspective on management in the poultry industry. A little over a year ago there was a tremendous shortage of hatching eggs in the broiler industry. These hatching eggs commanded a premium price if they could be located and purchased. A few hatcheries were having to skip normal hatch days because eggs were not available to be set. Also, several hatchery and breeder managers were forced into wondering how much their overall hatch was being affected by setting eggs too quickly after lay.

In the past several months, most producers have experienced a surplus of hatching eggs. The new questions "How much can we get for these eggs on the open market?" or worse, "Will the breaker even take our extra eggs?" has surfaced. This has created a situation in which several hatchery and breeder managers are wondering how much their overall hatch is affected by setting eggs that have been stored too long. And, how can they tell if a decrease in hatch is related to prolonged egg storage.

In 1995, Meijerhof reported on the results of experiments conducted to determine the effects of prolonged egg storage under varying storage temperatures on hatchability for two different age flocks of broiler breeders. The results of his findings are included in the accompanying table. In both age groups of birds and with each storage temperature, there is a generally decline in hatchability when eggs are stored for more than six days.

PUTTING KNOWLEDGE TO WORK

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| Breeder age (weeks) | Storage temp (°F) | Storage period (days)/ percent hatch | | | |
|------------------------|----------------------|--------------------------------------|------|------|------|
| | | 2 | 6 | 9 | 12 |
| 37 | 68 | 93.5 | 90.5 | 94.2 | 85.3 |
| | 59 | 95.2 | 93.7 | 92.3 | 90.8 |
| | 50 | 93.1 | 93.8 | 92.4 | 90.5 |
| | | | | | |
| 59 | 68 | 88.3 | 89.2 | 86.8 | 77.0 |
| | 59 | 90.0 | 88.8 | 86.5 | 78.0 |
| | 50 | 92.8 | 92.0 | 82.0 | 85.9 |

Other studies (as reported in the *Commercial Chicken Production Manual* by North and Bell) have indicated even greater declines in hatchability with prolonged egg storage than those listed in the previous table. This other study reported as much as a nine percent decrease in hatch of fertile when hatching eggs were stored seven days. The decrease in hatchability gets even more severe when hatching eggs are stored for longer than seven days. Additionally, it has been reported that chick hatch times can be delayed by as much as three to four hours when eggs are stored for 10 days prior to setting. This can also reduce chick quality and livability as some chicks may be processed while still wet and others may get dehydrated from trying to pull chicks 'at the right time'. Data from many years ago even suggest that broiler weights at processing will be lower from chicks hatched from eggs stored longer than seven days.

Hatchability losses due to excessive egg storage often can be accounted for by an increase in early embryonic mortality. The early deads in this case will generally die in the first two to three days of incubation. These can be distinguished by the slight presence of blood around the germinal disc. Unfortunately, most egg breakout charts categorize early deads as any embryos that died between the time of lay and seven days of incubation. Early deads caused by excessive egg storage may be different than those seen previously. If it is suspected that current storage conditions may be contributing to a reduction in hatchability, hatchery personnel responsible for egg candling should examine the egg breakout a little more closely to determine when those early deads are actually dying.

In summary, storing hatching eggs for periods longer than seven days will significantly reduce their hatchability. Additionally, further reductions in hatch can occur the longer they are stored past seven days. Although it is more difficult for a producer to correlate this with egg storage time, chick quality and broiler weights can also be reduced. Knowing the effects of prolonged egg storage time on hatchability, a producer must make decisions. Does it make economic sense to continually set old eggs, or would it be better to discard excess eggs in an effort to set only those eggs stored for less than seven days?

Reference:

Meijerhof, R., 1995. Influence of storage time, temperature and breeder age on hatchability, *World Poultry-Missett* Vol.11, No. 6, pp 21-22.

R. Keith Bramwell
Extension Poultry Scientist

Extension County Coordinator/Agent

Consult with your poultry company representative before making management changes

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