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## **HATCHERY/BREEDER TIP . . .**

### **UNDERSTANDING THE FACTORS THAT INFLUENCE BROILER BREEDER FLOCK FERTILITY**

Flock fertility is dependent on the reproductive status of the birds (level of egg and semen production) combine with the bird's interest and capability of mating. Fertility usually increases from a low of 65-75% at the start of lay (23-24 weeks of age) and peaks at 95-98% at 35-37 weeks of age. Between 40-45 weeks of age fertility declines and the older the birds get the faster the decline in fertility. What are the reasons for this decline? After 40 weeks of age the breeder hen needs more frequent mating to sustain high fertility, while at the same age the rooster is less interested in mating. In situations where roosters are overweight, excessive breast fleshing may reduce their ability to complete matings. Overfeeding broiler breeder hens encourages additional fat pad deposition resulting in depressed fertility. High body weight of either sex increases bird mortality, causing a loss in egg production in the case of the hen or potential lower fertility by increasing the number of females per male. In addition, hen flocks that have poor egg production tend to have lower fertility levels throughout their productive lives.

How can we sustain fertility?

Of course, having good flock fertility is closely tied to proper feed restriction. As mentioned in the April 2001 Hatchery-Breeder Tip, weighing the birds on a weekly basis and adjusting the feed intake is essential to controlling body weight gains in these efficient converters of feed to meat. How the birds are weighed is important in how accurate the estimate of body weight. So, weigh weekly and develop a good method in order to get an accurate estimate of male and female body weight.

While the estimate of body weight is being taken, handle the birds and judge the amount of breast fleshing and fat pad deposition. Roosters with a large amount of breast fleshing will have difficulty mounting and staying on the hen long enough to inseminate semen into the oviduct. Hens that are overweight tend to have large fat pads and are likely carrying large amounts of breast fleshing. Both of these physical attributes will reduce egg production and increase mortality (especially in hot weather), while obesity problem reduces the

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

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hen's ability to store spermatozoa decreasing her fertility.

Ability to keep both sexes on target body weight is closely related to rooster exclusion from the hen feed trough. Each feeding system is slightly different and flock managers learn over time which houses have the tightest exclusion systems. One way to validate how much stealing is going on is to occasionally be present at feeding time. Using an exclusion grill with a horizontal bar across the top improves rooster exclusion particularly if the roosters have most or all of their comb (no dubbing). The horizontal bar also helps keep the grill in good shape, reducing places where roosters can steal feed. If the grill does not have a horizontal bar, PVC pipe placed in the top of the grill will have a similar effect. NozBonz have also helped many flock managers control rooster body weight; however, these flocks must be monitored closely which includes weekly weighing.

Monitor the sex ratio on the farm at bird placement in the hen house and about every month thereafter. Are you losing too many roosters and at any particular age? Are the roosters that remain on the farm in functional condition (good feet and legs, good body weight, or low number of injured males)? The right sex ratio is breed and condition dependent. The more aggressive the breed the fewer males needed. The better the body condition the more aggressive the male will be and again less roosters are needed. In general 7-9 roosters per 100 hens will usually net good fertility results. If your male to female placement ratio in the laying house is too low, mating frequency will likely be reduced. Additional roosters can be added they are available from other flocks. Having too high a placement ratio can cause the young hens to avoid the scratch area giving the roosters less opportunity to mate and reducing flock fertility, while increasing the incidence of male aggression (high rate of mortality and injury in both sexes).

After 40 weeks of age the addition of young roosters to the flock (spiking with 2%), is necessary to sustain high fertility if the flock will be held through 65-67 weeks of age. What should happen when the young males are added? If the older roosters are in good physical condition (not over fleshed or injured), mating frequency of the older rooster will increase for 4-5 weeks after spiking. The young males will have a high mating frequency but a low efficiency of mating the first 1-2 weeks after spiking. However, if the young males acclimate to the hen house (male feeder not too high, large enough body size to compete with older males, and mature enough at 26-28 weeks of age), their mating frequency will surpass the older roosters increasing the overall mating frequency and flock fertility. There are several ways to err with a spiking program. The most critical mistakes are to ignore the health and parasite status of your spike males, use of males with poor physical condition, use of immature spike males, adding spike males to a high sex ratio situation, or starving the spike males by having the feeder too high.

Interspiking is a new method of improving fertility that has been successful for some integrated operations where young males are not available or biosecurity concerns will not allow the addition of roosters from another source (Casanovas, Cobb Vantress Technical Newsletter, 2001). Interspiking is moving roosters from one house on a farm to another house on the same farm. This requires some labor to catch and release, but little else. Fertility will increase very quickly (as there is no acclimation period for these roosters), but fertility will decline in about 4-8 weeks as you are still dealing with an older male. Some producers will interspike several times during the life of the flock.

If fertility is not consistently high from flock to flock, review your management practices and try something new.



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