

Keep males ever young – an alternative approach in breeder males management

by M. Kolanczyk, MK Consulta, and R. Meijerhof, Poultry Consultant.

One of the key success factors for optimal broiler breeder production is ensuring good fertility from beginning to end. Percentage of fertility is the main factor determining hatchability level and results of the flock.

There are two critical points concerning fertility of a flock. First of all the starting period in which males and females must establish a stable hierarchy and good interaction. In this period it is important that males are not too aggressive and dominant, as this will scare the females and prevent optimum mating behaviour later on.

This means having good control over sexual development and synchronising the maturity of both genders. Too many or too aggressive males will cause early overmating, where the females feel afraid and tend to avoid mating.

The other crucial period is the second half of production, where we can observe a drop in fertility after 45 weeks. The reason for this drop in fertility is partly related to poorer semen quality but mainly to lower activity of the males.

Although there are differences between breeds and management systems, keeping hatchability at a high standard in the second half of the production period is always the key point of attention.

Often a severe drop in fertility is the deciding factor forcing the owner to finish the flock.

Keep males motivated

With natural mating, keeping males active and motivated until the end of the production period is a big challenge. Good body weight management, proper male selection and right housing conditions become essential.

To ensure enough male activity after 45 weeks of age, we need to have enough good quality males available at that moment. However, placing high numbers of males at the start of production is not beneficial. Males will get too frustrated by the competition and if they are slightly advanced in

maturity over the females, it will result in overmated, scared and damaged females and high male mortality. Many sub-dominant males will become inactive.

Furthermore, males that are not dominant enough in the first part of the production period, will not become active in the second part. That means that placing higher numbers of males at the start and creating more fighting and stress between them, will not necessarily result in a higher number of good males at the end of the production cycle.

Spiking in a different way

One of the solutions to overcome fertility problems at the end of the flock is to spike the flock halfway through the production period, to bring in fresh, young males.

Although this often works very well, proper management in doing this is very important. Bringing young, light males in with an old flock ruled by heavy, dominant males to mate with 'their' females carries the risk that the young cockerels will be intimidated and unable to take over the job of the old male flock.

Males used for spiking are often just the surplus from rearing and frequently second class. Their number is also not sufficient for the full replacement of old cockerels.

An integrated company offers another possibility. Typically the production period is twice as long as the rearing period. So, during one production cycle two other flocks must be housed for rearing.

Surplus males from the flock placed at the time our first flock is about to start lay is potentially a reserve for spiking. These males are ready at the moment the older flock enters its critical age of 40-45 weeks.

Normally at the end of rearing we have 10-11% good quality males so not enough for both the basic flock and at the same time spiking the old one. However, we might try to utilise the males in a different way.

Having 11% good males, we could place half of them with the young flock, and the other half with the old one reaching at that moment 40 weeks of age where we replace the complete set of old males.

Within this system, we would have only 5-

5.5% at 20 weeks, and replace the remaining males at 40 weeks with a completely new set of 5.5% males. In a company with more groups replacement could be even more frequent.

This low number by itself is not necessarily a problem as long as all males are active. When using artificial insemination, male numbers as low as 2% are sufficient to keep fertility up. Even when 8% males are placed in a natural mating situation, only some of the males are actively participating in the mating process.

There are many potential benefits resulting from this system:

- Low number of males in the young flock would reduce a risk of early aggressiveness and overmating.
- These young males must stay active for only 20 weeks because another flock is in rearing. They act as a kind of 'short distance runners'. However, is sex separated feeding still necessary for a flock kept in this system?
- We can make a full spiking in the flock of 40 weeks applying another 5.5% first quality males.
- In the old flock old males can be removed, which lowers the competition and stress on the new males, and increases the chance that they can overtake the mating job easily.

Heavier males

To ensure that males (both at 20 and at 40 weeks) kept in reduced numbers will become active and dominant enough, it will probably be necessary to make them a bit heavier than usual, to ensure their mating activity.

Correction of the growth curve adjusted from 14-15 weeks onwards to gradually reach 250-300g higher body weight at 20 weeks than the usual standard will probably be sufficient, both at 20 weeks and at 40 weeks.

We expect that mortality rates in the males will be lower than normal, due to the limited stress as less males are placed with the females, resulting in less competition. As long as the male percentage does not drop under 4% good quality active males, this

Continued on page 17

Continued from page 15

should be sufficient to keep up fertility. If we consider the previous remarks, we can come up with a list of possible pros and cons of the system, which are shown inset,

New prospects?

Although we think that this management system can be a workable alternative for the traditional way of male management, we do

not have data or experience to prove it. Based on general knowledge and experience we are convinced that it can be a new thought worth trying out in some flocks.

We think that this alternative management system – named by us as ‘MaRon’ can open new prospects for poultry, not only in the practical field but also in breeding.

The current use of fresh males replaced every few months makes using genetically heavier cockerels possible as the risk of reduced fertility at the end of flock is less. ■

Expected positive effects:

- Limited aggression from males to females at start of production due to low male numbers. This should result in:
 - Better acceptance of the males by the females, and therefore better early hatch.
 - Less mortality of females due to overmating.
 - Less mortality of males due to less aggression and competition, less stress.
- Better fertility in the second half of the production period resulting from better quality young males.
- Less competition for the young replacement males at 40 weeks, due to the absence of the old males. This should also contribute to better fertility after 40 weeks, better persistence of fertility and less mortality in the young males.
- More simple logistics and less biosecurity risks, as a continuous system of placement and replacement can be introduced.
- Possibly easier rearing management due to lower feed restriction.

Possible negative points:

- The number of males could be too low to bring up fertility. This result would be however surprising. Low fertility at early age usually results from over activity rather than insufficient activity of males.
- Males are not dominant enough to overtake the dominance of the females at 40 weeks of age. This situation is a normal risk related to spiking. Using first quality, specially prepared males without competition makes this risk only smaller.
- Because of the higher body weights required to get the males dominant in time, males are already too aggressive at placement, despite their limited number. This difficulty could be overcome by grading flocks at the end of rearing. Heavier males could go to the older flock, lighter to the young one.
- Unexpected high mortality in the males in rearing, resulting in not enough males at 20 weeks to provide both flocks with an adequate number of males. In this case the solution is getting back to the normal system and keeping males for the entire production period without spiking.