Focus on parent stock: male management starts in the rearing barn

The impact of male management is often underestimated, but when good attention is paid, it can help to improve overall fertility and hatchability results, especially with aging of the parent stock flocks. Healthy males that are in good shape are more likely to have successful mating with the hens.

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Male management already starts in the rearing barn: overall, it is preferable to rear males and females together from one day old. This has given satisfactory results in terms of livability and production, whilst preventing stress due to social interactions that can occur when males are placed into the female flock, at a later stage.

In certain circumstances, especially for white breeders or when males are underweight, males may be kept separated during the first few weeks, and then spread evenly among the females before four weeks of age. If males are reared separately until the end of the rearing period, they should be mingled gradually with the females to minimise any possible problems derived from aggressiveness.

Record bodyweights

As it is advised for the females, we strongly recommend that males are also weighed weekly in the rearing barn and that their development is carefully monitored so on could interact and steer in time when their development deviates from expectations.

When natural mating takes place, males should develop dominance over the females. If the males mature too late, they will have a hard time to become dominant over the females and will be scared to mate with them. The males can be physically well developed but most often the females will not let them mate.

When the males are not dominant over the females, the chance for successful mating is greatly reduced, resulting in too low fertility. It is crucial to keep an eye on the condition of the males during the entire rearing and laying period. Bodyweights should be recorded on a weekly basis until they have reached 30 weeks of age and then monthly.

Visit the flock frequent during different times of the day. Carefully monitor the sexual behaviour of the flock and keep an eye on the good and even distribution of the males (especially during the most active mating period which is in the afternoon).

In family cages, it is critical to keep an eye on the male's quality and behaviour, because the decline in fertility could be faster than in floor systems. Keep close monitoring on the fertility and do fertility checks every two weeks.

The male:female ratio

One of the most important points that should be given attention is the male:female ratio. Too often we see an imbalance in this ratio, especially that there is a too high percentage of males present. A surplus of males leads to over-mating, interrupted mating, and abnormal behaviour. Over-mated flocks will exhibit reductions in fertility, hatchability, and egg numbers.

In the early stages, after mating-up, it is quite normal to observe some displacement and wear of the feathers at the back of female's head and of the feathers on the back at the base of the tail. When this condition progresses to the removal of feathers, this is a sign of over-mating.

If the mating ratio is not reduced, the condition will worsen with de-feathering of areas of the back and skin scratches occurring.

This may lead to low welfare, deterioration in the condition of females and reduced egg production.

Over-mated females may be seen 'hiding' from the males beneath equipment, in nest boxes, or refuse to come down from the slatted area.

Excessive injuries and feather damage to the males because of fighting amongst males may also occur. In flocks with a too high male:female ratio the males tend to be more aggressive towards each other as there is more competition.

This aggression could result in injurious pecking between the males and spending more time with each other compared to with their females.

A slight trimming of the beak can avoid pecking and injury to the females. InfraRed beak trimming equipment can be used for precise beak trimming, adjusted to the characteristics of the males. It should be noted that too severe beak trimming can have a negative impact on fertility as the males might have difficulty to maintain position during mating.

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The necessary percentage of males will depend on the housing and management system used in the production house. This can vary from about 3.5% in artificial insemination up to 14% in some family cages.

Table 1 shows the recommended sex ratios. For the usual floor housing in lay, we recommend between 10% and a maximum 12% of males from one day old, so there is some safety margin to cover for selection during the rearing period.

Selecting the males

At the start of lay, the percentage of males should be reduced to between 7% and 10% of first quality males. These males should have the following characteristics:

- Uniform bodyweight.
- Good muscle tone and body condition.
- Free of physical abnormalities (alert and active).
- Bright and red combs.
- Well feathered.
- Good upright posture.
- Strong, straight legs and toes.
- Comb, wattles, and vent showing evidence of mating activity (only during the production period).

To maintain a healthy and re-productive parent stock flock it is important to review the mating ratio during the production period on a weekly basis. Based on the assessment of both physical condition and bodyweight, any male considered to be 'non-working' should be removed from the flock. Below we have listed some key points that you should focus on during your weekly male-checks:

- Select males with dull combs.
- Take out (select) all males with footpad problems, bumble foot, curled toes, splayed legs, humpbacks, etc.
- Non-active males will often hide in the nests, or they are resting on the higher perches.
- Active and reproductive males have a large, wet, and red cloaca and wet vent area.
- Productive males are always alert, well spread between the females and have bright red combs.
- Extra males should be kept in a separate pen to be introduced as replacements in case of male mortality or culls. Manage them accordingly, red light sleeves/covers could keep them calm, it is also advised to install perches in these male pens, this will give them some escape options/provide them rest.

Table 1. Recommended mating ratio during the production period.

Housing and management system	Number of males per 100 females
Artificial insemination	3.5-4.0
Family cages	10-14*
Floor housing / slatted housing	7-10**
Aviary housing	7-10**

* In smaller family cages (30 hens) the preferred number of males might be higher (4) to assure the fertility in case of an eventual cull/mortality.

** excellent fertility results have been obtained with numbers as low as 5-6 males per 100 females in aviary systems, this lower number will create a more peaceful environment for the breeders as there is less competition between the males. This also results in better feather condition for the females, allowing them to be kept longer in a good condition.

Conclusion

A proper balance between male:female ratio is key. More males does not always result in improved fertility results, as a high male density can cause too many disturbances in the flock, resulting in reduced performance in egg numbers and fertility.

Carefully monitor the behaviour of the breeder flock multiple times a day. The overall feather condition score of both the females and the males can also be used as an indicator of a disbalance in male:female ratio. Surplus males must be removed quickly or it will result in a considerable loss in persistency of fertility. ■