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The ABC of Male Behavior

Dr. Ron Meijerhof

Males play an important role in obtaining a good hatchability, because they are of course crucial in the process of getting fertile eggs. Although it is well known that also female condition can be a significant factor, in case of fertility problems we often look at the males. And most often, that is the correct starting point.

If we think about fertility problems, we normally think about factors as semen quality, bodyweight control, physical condition of the males, foot pad quality, etc. Without a doubt, these aspects are important. If semen quality is not optimal because of a disease or a nutritional factor, or if semen quantity is not sufficient because the males lost bodyweight, maximum fertility will not be achieved. If the males lose condition because of overweight or have a problem walking because their foot pad quality is not optimum, it will definitely have a negative effect on fertility. However, there is one more factor that is of utmost importance for fertility.

They have to like each other

The most important factor for a good hatchability is a high number of successful matings. And to be able to have successful matings, not only the physical condition of males and females must be good, but they must also have the will to mate. And as mating is the final result of a complex sequence of social interactions, we have to look at the behavior of the males and females as well, if we want to make sure we have a high number of successful matings. In other words, we have to make sure they like each other.

Male-to-Female interaction

One of the most important aspects in the behavior of chickens is the issue of dominancy and pecking order. A male (chicken) has to be dominant over a female to be able to mate. At the same time, the female should not be scared of the male and try to avoid mating. In a well managed flock, males get dominant over the females just before production starts.

If their dominancy develops too early, the males are getting active before a sufficient number of females is sexually mature, and as a result the males start chasing the females, over-mating occurs, males start fighting with each other, females are getting damaged and scared, and as a final result, fertility is too low.

If their dominancy develops too late, the males will not become dominant over the females and will be scared to mate with them. The males can be physically well developed but will not mate because they think they are not able to do so. And as a result, again fertility is too low.

Male-to-Male interaction

However, there is not only a hierarchy between males and females, but also between the males. Not all males are equally dominant, and some males are higher up in the hierarchy than others. This is often a result of differences in body weight, but is not always necessarily so.

If we take a closer look at the flock, we can divide the males in three different groups:

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- **A-males**: males that are dominant, high-up in the hierarchy, are willing to mate and will mate.
- **B-males**: males that are not dominant, are not high enough in the hierarchy, but would like to mate and will try to mate if they get the opportunity.
- **C-males**: males that are not dominant, are low in the hierarchy, and are too low in the hierarchy to mate or even consider mating.

Of course this is an arbitrary classification, but it helps us to understand what happens in a flock of males. In an actual flock, all three groups will always be present, but it depends on the condition of the males what the distribution between the groups will be.

It is clear that B-males will be dominant of C-males, and A-males will be dominant over both B and C males. That means that an A-male will try to prevent B-males from mating, although the B-males would like to mate. The problem of a low fertility can be that there are not enough A-males to do all the mating, or that there are enough A-males but they are occupied with other things than mating. Especially if there is high number of males in a flock, sometimes the males are so busy with disturbing each other that the number of successful matings is going down.

Within the flock, it is not only the group of A-males that are mating. Most females will stick for a limited period of time to one male, and that will be an A-male, but some females will move around from male to male, and some females will try to avoid mating by doing that. We can recognize this when we set eggs from individual hens, because we then see that some hens always give infertile eggs and avoid mating. We call these females “loose hens”, and we normally see the number of these hens increasing with the age of the flock. If B-males have the opportunity, they will try to mate with these hens. And the more brutal and brave these B-males are, the more successful they will be in doing so.

Increase fertility

At first sight, the key for a good fertility is a high number of A-males in the flock. What we have to realize is that just taking out the bad males (C-males) will not always solve the problem of bad fertility sufficiently, as by doing this we don’t increase the number of A-males, we just decrease the number of C-males. But the C-males are not the real cause for a bad fertility, because they didn’t mate in the first place. That doesn’t mean we don’t want to select these males out, but we have to realize that these males are not always our biggest problems.

Where we want to focus on is on two different things:

- We want to keep the number of active A-males high. Not only should we have enough A-males, but they also should be active, and not only busy with fighting other males.
- We want to get the B-males as active as possible, so that as many as possible “loose hens” are mated.

How to manage male behavior in the field?

There are several management tools that we have to take into consideration for achieving these two goals.

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- First of all we have to look at the male and female behavior, to see how they react towards each other, especially early in production. The best time to look for the behavior is in the last period before the light goes out, as this is the period where the males are most active.
    - If we look over the flock, we should see the males sticking out over the females as *"tulips in a meadow"*. This means that the males feel dominant and stand upright, with their backs under an upward angle. If the males don't stick out 10-15 cm over the females but have their heads on the same height, it means that they don't feel very dominant, very "macho", and probably their mating activity will be low.
    - If we stand in the house for a couple of minutes (especially if we are visitors), males should pay attention to us, and even come up to us. After a couple of minutes, we should see that the females move gradually away, and the males move towards us, so that 1/3 or half of the birds in the direct neighborhood are males. This means that the males see us as intruders in their territory, and they are reacting to that. If males don't care if anybody comes in their territory, looking for their females, they are probably not that dominant.
    - The females and males should act "socially" towards each other. If the females try to avoid meeting the males or the males surround and chase the females, they probably don't like each other that much. If we see this, we should react immediately by reducing the numbers of males, to release the pressure. In early production this often means that we have to get rid of some of the best males, because they are matured too early.

- If we rear males in high density (more than 4 birds per m2) they will often run into each other and fight. As a consequence, several males will lose their dominancy and become a C-male already in rearing, because more males will lose fights. If we rear in low density, the males will fight less, and as a result, stay dominant because they never lost a fight.
- We have to make sure that the males grow enough early in production, to build up their dominancy. If we don't allow them to grow or even let them lose weight, they will not be able to keep up their dominancy and will lose mating. Often we see that males become overweight because they are inactive, and not become inactive because they are overweight.
- When we select, we should pay attention also on males that act dominant but don't mate anymore. This can be done by looking at the color and the condition of the cloaca. We should especially examine the males that look dominant, but at the same time are overweight.
- When we spike, we have to make sure that the young males have a chance to overcome the A-males. This means that the young males must be mature enough, but that we place enough young males and preferably remove some of the A-males. To select the right males to remove, we have to again look for the dominant A-males that seem to be overweight and have a dry cloaca. Of course we also want to select the non-active C-males, as they are of not much good anymore. If we don't give the young males a fair chance, they can very quickly be found in the group of C-males.
- When we intra-spike, make sure that as much males as possible are moved and mixed between the houses, to break the existing hierarchy.

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- If we force the males to move a lot through the house, more B-males will mate with “loose hens”, resulting in more mating. This means that we have to centralize the male feeders as much as possible to force the males to move, instead of spreading out the male feeders over the house.
- With sex separate feeding we do not only control the male body weight (and with it prevent overweight) but we also make the B-males more courageous and less afraid. This is because we force them to eat together with the A-males every day. It is therefore especially important to not only look at body weight control with sex separate feeding, but also to the location of the feeders. Again, it is important to bring as much males as possible into the same area.

By looking not only at the physical condition of the males but also at the way they act with the females and towards each other, we can learn a lot about their mating activity. After all, if males and females don’t like each other, mating will not happen, no matter how well their physical condition will be.