



Males management

H&N TECHNICAL TIPS

Males management

In the light breeder’s production, is commonly seen that a lot of attention and effort is putting on the female’s management while little on the males.

Although, females lay the eggs that we will incubate to produce the best chicks, the true is without the males all the effort equals zero.

Keep in mind, the best hatchability is always going to be less than the fertility of the flock and moreover don’t forget the importance of the male’s genetic influence on the progeny.

Managing the reproduction efficiency of rooster is the basis of the breeder production. Overweight, underweight, leg problems, bad male/female ratio, aggression, among others have adverse effects on the reproductive performance of males.

The objective of this document is to clarify and enhance the importance of the males and how the rearing and management of them influence the revenues of a parent stock flock.



Critical periods of reproductive development during the male’s life: **management is the key**

A

The gonadal differentiation in chick embryos occurs at 6,5 to 7 days of incubation, when Sertoli cells start to differentiate, promoting testicular differentiation and development.

B

Then in the last 14 days of incubation a series changes occurs toward **the sex differentiation**.

C

The development of the male reproductive system doesn’t stop at hatch, quite the opposite it continues during the first 24-26 weeks of life.

Within this period, the first 8 weeks could be the most important in the whole process.

Sex differentiation occurs during incubation

Key development 0-8 weeks

End at 24-26 weeks

1 to 5 Weeks of age

Always grow together the males and females starting at day one. Exceptions are:

Technical TIP

Don't make a beak treatment of the males. Ask H&N Technical team in case you need to do it.

01

Body Weight Control in Males

Historically you have problems to **reach standard body weights in the male line** (keep them separate until week 5).

02

Young Breeder Male Management

Males from a young breeder flock (less than 27 weeks). Keep them separate with a higher temperature (1-2° celcius higher), light intensity >40 lux, stimulate feeding and drinking. At 3 weeks of age mix with females (if bodyweight is at standard).

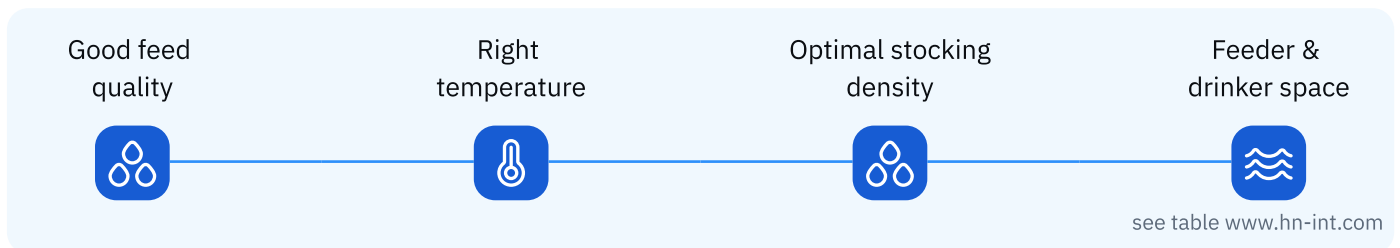
03

Undubbed Males and Sexing Control

When males are not dubbed, keep them separate until you discard all sexing errors, between 6 to 8 weeks of age.



It is very important that chicks have the best start:



If the standard body weight and uniformities (>90%) are met by 5th weeks of age, it is going to be easier, for the males to keep these two parameters at the optimal values throughout the rest of the rearing.

If you must keep the males separate in a pen follow the same guidelines, but in addition place perches inside the pen, and once you remove all the sexing errors, mix all males with females, 50% one day and 50% the day after and discard all the bad quality males. Keep an eye on the flock behavior.

6 to 10 Weeks of age

The testes are growing, the entire process of ductules conversion end at 8 to 10 weeks of age, the proliferation of Sertoli cells occurs between 1 up to 8 weeks of age. After that period, there isn't more cells proliferation.

When males are adults, the number of sperms produced is limited by the number of Sertoli cells in the testes, therefore any factor that could impact on the optimal male's development before 8 weeks of age can influence the maximum potential of sperm production.

Between 6 to 9 weeks of age all sexing errors must be removed from the flock. If your males weren't comb treated, as soon as you removed all the sex slips, is time to mix them with females.

The male's body development profile is the most critical factor that impact on the flock fertility.

10 to 17 Weeks of age: Preparing for transfer and light stimulation

The male's stage of development should match as closely to the females as possible, you can evaluate it using body weight (**males should weight around 30% more than females**), comb, wattle and feather maturity as indicators.

Technical TIP

Training the feed intake: Low density diet + High in fiber + Optimal Granulometry + Block Feeding: *allow to empty the feeder once per day (no more than one hour and in the middle of the daylight).* **NEVER RESTRICT FEED INTAKE.**

During this phase, there are three critical things to do:

01

Always keep the males body weight within the standard to assure a correct development

In fact, the skeleton will still be developing until 12 weeks. A good bone structure is critical for a successful mating.

02

Work on the birds feed intake capacity

This training will be important throughout all the life of the flock but specially after transfer, when the birds go through lot of challenges:

- **New facility**
- **Light stimulation**
- **Testes development**
- **Social behaviors:** male's hierarchy and mating (for detailed information check on PS guide: www.hn-int.com).

Technical TIP

Larger size males will have larger testes and **produce more semen.**

03

Make an intensive male selection removing all the bad quality males

At this age, the skeleton development is almost completed and there isn't room for corrections. Use every handling of the birds to discard sexing errors or poor-quality males.

Criteria for selection:



Healthy

- Standard BW
- No disease symptoms



Good feathering

- Tail
- Chest
- Back



Good beaks

Avoid hook and/or uneven beaks



Sexual development

Red color at comb and vent = active male (after sexual maturity)



Right bone development

- Long straight keel
- No valgus, no varus

A good practice is to move the males to the laying house 24 hours before females, this can help them to get used to the new environment, feeders and drinkers, and prevent loss in body weight.

Always avoid males from being overweight at any time in rearing. This is especially important when the production is in family cages to prevent leg problems and low fertility.

18 Weeks of age:

Transition time... here comes the testosterone!

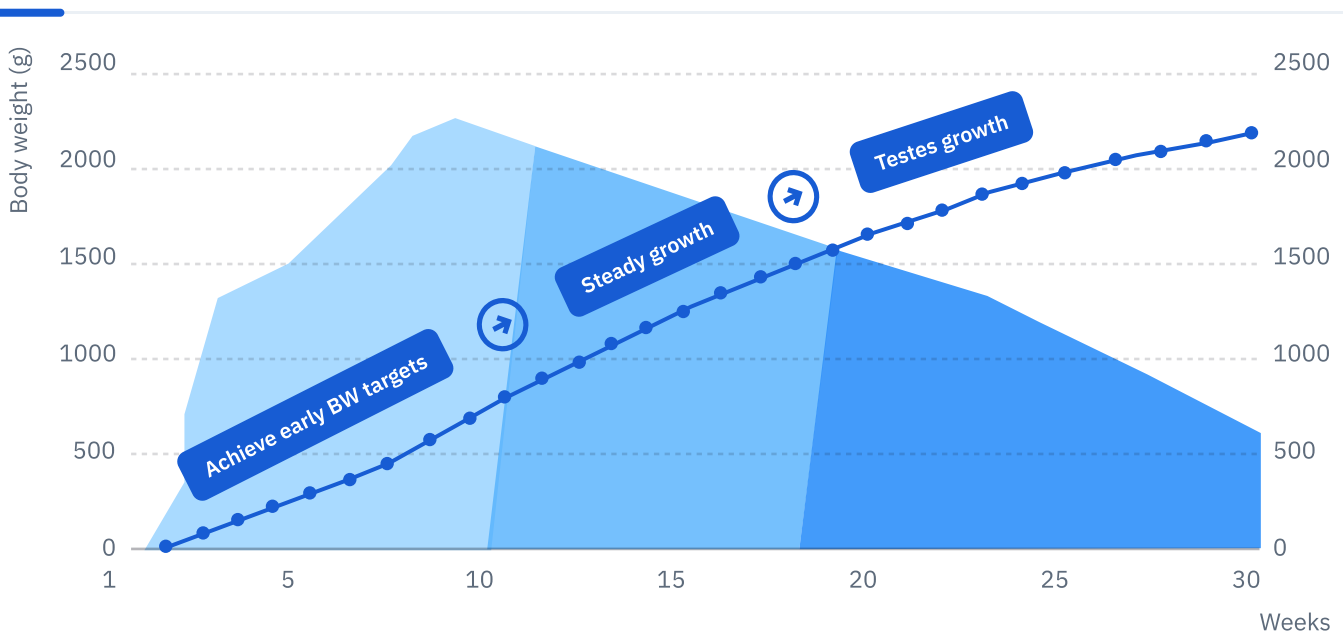
Management during this period has an impact on early and late fertility. The testes growth is very fast at the onset of light stimulation.

In fact, around 75% of their development occur between 18 and 24 weeks of age (see Chart 1), which commonly is the period after transfer when several

challenges arise: new house, new equipment, new social hierarchy, new feed and feeders, drinkers and light stimulation.

If this period is not well managed, the stress could impair the testes development throughout the entire life of the bird.

Chart 1. Male BW and weekly gain



Rapid growth. Development of reproductive system.
Immune system. Digestive system. Muscles. Skeleton.

Steady grow. Training. Feeding intake capacity.
Ending skeleton development critical for social/mating behaviour. Keep body weight at standard.

Testes rapid growth. Mating behaviour.

There are several issues we need to be aware of:

01

Place in the production house the right number of good, young, maturing cockerels

When the ratio is too high there will be both, high male to male and male to female aggression reduce mating, and when is too low, poorer male to female interaction and low number of matings.

In both scenarios fertility will be declined. During the first three weeks after transfer check every day the mating behavior (2-3 hours before lights off) and male's distribution in the house (production on floor).

02

Photo stimulation stimulates the hypothalamus causing the testicular growth and the production of testosterone

Light stimulation should be at 18 weeks of age for males if their body weight is at standard and uniformity is higher than 85%.

Production System	Male/Female ratio
Floor/Aviary system controlled environment	8 to 9%
Full slat or hot climate	9 to 10%
Family cages	10%
Artificial insemination	6%

03

Males body weight

When the males body weight is behind the standard for more than 15% and/or the weight difference between males and females is less than 15%, house them 1 to 2 weeks before than females and photo stimulate them.

This will help to get them use to the new environment (feeders, drinkers, etc.) and to stretch the difference in sexual and body development with females, preventing problem with mating and low fertility in the beginning of the production.

When the males body weight is 15% above the standard and/or their average BW is >40% heavier than females and/or you have a history of male aggression towards females during the first weeks after light stimulation, you should keep light stimulating and transferring at the same time males and females (18 weeks), but for the first 1-2 weeks keep a ratio of 4% of males, then slowly add no more than 2% one night and wait 5-7 days to add, again at night, the next 2%.

Continue doing this until you reach the optimal ratio. Keep monitoring the flock’s behavior.



Males are too dominant and aggressive towards females

- Too high male/female ratio
- Too much difference in body weight
- Males sexually matured earlier than females

04

Production of testosterone

Along with the production of testosterone, one of the most important factors impacting on testicular development is the male’s growth profile from light stimulation until 28-30 weeks of age. It is ultimately important to keep a good body weight gain during the weeks after transfer, because any delay in the growth rate during this period will affect testes growth, early fertility and negatively impact late fertility.

One tool to keep the optimal growth rate is developing a good feed intake during rearing.

05

Starting at 20 weeks of age

Starting at 20 weeks of age do weekly fertility checks (fresh breakout of 100 eggs at the farm or candling of around 1,000 eggs at 10 days of incubation).

The goal is to reach as fast as possible a minimum of 98% fertility. This objective should be accomplished no later than 30 weeks of age. If you have a problem with early fertility, corrections must be made in the rearing or transfer period.



Production: Keep the good job!

From week 28-30 until the end of production, we have to keep monitoring some key factors to avoid any drop in the fertility. **It is usual to see a drop around week 40-45 of age. This issue is commonly produced for less number of matings as the flock ages.**

This phenomenon is more dramatic in **small family cages** with less than 50 birds (small groups experience a fast decline in mating. While this drop could be associated with either a female or male issue (or both), we will focus on the male's problems:

Any stress causing a reduction of body weight (for example, a decrease of 10% in feed intake), **could have an impact on sperm formation.**

01

Keep the male body weight under control

A key factor is to keep the male body weight under control, avoid having overweight males and/or have a difference of body weight between males and females higher than 35-38% in the white breeders (Super Nick, Nick Chick and Crystal Nick) and more than 45-50% in Brown Nick. Prevent the male's weight from doubling that of the female for Coral.

Sometimes when you have such a difference you will start to see some aggressive behavior in the male-female interaction. The females will avoid the males, females will start losing feather of the back, among other issues. **Remember, the males need enough nutrients intake for growth, maintenance, reproduction and mating activity** so if nutrition is marginal, the first thing to be affected will be mating activity.

When experiencing loss of body weight during production, first thing to check is, if the males don't have problem to eat from the feeders

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02

Check the mating behavior

Once per week check the mating behavior 2-3 hours before the lights are off. **Hens must be mated more often as she ages, so a young hen needs to be mated once every 8-9 days, and an older one needs to be mated every 6-7 days.** It will allow for selection and we can re-stimulate through intra-spiking (see next chapter).

03

Foot pad problems

Poor litter quality or lack of litter increases the foot pad issues. Make good management of the litter avoiding water leakage and have a good ventilation of the barn. **The males shouldn't stay too long in the slat area either (slat or litter houses).**

04

Male feather condition

Keep an eye on male feather condition and leg problems as it has been explained before too.

05

Fertility

Perform fertility "checks" of 90 fresh eggs (not incubated), at the farm or hatchery during production, in family cages every 2-3 weeks and floor system every 4 weeks. By doing this procedure you could evaluate how is the fertility curve and take preventive measures on time.

06

Maintain the optimal male

Female ratio, adjusting quantities according to mortality and male's selection during the production period.

"Mating frequency must increase as hens age to maintain performance."

**Technical TIP**

We have seen, that as the hen ages the rooster are less interested and able to do complete matings and the hen physiologically needs to be mated more often. Therefore to do intra-spiking with or without an increasing the number of males as the flock ages (up to 1% more) could be an interesting idea to increase the number of mating per hen in a week.

Intra-spiking

The intra-spiking is the exchange of males to prevent or recover the decline in fertility caused by both, a male factor and female factor associated with the lack of activity and the need of more matings by the female.

The decline in fertility is more common in family cages than floor. This could be attributed to two factors:

- The cage’s floor impacting on male’s feet integrity, is a surface where females are more reluctant to mate
- There are smaller groups of birds than in floor housing.

“Intra-spiking counteracts fertility loss linked to reduced male activity and female mating needs.”

Technical TIP

The procedure can be repeated every 8 to 10 weeks and no more than two times. In breeders housed in family cages that historically have presented a drop-in fertility/hatchability at 44-48 weeks, a successfully intra-spiking program which start at 38-40 weeks of age could increase the fertility in 8-10%.

Intra-spiking is the exchange of 20 to 30% of the males between houses, sides in house or cages from the same flock, without adding young males.

- This management need to be done earlier than 45 weeks of age.
- It is important to do fertility checks when you see the fertility is going down (less than 90%), you can repeat the procedure.

Intra-spiking – Key Management Data

<p>Purpose</p> <p>Intra-spiking is the exchange of males to prevent or recover fertility decline caused by reduced male activity and increased mating requirements of females.</p>	<p>Where fertility decline is more frequent</p> <ul style="list-style-type: none"> • Family cage systems • Less frequent in floor systems 	<p>Main contributing factors</p> <ul style="list-style-type: none"> • Cage floor affects male feet integrity, reducing mating activity • Females are more reluctant to mate on cage floors • Smaller group size compared to floor housing
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In summary

Placement

- Males and females together (exceptions).
- Do no beak treat males.
- When possible ask for comb treatment.

1 to 5 weeks

- Body weight must follow the STD and uniformity >85%.
- At least duplicate BW 7 days after placement.
- When reared separate and comb treated, mix with females at 3-4 weeks of age.
- At 3 weeks of age place perches.

6 to 9 weeks

- Discard all sexing errors.
- When all sex slips were discarded mix full combed males with females.
- Growth must follow the standard.

10 to 17 weeks

- Discard all poor quality males.
- Training in feed intake capacity.
- Body weight gain must follow the standard.
- Skeleton is fully developed at around 12 weeks of age.

18 weeks

- Light stimulation of males and females (when body weights are at standard and uniformities are > 80%).
- Place males in the production house at the correct male/female ratio.



Without proper male management, reproductive performance is compromised.

19 to 28 weeks

- Monitoring male behavior (distribution and mating).
- Growth must follow the standard (never loose weight).
- Weekly fertility checks.

29 until the end of production

- Body weight must be around the standard.
- Avoid overweight and underweight.
- Fertility checks (every 2 weeks in family cages and every 4 weeks on floor systems).
- Intra-spiking and/or increase 0,5 to 1% the male:female ratio to prevent or control a drop in fertility.
- Keep discarding bad quality males.
- Keep the optimal male-female ratio



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