

# Avian male reproductive system

Jacquie Jacob and Tony Pescatore

The avian male reproductive system is all inside the bird (see Figure 1) – unlike the males of mammalian species which have their reproductive systems outside of the body. This is one of the really remarkable things about birds; **the sperm remain viable at body temperature**. Mammalian sperm does not remain viable at body temperature which is the reason the male reproductive organs are found on the outside of the body.

While female chickens only have one mature gonad (i.e., ovary), both are developed in male chickens. Similarly, while female chickens are hatched with the total number of ova they will ever have with no new ova produced once hatched, male chickens continue to produce sperm while sexually mature. While roosters continue to produce sperm for many years, the quality of the sperm decline with age, reducing his fertility.

The male chicken possesses two **testes**, located along the chicken's back, near the top of

the kidneys (see Figure 1). The testes are elliptical shaped and light yellow in color (see Figures 1 and 2).

Each **ductus deferens** (ducts which transport sperm from the testes) opens into a small bump, or **papilla**, which is on the back wall of the cloaca. The papillae serve as the mating organ. The incorrectly named, "**rudimentary copulatory organ**" is located on the middle and front portion of the cloaca and is used to classify the sex of baby chicks.

The ductus deferens is also the main area for sperm storage in male chickens. Applying external pressure in this area will result in ejaculation. The collection of sperm in this way (for artificial insemination of hens) is often referred to as '**milking the rooster**.'

The main goal of a chicken breeder is to produce **hatchable eggs**. The only good hatching egg is a fertilized egg. **Fertility**, the percentage of eggs produced that are actually fertile, is a

very important statistic in hatching egg production - the higher the percentage the better. If an egg is not fertile it will not, of course, contain an embryo and no chick will hatch. Simply put, "Hatchability can never be better than fertility."

**Fertility** is affected by both the male and the female, and the fertility of both tends to decrease as the chickens get older. Flock fertility is dependent on the reproductive status of the chickens (i.e., level of egg and semen production) combined with the chickens' interest and capability of mating. From the female side, the decline in

Figure 1. Photograph showing the location of the male reproductive system of a chicken

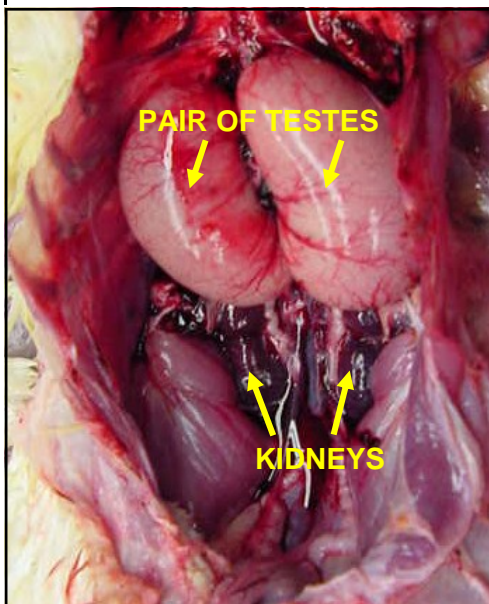
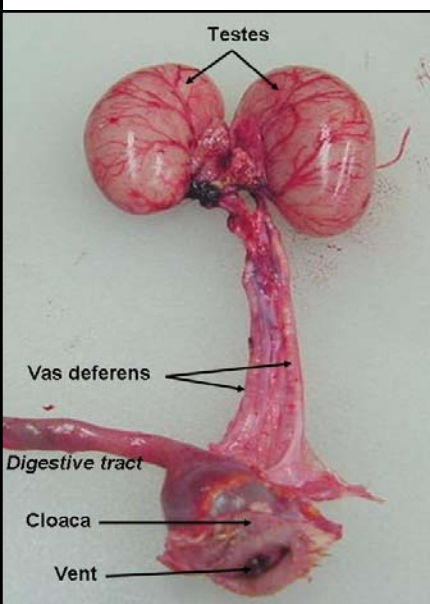


Figure 2. Labeled photograph of the reproductive tract of a male chicken



fertility is believed to be due to faster release of sperm from the sperm storage tubules so that they are not able to store sperm as long so require more frequent mating. From the male side, it is presumed that there is a decrease in sperm quality as the rooster ages, as well as a decrease in mating activity. There is also typically an increase in early embryo death when the eggs that are incubated come from chickens in the second half of their reproduction cycle. These early deaths often appear as 'clears' and may be mistaken for infertile eggs when candling or breaking out unhatched eggs.

Do you know what a capon is?

Walking through the supermarket, it is often possible to find **capons** for sale. While it is obvious from the shape of the packaging that it is a bird of some kind, there is often no indication in the labeling of what exactly a capon is.

Capons are produced through the **castration of male chickens** in a process referred to as **caponization**. As previously indicated, the testes of a male chicken are located inside the body so castration is a surgical procedure.

When the testes are removed, the cockerel fails to develop certain male characteristics or tends to lose them if they are already developed.

Caponizing produces a unique type of poultry meat. The meat of chickens tends to become rather coarse, stringy, and tough as the rooster ages. This is not the case with the capon. Caponized males grow more slowly than normal male chickens and accumulate more body fat. Deposits of fat in both the light and dark meat of capons is greater than that of intact males resulting in a meat that is more tender and juicier. The older the age at which capons are slaughtered the more flavorful the meat.

Figure 3. Smoked capons in the display case of a store.

