Factors Impacting Fertility, Embryo Development, and Hatchability

The Science of Successful Incubation

DR. HAVAL ISMAIL AZIZ

HATCHING AND HATCHERY management- THEORY

third stage

ANIMAL RESOURCE DEPARTMENT

Factors affecting breeder stock fertility

The age, health status, and nutrition of breeder stocks have a significant impact on fertility and hatchability. Providing ideal housing conditions, balanced diets, disease prevention, and quality egg handling practices are essential to maximize hatching success.

Age and health status of breeder cocks

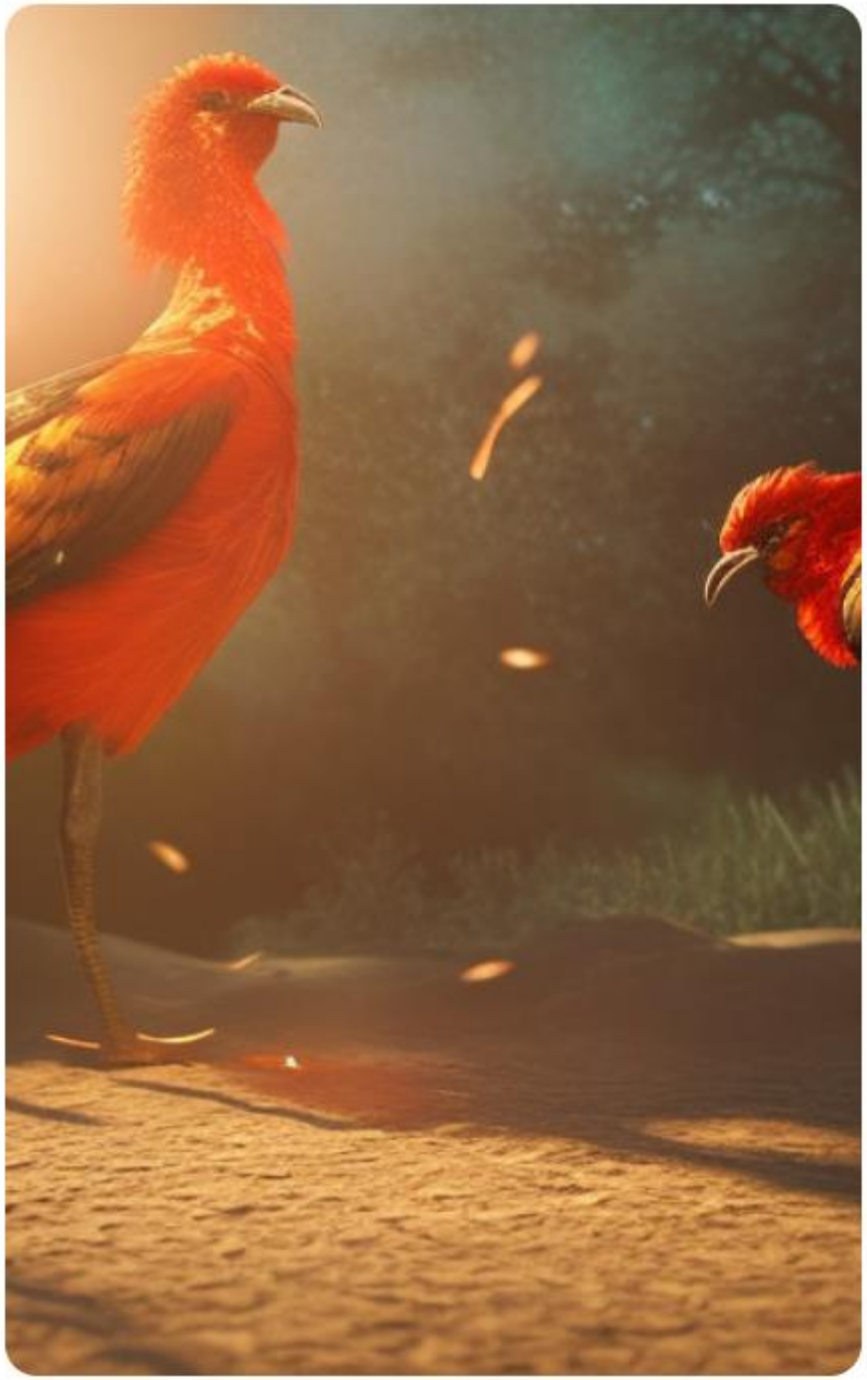
The age and health status of breeder cocks directly affect fertility and hatchability.

Older cocks have lower fertility, so replacing older cocks with younger ones improves hatching rates.

Diseases like salmonella infection in breeder cocks reduce hatching success by contaminating eggs.

Seasonal temperature effects on hatching

During the summer, high temperatures can negatively impact chicken egg hatchability by reducing sperm viability and embryo survival.



Lighting effects on sperm production

The effects of lighting on sperm production in roosters are complex and interrelated with many factors like intensity, duration and quality of light. By manipulating lighting programs, poultry producers can increase sperm production and quality, especially important for artificial insemination which requires large amounts of highquality semen.

Insemination factors affecting fertilization

The quality of semen used for artificial insemination and the timing of insemination in relation to ovulation are critical factors that can significantly impact the fertilization of eggs.

Removing or adding cocks and fertility

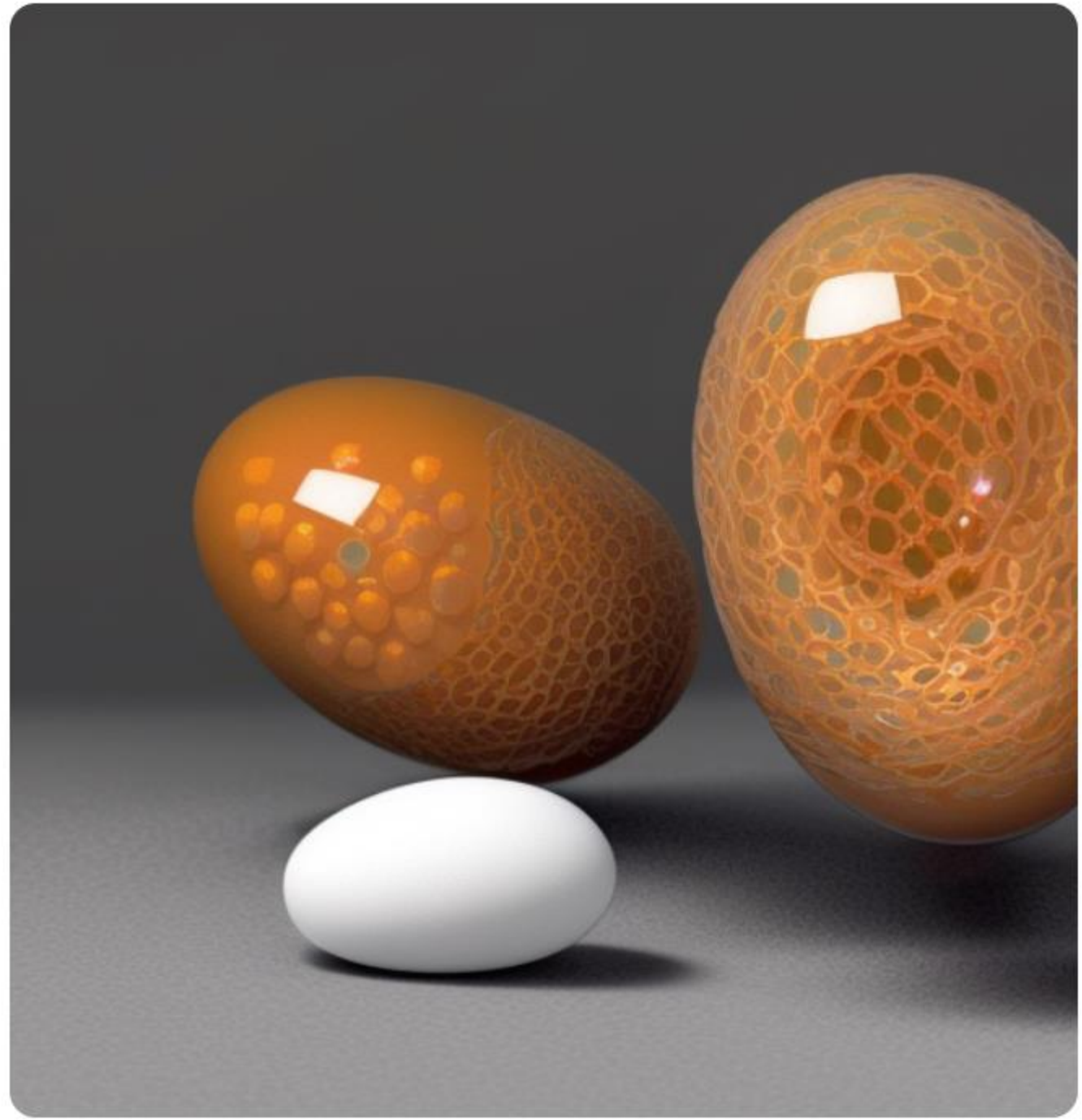
Removing or damaging the reproductive organs of roosters can negatively impact fertility and hatchability. Castrating or damaging the testicles of roosters prevents sperm production, while removing or harming the cloaca or phallus inhibits mating and insemination.

Genetics and inbreeding effects on hatching

The main factors that influence hatchability are the health and nutrition of the breeder flock, egg handling and storage conditions, and incubation environment. Providing breeders with a balanced diet, maintaining flock health, proper egg handling and storage, and optimizing incubation conditions are key to achieving good hatchability.

Nutrition effects on hatching ratio

The nutrition of breeder stocks has a significant impact on the hatching ratio of eggs through providing the necessary nutrients for the development and growth of embryos. Any deficiency or imbalance in protein, vitamins or minerals leads to a decrease in the hatching ratio due to the inability of embryos to complete their growth and development.



Thank you