Poultry Production
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Objectives:
A. Define common poultry terms
B. Identify common breeds of chickens
C. Compare and contrast broiler and layer chickens
D. Describe the poultry reproductive system
E. Describe environmental requirements to hatch chicken eggs
F. Candle eggs to determine their interior and exterior quality grade.
A. Define common poultry terms

**Chick**: newly hatched chicken

**Pullet**: Female chicken < 1 year

**Cockerel**: Male chicken < 1 year

**Capon**: Castrated male chicken

**Hen**: Mature female chicken

**Rooster**: Mature male chicken
B. Identify common breeds of chickens

- White Leghorn
- Rhode Island Red
- Barred Rock
- Araucana
Some fun breeds...

Silkies

Cochins

Polish Crested Varieties
C. Compare and contrast broiler and layer chickens

**Broilers: For Meat**
- Broiler chickens are raised primarily for their meat.
- Chickens can be ready to harvest around 6 weeks of age.

**Layers: For eggs**
- Hens begin laying eggs around 4 months of age.
- A good hen lays 1 egg a day.
- Lay eggs year round.
  - Production slows in winter.
D. Describe the poultry reproductive system

Rooster

- Testicles
- Vas deferens
- Cloaca
- Kidneys
- Ureters
- Intestine
**Testicles:** Produce sperm

**Vas Deferens:** Carries seminal fluid and sperm from testicles to cloaca

**Papilla:** The organ in the wall of the cloaca that places the sperm inside the female’s reproductive tract
Hen

- Ovary
- Magnum
- Vagina
- Cloaca
- Infundibulum
- Isthmus
- Uterus
- Intestine

Images of chickens and eggs are also present in the document.
Ovary:  Produces the ovum
Infundibulum:  Receives yolk from ovary, where sperm is stored, and fertilization takes place
Magnum:  Secretes the thick white of the egg
          3 Hours
Isthmus:  2 shell membranes are placed around the yolk and thick white
          1 ¼ Hours
Uterus or “shell gland”:  Thin white and outer shell are added to the egg
          20 Hours
Vagina:  Completed egg is stored for a short time til laid
          Total: 25-27 Hours
1 Infundibulum
2 Magnum
3 Isthmus
4 Uterus
5 Vagina (with egg inside)
Egg Processing Video

Germinal Disc
Yolk Membrane
Yolk
Air Cell
Thick White
Thick White Membrane
Thin White
Outer Shell
Outer Shell Membrane
## Compare Mammalian and Poultry Reproduction

<table>
<thead>
<tr>
<th>2 functioning ovaries</th>
<th>2 ovaries, but only LEFT ovary functions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sperm cells are only viable for a short time after depositing into the female</td>
<td>Sperm cells live for at least 6 days...and as long as 10-15 days!</td>
</tr>
<tr>
<td>Testicles are inside the scrotum on the OUTSIDE of body</td>
<td>Testicles are INSIDE the body cavity</td>
</tr>
<tr>
<td>Separate exits for the urinary, digestive, and reproductive tracts</td>
<td>ONE exit from the body (vent)</td>
</tr>
</tbody>
</table>
E. Describe environmental requirements to hatch chicken eggs

**Natural:**

- Hen lays eggs (1 per day) over period of several days
- When she has an adequate nest, she begins to lay on them to keep them warm
- After 21 days, the eggs hatch
- A hen who is laying on her eggs is referred to as “broody”
E. Describe environmental requirements to hatch chicken eggs

**Artificial Incubation:**

- Hen lays eggs and they are placed in an incubator
- Incubator keeps eggs at proper temperature and humidity
  - Temperature: 102-103 degrees
  - Humidity: 60%
- Eggs are turned 2 times daily to prevent embryo from sticking to the inside of the shell
E. Describe environmental requirements to hatch chicken eggs
F. Candle eggs to determine their interior and exterior quality grade.

**Grading Exterior Quality:**

1- **Cleanliness**
   - Shell should be free of debris or organic matter

2- **Shape**
   - Small end and large end.
   - Not round or oblong

3- **Soundness**
   - No Cracks
F. Candle eggs to determine their interior and exterior quality grade.

**Grading Interior Quality:**

1. Air Cell
2. Viscosity of Albumen (white)
3. Check for abnormalities
   - Blood/Meat Spots
   - Cracks or leaks in shell
F. Candle eggs to determine their interior and exterior quality grade.

Egg Quality Grades:

- **AA**
  - 1/8 inch (Dime)

- **A**
  - 3/16 inch (Nickel)

- **B**
  - 3/8 inch (Quarter)
F. Candle eggs to determine their interior and exterior quality grade.

**Albumen Viscosity**

1. Hold egg up to light
2. Twist egg rapidly and watch to see how much the yoke moves around

**Egg Quality Grades:**

- **AA**
  - Little movement
- **A**
  - Some movement
- **B**
  - Lots of movement
F. Candle eggs to determine their interior and exterior quality grade.

**Loss**

Any of the following would result in the egg being graded as a “loss”

- Blood/Meat Spots
- Cracks or leaks in shell
FFA Application: Poultry Judging

- Judge live chickens
- Quality Grade Eggs
- Written Test
- Judge/Identify chicken meat cuts