

Introduction to Poultry Hatchery Operations

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Designed as a quick-reference guide for students, new employees, and anyone interested in the basics of hatchery management.

1. What Is a Poultry Hatchery?

Aspect	Description
Definition	A facility where fertilized eggs are incubated, hatched, and the resulting chicks are processed for sale or further rearing.
Primary Goals	• Maximize hatchability • Maintain chick quality (vigor, health, uniformity) • Ensure biosecurity and animal welfare
Key Stakeholders	Hatchery managers, incubator technicians, veterinarians, feed suppliers, distributors, and end-users (broiler or layer farms).

2. Core Components of a Hatchery

1. Egg Receiving & Storage

- **Receiving area** – inspection, grading, and documentation of egg lot numbers.
- **Cold storage** – 12-15°C, 70-80% relative humidity (RH) to preserve embryo viability (max 7 days).

2. Egg Handling & Preparation

- **Cleaning** – dry brushing or low-pressure air; avoid washing unless required.
- **Candling** – detection of infertile or dead embryos before incubation.

3. Incubation System

- **Set-up incubators** – usually forced-air (single-stage) or multi-stage units.
- **Temperature** – 37.5°C (99.5°F) for most species.
- **Relative humidity** – 55-60% (days 1-17), 65-70% during hatching period (days 18-21).

Introduction to Poultry Hatchery Operations

- **Turning** – 45-60 turns per day until day 18 (to prevent adhesion of embryo to membrane).

4. Hatching Process

- **Transfer to hatchers** – usually on day 18; eggs placed in trays with proper airflow.
- **Hatch window** – 21±2 days for chickens; monitor for “pipped” and fully hatched chicks.

5. Post-Hatch Handling

- **Drying & cooling** – 30-45 min in a cooling area (32°C, 70% RH) to reduce chick temperature.
- **Vaccination & tagging** – according to species-specific health programs.
- **Grading & packaging** – sort by weight, sex (if sex-linked), and health status; pack in breathable containers.

6. Waste Management

- **Egg shells, chick waste, dead-in-shells** – collected, sanitized, and either composted or disposed of per local regulations.

3. Critical Control Points (CCPs)

CCP	Why It Matters	Typical Monitoring Parameter
Egg Storage Temperature	Prevents premature embryo development	12-15°C
Incubator Temperature	Directly influences embryonic metabolism	37.5°C ±0.2°C
Incubator Humidity	Controls water loss from embryo	%RH as per stage
Egg Turning Frequency	Prevents membrane adhesion	45-60 turns/day
Ventilation Rate	Supplies O ₂ , removes CO ₂ & excess heat	Air changes per hour (ACH)
Hatcher Temperature	Supports final development & pipping	36-37°C

Introduction to Poultry Hatchery Operations

CCP	Why It Matters	Typical Monitoring Parameter
Cooling Time Post? Hatch	Red	