

Understanding Common Issues in Poultry

Understanding Common Issues in Poultry Hatcheries
(A concise, organized reference for students, managers, and technicians)

1. Overview of a Poultry Hatchery

Component	Primary Function
Incubator	Provides controlled temperature, humidity, and ventilation for embryo development (0-18 days).
Hatcher	Maintains optimal conditions for the final 24-48h of incubation (hatching).
Brooder	Supplies heat, feed, water, and bio-security for day-old chicks.
Egg Handling Area	Sorting, cleaning, candling, and grading before incubation.
Ventilation System	Supplies fresh air, removes excess CO ₂ , and regulates temperature.
Control System	Sensors + programmable logic controller (PLC) that monitors and adjusts temperature, humidity, turning, and ventilation.

2. Major Categories of Problems

Category	Typical Symptoms	Primary Causes
Environmental	High embryo mortality, poor hatchability, weak chicks	Temperature spikes/ drops, improper humidity, inadequate ventilation, uneven airflow
Egg-related	Low hatchability, cracked shells, bacterial contamination	Poor egg quality, improper storage, contamination, excessive handling
Microbial	Sudden mortality, septicemia, "wet chicks"	Salmonella, E. coli, Mycoplasma, fungal spores, bio-film in equipment
Mechanical/Equipment	Stalled turning, uneven temperature zones, alarm failures	Faulty sensors, worn belts, clogged vents, power interruptions

Understanding Common Issues in Poultry

Category	Typical Symptoms	Primary Causes
Management/Procedural	Inconsistent hatch windows, high chick mortality	Hatcheries
		Inadequate record-keeping, poor sanitation, improper candling, wrong set times

3. Detailed Issue Breakdown

3.1 Temperature Control Failures

Sub-issue	Ideal Range*	Effect on Embryo	Common Triggers
Cold stress (early incubation)	37.5°C ± 0.3°C	Delayed development, increased early mortality	Drafts, faulty thermostat, power loss
Heat stress (late incubation)	37.2°C ± 0.2°C	Embryo dehydration, cracked shells, reduced hatchability	Overheating from sunlight, blocked vents, sensor drift
Temperature gradients	±0.5°C across incubator	Uneven development, “pipped” embryos in hot zones, “dead-in-shell” in cool zones	Improper airflow, blocked fans, uneven egg loading

Prevention Tips

- Calibrate sensors weekly; keep a log of set-point vs. actual temperature.
- Use a **thermocouple array** (center, top, bottom) to detect gradients.
- Install **backup power** (UPS) for critical control units.

3.2 Humidity Imbalance

Stage	Target RH (%)	Why It Matters
Early (0-10d)	55-60	Prevents excessive water loss; ensures proper albumen viscosity.
Mid (10-15d)	60-65	Supports membrane development.

Understanding Common Issues in Poultry

Stage	Target RH(%)	Why It Matters
Late (15-18d)	70-75	Reduces risk of dehydration; facilitates pipping and hatching.

Hatcheries

Common Problems

- **Low RH** ? Excessive water loss ? Small, weak chicks, high early mortality.
- **High RH** ? Wet