

Malformed and Mortality of Embryo during hatchery process

1- Clear Eggs with no embryonic development (infertile)

Probable Cause	Corrective Measures
Males Malnutrition	Provide nutrition. Replace underweight males.
Too few males	Increase the number of males.
Seasonal decline in fertility	Use young males more resistant to environmental stress.
Diseased flock	Use disease control program.
Old males	Replace with younger males.
Male sterility	Replace males in the pen/house.
Crowded breeders	Provide recommended floor space, at least 4 birds/m ²
Eggs stored too long or incorrectly	Store eggs at 14-18 °C and 60% relative humidity. Incubate eggs within 7 days of lay.

2- Blood rings

Probable Cause	Corrective Measures
Improper storage	Follow recommended egg storage and gathering recommendations.
Improper incubation temperatures	Check thermometer accuracy and incubator functions. Follow recommended temperature settings.
Improper breeder nutrition	Feed breeders a diet with balanced nutrient levels.
Improper fumigation	Follow fumigation recommend

3- Many dead embryos at early stages.

Probable Cause	Corrective Measures
Improper incubation temperatures (usually too high)	Follow recommended incubation temperatures.
Improper egg turning	Turn at least 3 times daily.
Inherited low hatchability	Avoid cross breeding.
Improper ventilation	Increase ventilation rate in incubator.
Pullorum disease or other salmonellosis.	Use eggs from disease-free sources.
Improper nutrition of breeders	Provide a well-balanced nutritional diet to breeders.

4- Chicks fully formed, but dead without pip

Probable Cause	Corrective Measures
Low average humidity & temperature	Maintain recommended humidity and temperature for species of bird incubated.
Improper ventilation in incubator and hatchery	Adjust ventilation to provide good air
Improper turning of eggs	Turn eggs at least three times daily until 3 days prior to hatching.
Chilling of eggs	Gather eggs frequently and store under proper conditions.
Diseased breeder flock	Use a good disease control program.

5- Piped eggs, but died without hatching

Probable Cause	Corrective Measures
Moisture decreases	Increase humidity during the hatching period.
Improper ventilation	Increase ventilation rate.
Improper setting of eggs causing malpositioned embryos	Set eggs with small end down. Turn eggs properly but avoid turning within 3 days of hatching.

6- Late hatching or not hatching uniformly

Probable Cause	Corrective Measures
High incubation or hatching temperatures	Follow recommended incubation temperatures.
Warm and cool spots in incubator due to faulty design	Obtain a different incubator design.
Old or improperly stored eggs	Gather eggs frequently, cool immediately and store eggs properly. Do not store longer than 7 days.

7- Sticky embryos (embryos may be smeared with egg contents)

Probable Cause	Corrective Measures
High average incubation humidity	Follow recommended incubation humidity. Check size of air cell.
Low incubation temperature, ventilation	Follow recommended temperature settings, increase ventilation in incubator.
Lethal genes	Avoid cross breeding. May need to secure different breeding stock.
Improper fumigation of eggs	Fumigate eggs by following the procedure carefully.

8- Embryos sticking or adhering to shell

Probable Cause	Corrective Measures
Low incubation humidity (especially during hatching)	Increase incubation humidity by increasing water evaporation.
Excessive ventilation rate	Reduce ventilation rate but maintain minimum air exchange to prevent suffocation of embryos.

9- Crippled and malformed chicks

Probable Cause	Corrective Measures
Improper incubation temperatures (usually too high)	Follow recommended incubation temperatures.
Low incubation humidity	Increase incubation humidity by increasing water evaporation. Embryos dried too much.
Improper egg setting position or turning during incubation	Set eggs with small ends down. Turn eggs at least 3 times daily. Do not turn eggs within 3 days of hatching.
Heredity	Proper culling and breeding practices will reduce problems.
Slick hatching trays	Use trays with wire floors or place crinoline on hatching surface.
Improper nutrition of breeders	Provide a well-balanced nutritional diet to breeders.

10- Abnormal, weak, or small chicks

Probable Cause	Corrective Measures
High incubation or hatching temperatures	Follow recommended incubation temperatures.
Small eggs hatch small chicks	Set only standard or large sized eggs.
Insufficient incubation humidity	Maintain recommended humidity for species of bird incubated.
Improper ventilation in hatcher unit	Increase ventilation rate, but avoid drafts.
Diseased or poorly conditioned breeder flock	Use eggs from disease-free sources only.
Improper nutrition of breeders	Provide a well-balanced nutritional diet to breeders (especially vitamin levels).
Excessive fumigation in hatcher	Fumigate using proper procedures.

11- Chicks with labored breathing

Probable Cause	Corrective Measures
Excessive use of fumigant	Follow recommended fumigation procedures.
Respiratory diseases	Check disease status of breeder flock.

Abnormal chicks	Reasons
Crossed beak	Hereditary or virus infection.
Missing eyes	High temperature or handling.
Wry neck	Nutrition.
Crooked toes	Temperature and nutrition
Spraddle legs	Smooth hatcher trays.

