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Trouble Shooting Failures with Egg Incubation



When incubation of eggs fails, indications are often available that a well trained professional uses for diagnosing the causes for failure. The information listed below includes the more common symptoms for incubation failures, the causes for each symptom, and the recommended corrective measures. A good incubation publication is available from your local County Agent's office or the Poultry Extension Department at Mississippi State University to help in analyzing the incubation procedure. It explains the artificial incubating process more in detail. Ask for MCES Publication 1182, *Hatching Quality Chicks*.

Symptoms of incubation/breeder management problems include:

- Clear eggs with no visible embryonic development.
- Blood rings in incubated eggs.
- Many dead embryos at an early stage.
- Chicks fully formed, but dead without pipping.
- Pipped eggs, but died without hatching.
- Early hatching.
- Late hatching or not hatching uniformly.
- Sticky embryos.
- Embryos sticking or adhering to shell.
- Crippled and malformed chicks.
- Abnormal, weak, or small chicks.
- Chicks with labored breathing.
- Large, soft-bodied mushy chicks.

- Rough or unhealed navels on chicks.
- Short down on chicks.
- Excessive yellow down color.

<u>Symptoms</u>	<u>Probable Cause</u>	<u>Corrective Measures</u>
<i>Clear Eggs with no embryonic development (infertiles)</i>	Males undernourished	Follow a recommended feeding program to provide adequate nutrition. Replace underweight males with vigorous ones
	Too few males	Increase the number of males in the flock.
	Seasonal decline in fertility	Use young cockerels more resistant to environmental stress.
	Competition among breeding males	Do not use too many males. Rear all males together. Place temporary partitions within large pens.
	Diseased flock	Conduct an approved disease control program.
	Frozen combs and wattles	Provide comfortable housing. Properly select and maintain drinking fountains.
	Old males	Replace with younger males.
	Selected mating in pens	Artificially inseminate infertile hens. Replace males in the pen/house.
	Male sterility	Replace males in the pen/house.
	Crowded breeders	Provide recommended floor space, at least 3 ft ² /bird.
	Improper artificial insemination techniques or use of old/over-diluted semen.	Follow recommendations of primary breeder company.
Eggs damaged by environment	Gather eggs frequently (at least once daily).	

Eggs stored too long or incorrectly Store eggs at 50-60 degrees F. and 60% relative humidity. Incubate eggs within 7 days of lay.

Symptoms

Probable Cause

Corrective Measures

Blood rings

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 recommendations.

Symptoms

Probable Cause

Corrective Measures

Many dead embryos at early stages

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. May need to secure different breeding stock.

Improper ventilation

Increase ventilation rate in incubator and/or room, but avoid drafts. Add oxygen at high altitudes.

Pullorum disease or other salmonellosis

Use eggs from disease-free sources. Have NPIP representatives blood-test the breeder flock.

Improper nutrition of breeders

Provide a well-balanced nutritional diet to breeders.

<u>Symptoms</u>	<u>Probable Cause</u>	<u>Corrective Measures</u>
<i>Pipped eggs, but died without hatching</i>	Insufficient moisture	Increase humidity (wet-bulb temperature) during the hatching period.
	Improper ventilation	Increase ventilation rate in incubator and/or room, but avoid drafts.
	Improper setting of eggs causing malpositioned embryos	Set eggs with small end down. Turn eggs properly but avoid turning within 3 days of hatching.

<u>Symptoms</u>	<u>Probable Cause</u>	<u>Corrective Measures</u>
<i>Early hatching (may have bloody navels)</i>	High incubation temperatures	Follow recommended incubation temperatures. Check equipment for proper function. Guard against electrical surges or high incubator room temperatures.
	Improper egg storage	Store eggs at 50-60 degrees F. and 60% R.H. Turn at least 3 times daily.

<u>Symptoms</u>	<u>Probable Cause</u>	<u>Corrective Measures</u>
<i>Late hatching or not hatching uniformly</i>	Low incubation temperatures	Follow recommended incubation temperatures.
	Warm and cool spots in incubator due to faulty design	Contact incubator company or 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.

<u>Symptoms</u>	<u>Probable Cause</u>	<u>Corrective Measures</u>
<i>Sticky embryos (embryos may be smeared with egg contents)</i>	High average incubation humidity	Follow recommended incubation humidity. Check size of air cell as an indicator for adjusting humidity condition.
	Low incubation temperature	Follow recommended temperature settings.
	Lethal genes	Avoid cross breeding. May need to secure different breeding stock.
	Inadequate ventilation	Increase ventilation rate in incubator and/or room, but avoid drafts.
	Improper fumigation of eggs	Fumigate eggs by following the procedure carefully.

<u>Symptoms</u>	<u>Probable Cause</u>	<u>Corrective Measures</u>
<i>Embryos sticking or adhering to shell</i>	Low incubation humidity (especially during hatching)	Increase incubation humidity by increasing water evaporation. Embryos dried too much.
	Excessive ventilation rate	Reduce ventilation rate but maintain minimum air exchange to prevent suffocation of embryos.

<u>Symptoms</u>	<u>Probable Cause</u>	<u>Corrective Measures</u>
<i>Crippled and malformed chicks</i>	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.

Symptoms

Probable Cause

Corrective Measures

Abnormal, weak, or small chicks

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. Have NPIP representatives blood-test the breeder flock.
Improper nutrition of breeders	Provide a well-balanced nutritional diet to breeders (especially vitamin levels).
Excessive fumigation in hatcher	Fumigate using proper procedures.

Symptoms

Probable Cause

Corrective Measures

<i>Chicks with labored breathing</i>	Excessive use of fumigant	Follow recommended fumigation procedures.
	Respiratory diseases	Check disease status of breeder flock. Conduct a thorough cleanup and disinfection of incubator and hatching facilities.

<u>Symptoms</u>	<u>Probable Cause</u>	<u>Corrective Measures</u>
<i>Large, soft-bodied mushy chicks; dead on trays; bad odor</i>	Low average incubation temperature. poor ventilation	Follow recommended incubation temperatures. Increase ventilation rate in incubator and/or room, but avoid drafts.
	Navel infection (Omphalitis)	Clean and disinfect incubator and hatching units between settings of eggs. Maintain dry hatching trays. Properly store and fumigate eggs.

<u>Symptoms</u>	<u>Probable Cause</u>	<u>Corrective Measures</u>
<i>Rough or unhealed navels</i>	Improper incubation temperatures	Follow recommended incubation temperatures.
	High hatching humidity	Maintain proper humidity.
	Navel infection (Omphalitis)	Clean and disinfect incubator and hatching units between settings of eggs. Maintain dry hatching trays. Properly store and fumigate eggs.

<u>Symptoms</u>	<u>Probable Cause</u>	<u>Corrective Measures</u>
<i>Short down on chicks</i>	High incubation temperatures	Follow recommended incubation temperatures.
	Low incubation humidity	Follow suggestions to correct insufficient humidity.

Excessive ventilation

Reduce vent openings to restrict but maintain adequate air exchange.

Holding chicks in hatcher too long after hatching

Remove all chicks as soon as fluffy but within 24 hours after hatching.

Symptoms

Probable Cause

Corrective Measures

Excessive yellow coloring of down

Improper and excessive fumigation in hatcher unit

Follow recommended fumigation procedures.

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PUBLICATIONS

PUBLICATION NUMBER: P2800

Northern Fowl Mite Management

PUBLICATION NUMBER: IS1953

Poultry Farming and Neighbors: The Little Things Are Important

PUBLICATION NUMBER: P3036

Choosing the Right Breed for Your Backyard Flock

PUBLICATION NUMBER: P3034

Modern Broiler House Heating Systems

PUBLICATION NUMBER: P3012

Rotary Drum Composting of Poultry Mortalities

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2016 Mississippi Commodities Photos

Filed Under: Agriculture, Catfish, Crops, Beef, Dairy, Poultry



Agriculture value is part of state's economy

Filed Under: [Agriculture](#), [Corn](#), [Peanuts](#), [Rice](#), [Soybeans](#), [Sweet Potatoes](#), [Poultry](#) December 15, 2016

STARKVILLE, Miss. -- The estimated \$7.6 billion value of Mississippi agriculture increased by 1.8 percent in 2016, helping the industry retain its prominence in the state's overall economy.



Poultry, forestry lead Mississippi agriculture

Filed Under: [Agricultural Economics](#), [Poultry](#), [Forestry](#) December 15, 2016

STARKVILLE, Miss. -- Poultry remains Mississippi's top agricultural commodity with an estimated value of \$2.9 billion, and it shows no signs of slowing down in 2017.

Forestry comes in a distant second with total farm-gate value of \$1.4 billion, according to 2016 estimates.

Mississippi State University Extension Service economists just released their estimates for the state's agricultural commodity values in 2016. The top commodities remain poultry and forestry. Soybeans remain in the third spot, dropping 1.7 percent to just over \$1 billion.



MSU researchers cool poultry with sprinklers

Filed Under: [Poultry](#) August 26, 2016

STARKVILLE, Miss. -- The same principle that cools down kids running through a lawn sprinkler on a hot summer day is being tested on chickens in Mississippi State University's commercial poultry houses.

Tom Tabler, Extension poultry specialist with the MSU Extension Service, said keeping chickens cool in the summer is a life-or-death matter.

Mississippi summer temperatures often exceed 90 degrees with humidity above 80 percent.



2016 offers bright hopes for state's poultry, eggs

Filed Under: [Poultry](#) April 22, 2016

STARKVILLE, Miss. -- Mississippi poultry and egg companies are poised for expansions to fill the national gaps caused by the 2015 bird flu outbreaks in other states.

Tom Tabler, poultry specialist with the Mississippi State University

Extension Service, said companies are looking for more broiler growers or additional barns on existing farms.

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