

QaExplore Analytic & Scientific Equipment Pvt. Ltd



Better Eggs For Better Nutrition





CONTEMTS



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IMPORTANT NOTICE:

All performance data and technical specifications given in this Manual are based on our lab tests conducted at standard conditions, Rated voltage and frequency and temperature and humidity are Likely to change with various field conditions.

As improvements are made in design from time to time, specifications And performance are subjected to change without prior information for Latest detail; you may get in touch with our authorized dealers/ service Centers.

QaExplore Analytic & Scientific INCUBATOR

Users' Manual & Warranty Card



Dear Customer, Congratulations On Your Purchase Of QAexplore Analytic & Scientific Poultry Incubators And Welcom To The Elite Family Of QAexplore Analytic & Scientific Customers. QAexplore Analytic & Scientific Incubators Are Manufactured Conforming To The Latest International Standards Ever Stage Of The Manufacturing Process Is Closely Monitored Through Stringent Quality Tests. In House R&d And Effective Quality Assurance Bring You Value Added, Reliable And Cost Effective That The Incubator Set Is Properly Selected, Installed And Maintained.



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Qaexplore Analytic & Scientific INCUBATOR

INTRODUCTION

Many domestic bird growers incubate eggs to help sustain their flock over time. This users manual is designed to assist those who wish to incubate small number of domestic poultry eggs. The words "fertility" and "hatchability" are of ten used incorrectly by small producers.

CARE OF HATCHING EGGS

Before setting eggs in an incubator, you must obtain or produce quality fertile eggs from a well-managed, healthy same variety flock which are fed properly balanced diets.



1. Keep the nest clean; Collect the eggs early in the morning and frequently during the day to prevent excessive chilling or heating of the eggs.

2. Do not wash eggs. If it is necessary to clean eggs always use a damp cloth with water warmer than the egg. This causes the egg to sweat the dirt out of the pores. Never use water cooler than the egg. Also, do not soak the eggs in water. If the egg is allowed to soak in water for a period of time, the temperature difference can equalize and bacteria has a greater chance of entering through the pores. Be sure eggs are dry before storing. Never place damp or wet eggs in a tray or carton for storage.

3. Store the clean fertile eggs in an area which is kept at 55° - $60^{\circ}F$ and 70-75% humidity. Never store eggs at temperatures about $75^{\circ}F$ and at humiditys lower than 40%. These conditions can decrease hatchability dramatically in a very short period of time. Slant or turn the fertile eggs daily while they are being stored. Store the eggs small end down and slanted at 30-45 degrees. Putting a piece of 2" x 4" under one end of the carton or storage container and changing it to the other end daily works well. Do not store eggs for more than10-14 days. After 14 days of storage, hatchability begins to decline significantly.

4. Just before setting the eggs, allow them to warm to room temperature(70-80°F) and remove any cracked eggs.

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BASICS OF POULTRY INCUBATOR

Qaexplore Analytic & Scientific incubators are used for hatching a variety of different types of eggs. Typical incubators have the ability to maintain a specified temperature along with controlled humidity and ventilation. If you can consistently for the species being hatched, you will be ensured the greatest chance of a successful hatch. The incubator is an apparatus that is used for environmental conditions, such as temperature and humidity that needs to be controlled. It is often used for growing bacteria cultures, hatching eggs artificially, or providing suitable conditions for chemical or biological reasons. The incubator is recorded to hatch not only bird's eggs, but it also is used reptile eggs. It allows the fetus inside of the eggs to grow without the mother needing to be present to provide the warmth. Chicken eggs are recorded to hatch after about 21 days, but other species of birds can either take a long or shorter amount of time. An incubator is supposed to be able to set the perfect environment and condition for an egg to incubate because it regulates the factors such as temperature, humidity, and turning the egg when necessary. This is so that the egg incubated properly because it plays the role of the hen in its natural state. The incubator also allows the egg to incubate while eliminating the external threats that could possible harm the eggs. It is possible to include different species of birds at the same time within the same incubator.



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TEMPERATURE

During the warm-up period, the temperature should be adjusted to hold a constant 101°F for still air, 99°- 100°F for forced air. To obtain reliable readings, the bulb of the thermometer should be at the same height as the tops of the eggs and away from the source of heat. Using two thermometers is a good idea to ensure you are getting an accurate reading.

Incubator temperature should be maintained between 99° and 100°F. The acceptable range is 97° to 102°F. Mortality is seen if the temperature drops below 96°F or rises above103°F for a number of hours. If the temperature stays at either extreme for several days, the eggs may not hatch. Overheating is more critical than underheating. Running the incubator at 105°F for 15 minutes will seriously affect the embryos, while running it at 95° for 3 or 4 hours will only slow the chick's metabolic rate.

An incubator should be operated in a location free from drafts and direct sunlight. An incubator should also be operated for several hours with water placed in a pan to stabilize its internal atmosphere before fertile eggs are set. Do not adjust the heat upward during the first 48 hours after eggs are set. This practice cooks many eggs. The eggs will take time to warm to incubator temperature and many times in small incubators the incubator temperature will drop below 98°F for the first 6-8 hours or until the egg warms to 99°-100°F.

IN CASE OF POWER OUTAGE

If you experience a power failure, do not scrap the hatch. Most of the time the hatch can be saved. The key is to keep the eggs as warm as possible until the power returns. This can be done by placing a large cardboard box or blankets over the top of small incubators for additional insulation. To warm the eggs, place candles in jars, light them and place the jars under the box that covers the incubator. Be careful not to put any flammable material closer than a foot from the top of the candles. The heat from the candles can easily keep the eggs above 90°F until the power returns

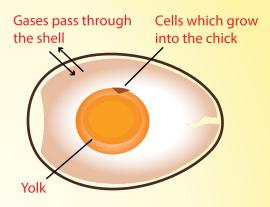


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TEMPERATURE & HUMIDITY DURING STORAGE

Fertile eggs should be stored at a dry bulb, normal temperature between 55 degrees F and 65 degrees F, or 13 degrees C and 18 degrees C. Embryos will begin to develop abnormally, weaken and die if the temperature is too high. A low temperature also causes high embryo mortality.Storage temperature should never exceed 72 degrees F (22 degrees C) and never go below 46 degrees F (8 degrees C). Egg storage at room temperature or at normal refrigerator temperatures (32 degrees F to 40 degrees F) is not acceptable because hatchability decreases.

A refrigerator can be used to store eggs if the temperature is properly adjusted to the recommended temperatures. Eggs should bestored in a refrigerator dedicated to egg storage because these temperatures are not low enough to safely store food.Storage temperature should be reduced to 50 degrees F or 55 degrees F if eggs must be stored more than 2 weeks. Holding eggs for more than 10 days reduces hatchability. However, chukar and turkey eggs are an exception. Chukar eggs have been stored 3 weeks to 4 weeks without appreciable loss inhatchability.Relative humidity is the water vapor in the air expressed as a percentage of the greatest amount of water



vapor possible at that temperature. The amounts of water vapor that air can contain are different at different temperatures. To measure relative humidity expensive equipment or a complicated procedure is required. However, the wet bulb temperature is easily measured and is the method usually used to measure humidity in an incubator. Relative humidity is expressed as a percentage while wet bulb temperature is expressed as degrees. A wet bulb thermometer canbe purchased or made from a common dry thermometer. Knowing how to make a wet bulb thermometer helps to understand how it works. A thermometer, a shoelace (approximately a 6- inch long piece) and a short piece of dental floss are needed. First, stick the bulb end of the thermometer about 1 inch into the hollow of the shoelace. Next, tie a piece of dental floss around both the shoelace and thermometer directly above the bulb. This is to keep the shoelace from sliding off. Place the opposite end of the shoelace directly in a pan of water. If the water is the same temperature as the air temperature, the reading on the thermometer is the wet bulb temperature. The temperature reading of the wet bulb will be less than a dry thermometer because evaporation of water cools the thermometer. However; the reading also will be influenced by the relative humidity of the air. The wet bulb reading is used as an index of relative humidity but is not numerically equal to the relative humidity value. The wet bulb temperature will change at different dry bulb temperatures even as the relative humidity remains constant. So, the appropriate wet bulb temperature that is to be maintained must be known for each dry bulb temperature that occurs during storage. Relative humidity in the storage room should be approximately 70 percent to 80 percent (wet bulb temperature of 50 degrees F to 60 degrees F). Condensation forms on eggshells exposed to excessive humidity Condensation on the eggshell can clog pores and, like washing eggs, provides a vehicle for contamination. Suffocation or contamination of the embryo can result. Excessive amounts of water evaporate from the egg if humidity is too low, which also causes embryo death. To increase the humidity, a pan of water can be placed in the storage room. If the incubator temperature is correct, the only factor governing humidity is the surface area of water inside the incubator or storage unit. Avoid drafts during storage that can dry eggs even when humidity levels are within appropriate levels. Hatchability is best maintained by storing eggs with the small end down in sealed, airtight plastic bags. The bags help keep the eggs clean and prevent moisture loss.

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To make a wet-bulb thermometer, just add a cotton wick to the end of a thermometer. Then place the tail of the wick in water. The cotton then absorbs the water. As the water evaporates from the cotton it causes a cooling effect on the thermometer. The table below (Relative Humidity) will enable you to calculate relative humidity using readings from a wet-bulb thermometer and the incubator thermometer.

VENTILATION

The best hatching results are obtained with normal atmospheric air, which usually contains 20-21 percent oxygen. It is difficult to provide too much oxygen, but a deficiency is possible. Make sure that the ventilation holes are adjusted to allow a normal exchange of air. This is critical on home-made incubators. It is possible to suffocate the eggs and chicks in an air-tight container. However, excessive ventilation removes humidity and makes it difficult to heat incubators properly.

TURNING



Eggs set on their sides must be rotated 1/2 turn at least 10 times daily. Eggs set with the air cell end up should be tilted in the opposite direction 3 times daily. This keeps the embryo centered in the egg and prevents it from sticking to the shell membrane. If hand turning, to insure proper turning, mark each side of the egg with a pencil. Put an "x" on one side and an "o" on the opposite side. Stop turning the eggs for the last three (3) days of the incubation cycle (at 18 days for chickens, 25 days for waterfowl, etc.) and do not open the incubator until the hatch is completed to insure that a desirable hatching humidity is maintained.

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HATCH TIME

Do not help the chicks from the shell at hatching time. If it doesn't hatch, there is usually a good reason. Also, prematurely helping the chick hatch could cripple or infect the chick. Humidity is critical at hatching time. Don't allow your curiosity to damage your hatch.

As soon as the chicks are dry and fluffy or 6 to 12 hours after hatching, remove the chicks from the incubator. It is good practice to remove all the chicks at once and destroy any late hatching eggs. Hatching time can be hereditary and you can control the uniformity of hatching by culling late hatchers. If you keep every chick which hatches late, in a few years each hatch could last 4 days or longer.

SANITATION OF INCUBATOR AND EQUIPMENT

No matter what type of incubation you use, it is important that you thoroughly clean and disinfect the incubator before and after you use it. It is just as important that the incubation room and egg storage area are kept equally clean. The lack of sanitation will decrease hatch ability.



Immediately after each hatch, thoroughly clean and disinfect all hatching trays, water pans and the floor of the hatches. Scrape off all egg shells and adhering dirt. Wipe clean surfaces thoroughly with a cloth dampened in quaternary ammonium, chlorox or other disinfectant solution.

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STEP BY STEP PROCESS...

- 1. Keep the incubator in a clean and airy room.
- 2. Take one liter boiled water then add 5 drops of Dettol liquid and wipeinside and outside of the incubator including racks for disinfection.
- 3. Take 20 ml of Formaldehyde Solution and add 2 grams of potassium permanganate and keep that bowl in the bottom of the box for 4 hours .
- After 4 hours take out that bowl and keep it open for 2 hours then switch on the Incubator for 2 hours.
- 5. Always select reasonable size (40-45 Gram) fertile Chicken eggs from village houses (where roostrs are grownalong with hen).
- 6. Lay eggs in between the Incubator racks but do not forget to leave one empty rack on both sides, and then close the lid of the Incubator.

7. Boiled cool water with 40 degree Centigrade to be filled in the bottle and keep it upside down then open the valve.

- Hatching requires 37- 38 Degree Centigrade heat and 70% moisture/ Humidity inside the box.
- 9. Every one hour, the egg will turn automatically.
- 10. Do not open the lid of the Incubator unnecessarily. Fill the bottle with more boiled cool water with 40 Degree Centigrade if required.
- 11. Usually eggs gets hatched between 19 21 days. If find any Eggs vi brating on the tray then knock those Eggs with your nail after washing your hands.
- 12. Once the chicks started to come out of the shell then keep them it in a chick protector a hardboard box with 60 Watt incandent bulb to keep them warm.
- 13. Do not keep the chicks in the protector for more than 3 days.
- 14. Once the hatching is over then keep follow the instructions given from the beginning to go for the next hatching process.

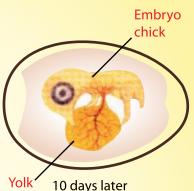
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STORING FERTILE EGGS

Fertile eggs are alive. Each egg contains a living cell mass that develops into an embryo, and finally into a chick. Each incidence of improper candling reduces the probability of a successful hatch. Fertile eggs usually are gathered over a period of time before an

adequate number of eggs can accumulate for incubation, or until the incubator is available for a new set of eggs. These normal situations require that, before incubation, eggs must be stored properly to ensure hatchability. Cleaning and culling: Cracked, poorly shaped, soiled and unusually large or small eggs should not be incubated. These eggs rarely hatch and they increase the probability of introducing infection into the incubator.



Eggs should not be washed. Washing or wiping with a damp cloth removes a protective layer that coats the egg. Soiled eggs should be cleaned by gently buffing the soiled area with fine sandpaper. Washing eggs transfers disease infection agents from the surface to the inside of the eggs. If an egg is washed, it should be washed briefly in 110-degree F water that contains a commercial egg sanitizer. Washing an egg in water that is cooler than the egg itself causes egg contents to contract. Contraction of egg contents draws water into the egg through pores in the shell. This water carries infecting microorganisms into the egg.

GENERAL CARE

After clean and undamaged eggs have been selected for incubation, use great care to prevent damage or contamination of the eggshells. This includes using frequent hand washing as a barrier to microbial contamination.

STORAGE TIME

Ideally, eggs should be set in the incubator as soon after gathering as possible to maintain egg quality. If eggs are to be stored before incubation, the best hatchability occurs when eggs are stored for less than 7 days from the time they were laid. However, some species are more sensitive to storage than other species. Hatchability decreases rapidly in eggs held in storage for more than 10 days. Storing eggs longer than 2 weeks also can extend the normal incubation time as much as 1 day.

POSITIONING & TURNING EGGS DURING STORAGE

Eggs that will be stored for less than 10 days before incubation should be placed on egg flats or in egg cartons with the large end up. Eggs do not need to be turned from side to side during storage if they are incubated within the week the eggs are laid. If the eggs are not sealed in a plastic bag, cover them with a loose fitting material to prevent debris or dust from soiling the eggs. Eggs stored for more than 10 days should be tilted from side to side over a 90-degree angle once or twice a day to assure optimal hatching success rates. To turn eggs during the holding period, place a 6-inch block under one end of the carton (or flat) holding the eggs to produce a 45-degree angle against the floor. The next day, remove the block and place it under the opposite end of the carton. Turning eggs prevents some hatchability loss that can occur during long-term storage.





POWERSOL INCUBATOR CAN HATCH THESE

Total incubation time to hatch, time for transfer to hatcher, and dry and wet bulbtemneratures for common birds.

Bird Name	Incubator Condition Hatcher Condition					
	Period (Days	Dry Bulb (F)	Wet Bulb (F)	Transfer at day	Wet Bulb (F)	Dry Bulb (F)
Canarv	13-14	100.5	86-88	11	99	90-94
Chicken	21	99.5	86	18	98.5	90-94
Cockatiel	18-20	99.5	86-88	15-18	99	90-94
Cockatoo	22-30	99.5	86-88	20-27	99	90-94
Conure (Sun)	28	99.5	86-88	25	99	90-94
Conure (various)	21-30	99.5	86-88	18-27	99	90-94
Dove	14	99.5	86	12	98.5	90-94
Duck (common)	28	99.5	86-88	25	98.5	90-94
Muscovy Duck	35-37	99.5	86-88	31-33	98.5	90-94
Finch (Zebra)	14	99.5	86-88	12	99	90-94
Domestic Goose	30	99.5	88	27	98.5	90-94
Geese (various	22-30	99.5	88	20-27	98.5	90-94
Grouse	24-25	99.5	84-86	22	99	90-94
Guinea	28	99.5	84-86	25	98.5	90-94
Lovebird (various)	22-25	99.5	86-88	20-22	99	90-94
Macaw (various)	26-28	99.5	86-88	23-25	99	90-94
Mynah	14	100.5	86-88	12	99	90-94
Parakeet (various)	18-26	99.5	86-88	15-23	99	90-94
Budgerigar	18	99.5	86-88	15	99	90-94
parrot (various)	18-28	99.5	86-88	15-25	99	90-94
Parrot (African Grey)	28	99.5	86-88	25	99	90-94
Chukar Partridge	23-24	99.5	88	20	99	90-94
Peafowl	28-29	99.5	86-88	25-26	98.5	90-94
Ptanniaan	21-23	99.5	86-88	18-20	99	90-94
Raven	20-21	99.5	86-88	17-18	99	90-94
Ring-neck Pheasant	24-25	99.5	86-88	21	99	92-95
Pheasant (various)	22-28	99.5	86-88	20-25	99	92-95
Piaeon	17-19	100.5	88	14	99	92-95
Bobwhite Quail	23	99.5	84-86	21	99	90-94
Japanese Quail	17-18	99.5	86-88	15	99	90-94
Swan (various)	33-37	99.5	86-88	30-33	99	90-94
Turkey	28	99.5	84-86	25	98.5	90-94
Emu	49-50	97.5	70-75	47	97.5	90
Ostrich	42	97.5	70-75	39	97.5	90
Rhea	36-42	97.5	80		97.5	90
This period is the entire incubation time until hatch that includes 3 days in the hatcher. Ventilation should be increased half way through the incubation period.						

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CHEMICALS FOR DISINFECTION AND TOCLEAN POULTRY INCUBATOR

Formaldehyde Solution (Formalin) HCHO=30.03

Assay - 37-41% W/V	Methanol Content - Approx 10%
Wt. per ml at 200C - 1.085- 1.095 g	Ash - 0.02% max
Acidity (HCOOH) - 3mlog N/ 1% ma	ax Chloride(Cl) - 0.01% max

Potassium permanganate - For Cleaning

Pleace keep these Chemical bottles closed in a moderately warm condition and also keep away from Children.This Chemical is Irritating and poisonous.

HOW TO USE

Take 20 ml Formaldehyde Solution in a plastic bowl and put two pinch of Pottassium permangante in it. Suddenly it starts to produce fume which is harmful for breathing. So close the lid of the incubator and leave it for half an hour. Later open the Solar incubator and leave it for one hour to get rid of the chemical's smell and effect. Once Chicks started to come out, keep them in a Hatcher with Warm Temperature by using incandescent Bulb. Give I V vaccine after 6 days to chicks. After 15 days I B D Vaccine is given to prevent any diseases.



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INSTRUCTIONS

The Things To Be Done For Better Hatching Result

- Before placing the eggs clean the incubator with little anti biotic liquid thick cloth.
- Switch on the incubator for about 2 hours before placing the egg.
- Use the stabilizer to avoid damage to incubator due to voltage fluctuations.
- When there is no power the incubator will not work properly, so place an inverter to generate power.
- Do not open the incubator when it is a switched on if needed switch off the incubator to open it.
- Just before the hatching date place the eggs in the hatching basket from the egg tray.
- Constant power supply is needed for the incubator or it may result in delay or change in turning time. So it is suggested to use an inverter we can provide inverter for an extra charge.
- Fill the water tank fresh water every 2 days.

MORE N MORE

- When should the incubator be prepared for the eggs?
 A. About a week before starting the incubation process.
- Where should the eggs be stored, if they cannot be set right away?
 A. If they cannot be put in an incubator right away, then they should be kept in a cool room at a temperature of 55-60 degree F.
- How do you disinfect the incubator?
 A. Disinfect incubator with 10 percent bleach solution, then wash with warm soapy water and rinse thoroughly.
- How long should egg be held for incubating?
 A. No more than seven days.



What are the factors for successful hatches?

A. Successful hatches can be obtained by securing fertile eggs, maintainingcorrect temperature and humidity, increasing ventilation when chicks hatch, turning the egg properly.

- What should used to mark the eggs?
 A. A lead pencil only.
- What should I do if the eggs in incubator do not hatch on the 21st day?
 A. Leave the unhitched eggs until the 23rd or 24th day.
- What does it mean when chicks are very wet and mushy?

A. Chicks are wet and mushy if too much humidity is in the incubator. To lower humidity at the end do not place more than one sponge in bottom of incubator to avoid lower humidity.

How can I be sure that I have enough humidity?

A. Maintain correct water level in the bottom of the water to maintain humidity.

How do I add water?

A. Add warm and fresh water (100 degrees F) with a squeeze bottle, or meat buster, without getting the eggs wet.

• How do I count the days?

A. Count the days of incubation from the first day the eggs are places in the incubator. If placed in the a.m. that day would be Day 1: if placed in the p.m. that day would be Day 0, the next day would be Day 1.

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INSTALLATION

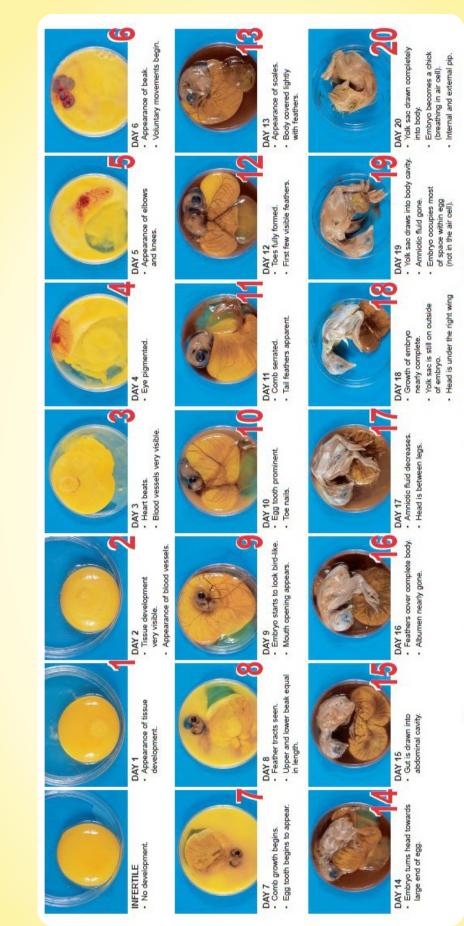


- Place the Hatcher base on a flat, level surface (workbench height is ideal) with the door facing forwards.
- Plug incubator mains supply cable into a suitable outlet.
- Allow the incubator to run for at least an hour to stabilize the temperature before making adjustments or setting eggs.
- Always disconnect the power supply before moving the incubator.
- After pouring water into both grooves patterns, place the hatching mat in the tray bottom and run the Hatcher for at least an hour at the correct temperature to warm the water.
- Disconnect the incubator and base from the main power supply during. Cleaning.
- Ensure that all electrical parts are kept dry.
- The exterior of the cabinet may cleaned with a damp cloth.
- Only use the power supply unit supplied with the product. Use of a different power supply may cause a hazard and will invalidate any warranty.

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CHICK EMBRYO DEVELOPMENT



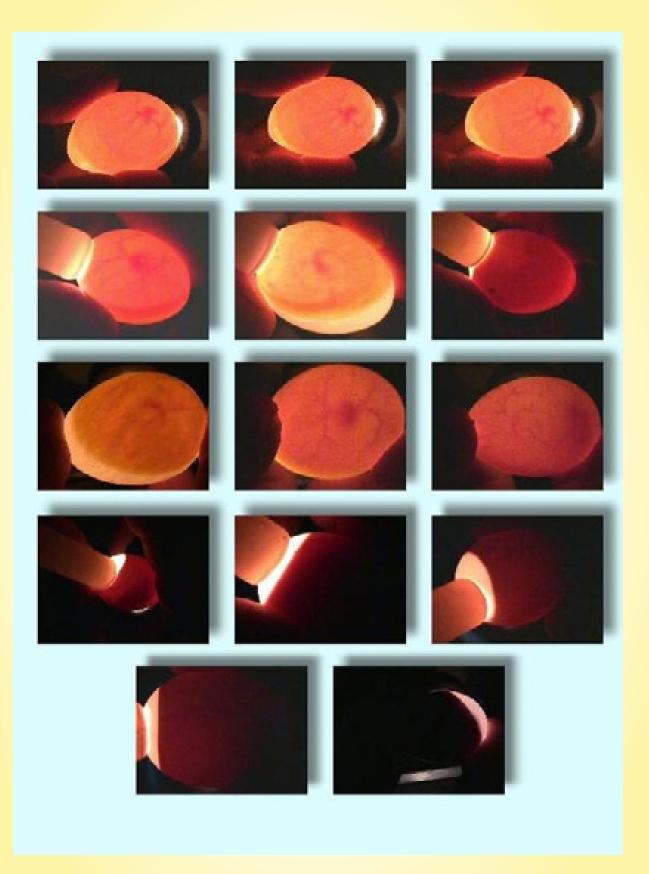
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EGG CANDLING



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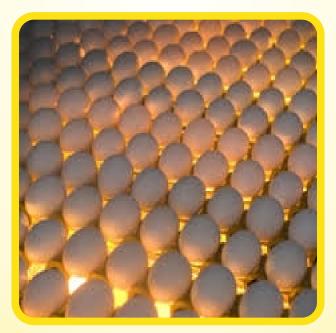


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