Incubation Hints and Tips

Collection and Storage of Eggs

When collecting eggs for incubation select the best ovoid (egg-shaped) eggs, without any lumps and bumps, do not keep eggs with thin or rough shells, and neither overly large nor overly small eggs as these will most likely not hatch. If you need to clean an egg do not immerse or soak it in water. Use a damp cloth to wipe off excess dirt and manure. Do not scour the egg as you may scrape off the protective coating leaving the egg vulnerable to external contamination.

Eggs may be collected and stored for up to seven days before incubating, longer than this and your hatch results will start to deteriorate. Make sure that you turn the eggs at least once per day while in storage to keep the embryo from dying. The eggs should be kept at room temperature for best results. If the eggs cool to below 8 degrees Celsius some of the embryos may be killed and if the eggs start getting too warm then the eggs may start to incubate early and will then die if cooled. Store your eggs at between 8 and 25 degrees Celsius for best results.

By putting all of one week's eggs into the incubator at the same time they will all hatch around the same time. This is much easier to manage than having eggs hatching every day, which is what would happen if you were putting eggs into the incubator every day.

Turning Eggs

There are two methods of turning eggs in incubators. Eggs may be laid on their side and turned from 45 to 180 degrees by rolling them, or they may be stood in some sort of tray point down and tilted from one side to the other. Both methods are used in commercial incubators today. An easy method of turning eggs during storage before incubation is to put the eggs point down in an egg carton and place one end on a tissue box or equivalent height object. Once a day, move the carton to the other side of the box tilting the eggs from side to side.

Incubating Eggs

Up until the last 2-3 days of incubation, eggs will require a constant temperature and humidity. They will also need to be turned a minimum of twice a day and preferably three or five times a day. If you are turning the eggs manually, you do not need to turn the eggs exactly every eight hours, however a reasonable period of time between turns is better if you are only turning the eggs 3 times a day. (e.g. early morning, late afternoon & before bed) If you are using an auto-turning incubator, these will usually turn the eggs every one to four hours.

During the last 2-3 days of incubation the eggs no longer need to be turned but they will require extra humidity. Each type of incubator will have suggestions as to how to increase the humidity at this time. Usually this involves closing air vents and adding more water to the incubator. Make sure that at all times fresh air can still get in and stale air get out of the incubator as eggs breath much like we do and require fresh air and have the need to replace stale old air. A large proportion of problems due to poor hatches can be directly related to incubator humidity so purchasing a humidity gauge for your incubator (if it does not have one) is usually a sound investment.

Ambient environmental conditions will affect both the temperature and humidity inside the incubator. Make sure that the incubator is kept between the suggested temperature ranges for the specific model. Most small incubators recommend an outside temperature of between sixteen and twenty-six degrees Celsius. This is because a lot of small incubators do not have strong enough heaters to heat the incubator up enough at very low ambient temperatures. Incubators are only designed to heat, and at high ambient temperatures no incubator can cool itself down.

Controlling Humidity

If you need to increase or decrease the humidity in your incubator beyond what can be accomplished by adjusting the vents then you will need to increase or decrease the **surface area** of water in the incubator. If you need to reduce the surface area of water to less than one tray of water in the incubator, you can float small pieces of polystyrene in the water tray to reduce the exposed surface area. If there is

room in the incubator and you would prefer better humidity control, you can replace the existing water tray with one or more ice block trays. This way you can fill as many small ice block sections as needed. Always try to use plastic trays inside your incubator, as they are easy to clean and keep sterile.

Hatching

Once the eggs have started to hatch, the chicks can stay in the incubator for up to twenty-four hours before they need to be removed to a brooder. During this time the chicks will dry off and finish absorbing the remaining yolk sac. Do not remove the chicks from the incubator before they are dry and fluffy as they may develop a chill. Some eggs may take an extra day or two to hatch, so do not immediately discard eggs that are unhatched after the hatching period for your eggs. Chicks that hatch much later than others will tend to be weaker and sicker than the rest so you will have to judge at what point to discontinue hatching a batch of eggs.

A brooder may be as simple as a box with a lamp hanging over it for warmth to as sophisticated as a thermostatically, humidity controlled parrot rearing unit. For most young birds there will be something in between.

Diagnosing Problems

If you are having low hatch rates then the following are some of the things you may want to check.

Is the incubator running at the correct temperature and holding that temperature without varying too much above or below the set point? If any of the eggs have started to develop into chicks, then the incubator is probably running at the correct temperature. You may lose developing eggs if the temperature falters at some point during incubation due to a fault or power failure.

If the incubator is working and has not been off for too long during the incubation period then check inside the eggs that did not hatch and determine which of the following may be the problem.

- If the eggs did not start to develop at all then the eggs were probably infertile. If you have a rooster with your hens then he may not be doing his job. If none of your eggs started developing then fertility is most likely the problem.

- If only some of the eggs are fertile then you may find that there are too many hens with your rooster and he may not be able to service all the hens he has. Also allow two weeks or so after the rooster has been introduced to the hens before attempting to collect fertile eggs, as the hen may have up to two weeks worth of developing eggs already inside her. This also applies when you change a rooster over.

- If the eggs develop for about a week or so and then a large number of embryos die in the shell then the most likely cause is a germ in the incubator. The germ takes advantage of the pores in the egg to get into the developing egg and kill the embryo. In order to fix this problem you will need to sterilize the incubator. One method of sterilization is to put hospital strength disinfectant into a fine spray mist bottle and mist over the inside of the incubator and then let it dry. **Do not soak** the incubator, as you will damage electronic components in the process. Do not use a disinfectant with bleach or chlorine in as these can also damage the incubator and/or the next batch of eggs.

- If the chicks have almost fully developed but died before hatching the most likely problem is too high or too low humidity. If the humidity is too low the chicks may become smothered in the shell as the membrane surrounding them thickens and hardens like leather. If the humidity is too high the chicks can actually drown in the shell. If the membrane in the shell is hard and tough surrounding the chick then the humidity is probably too low. If the chick is covered in slime, sometimes green, then it is an indication that the humidity was too high. These mostly affect the egg in the last 2-3 days before hatching.