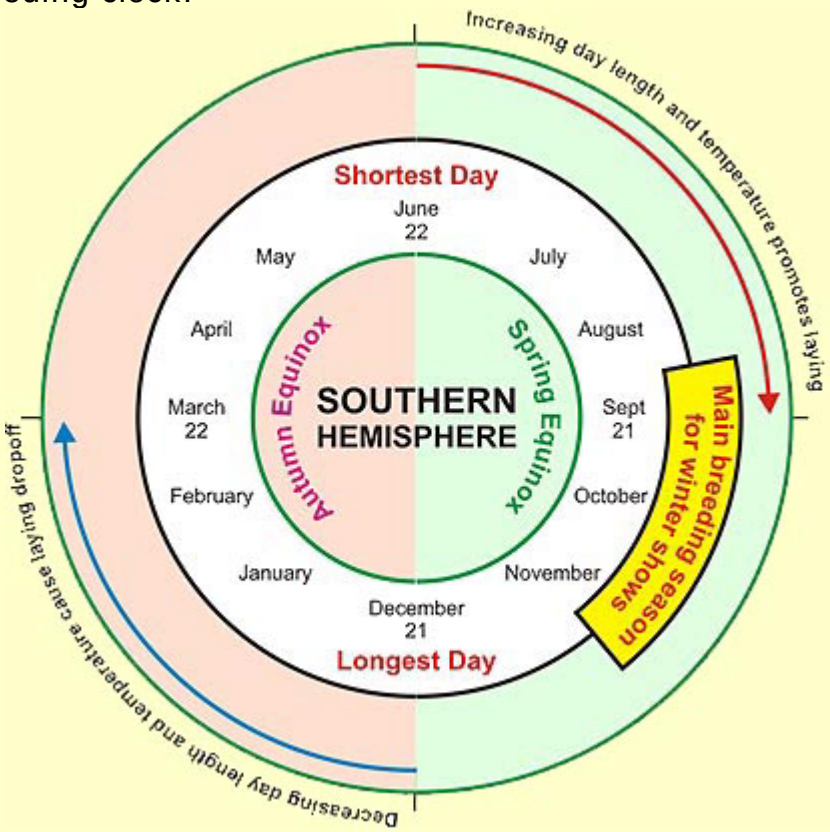
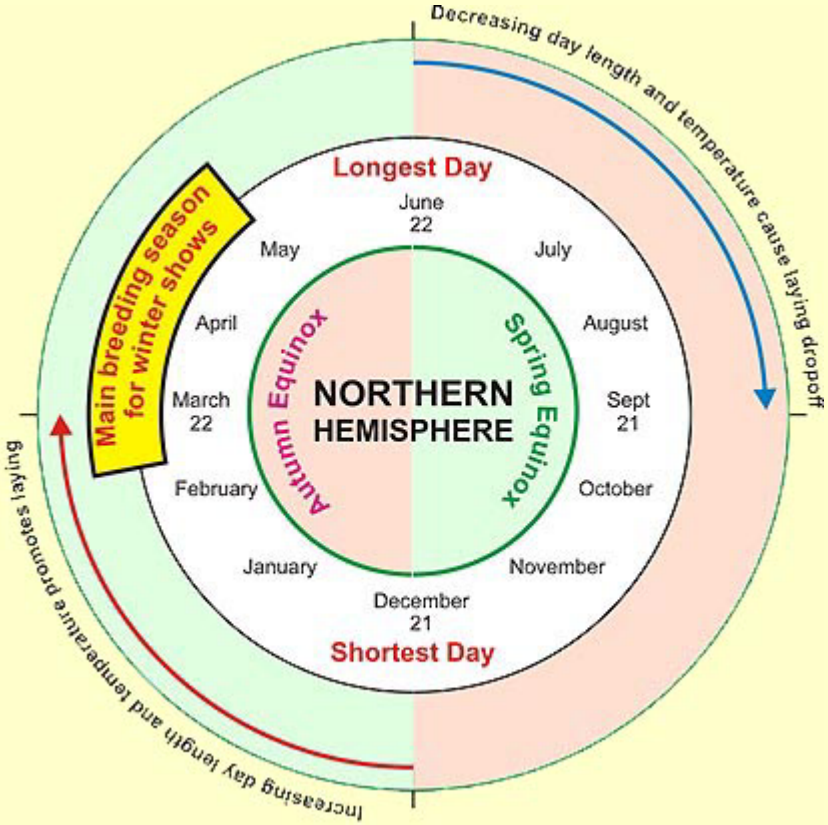
BREEDING & INCUBATORS

Breading Season is about to start, that is, if you live in the Northern Hemisphere. If not, don't wory, this Special will be saved for you in the digital archives at our site.

It is only when daylight hours reach a certain length and the temperature rises that birds will breed, (usually Spring). These conditions act upon the birds' pituitary gland and promotes sexual activity. It is this same reason why most hens stop laying completely through the winter months. This is all known as the biological breeding clock.





This info is with courtesy of Greg Davies - 'The Chook Shed' at http://www.users.on.net/~greggles/index.html

Planning a successful hatch starts with the parent birds, long before any eggs are even collected.

Healthy adults breed healthy chicks, so it is important to get the breeding stock as healthy and fit as possible. Select the birds to breed with and separate them into pens away from other fowls. A special feeding regime should begin about 6 weeks before the first egg is collected; that provides a high protein ration, plenty of green feeds and a vitamin supplement if possible. This provides the birds with the necessary nutrition to produce nutritionally-rich eggs which gives the growing embryo the best possible start to life. It is unwise to be tempted into setting eggs from birds that have not been prepared for breeding

Once the eggs are collected, select only the best for incubation. Check each egg for shape and shell texture. Discard any which are too round or too narrow and any which have thin shells or fine hairline cracks. The ones that pass the test must be stored correctly. Eggs must not be kept any longer than seven days before beginning the incubation process. Egg shells are porous, which means dehydration begins to occur quite quickly, severely lessening the chances of a successful hatch. After an egg is laid, it cools rapidly, causing the embryo to go into a state of suspended animation. It is important that the eggs are kept at a sufficiently cool temperature to prevent incubation starting too soon. The eggs must be collected as soon as possible after laying, to prevent soiling or other damage. Furthermore, eggs left in the nest begin the incubation process as they are warmed by the hens sitting on them while laying more eggs on subsequent days.

The optimum temperature for egg storage is between 12 and 15 degrees Celsius. Any cooler and the embryo is unable to begin development when the temperature is raised and conversely, eggs stored too warmly begin embryo development, but as the temperature is not sufficiently high to continue the process, the embryo dies. Eggs which are in storage must be turned each day to prevent membrane and embryo damage caused by sticking to the shell.

Most serious breeders of show fowls use incubators to hatch their chicks. This is because broody hens are often unavailable when the supply of hatching eggs is greatest. But broodies still give excellent results when available. For info about using the old-fashioned (but still ever reliable) hen, see:
http://www.users.on.net/~greggles/incubate3.html

In the next pages we will will look at artificial incubators. There are two different kinds of incubators, **still air** and **forced air** and there are three basic physical principles for incubation: temperature, humidity and egg turning (which are the same for both types of incubator), however the methods used are different for each.

This info is with courtesy of Greg Davies - ‘The Chook Shed’ at http://www.users.on.net/~greggles/index.html

SCHUKO ALMELO

We import and sell incubators from Italy, from a factory that is developing incubators since 1946 and providing these in the capacities of 24 up to 120, 000 eggs. So they will sure understand your unique incubation needs. They manufacture both Incubators (Setters) and Hatchers; at the smaller machines this is often combined.
New developed and already a great success in the market is the **type S-084a**. (see photograph) This is a fully automatic machine with digital temperature regulation and automatic turning system. The temperature is read with an analogue thermometer. The machine is suitable for 84 chicken eggs and has a setter and a hatcher compartment, and is provided with a glass door that allows an crystal clear inside view to observe the hatching process!

You have come to the right address if you need personal advice. In the past, before distributing these Italian incubators, we used to build our own type of incubator with great success. We are poultry fanciers ourselves and have over 50 years of experience with incubating eggs.

All our incubators can be delivered with digital display and also with fully automatic humidity control system.

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www.schuko.nl

Information courtesy of Surehatch http://www.surehatch.com/

How do I candle eggs?

In a dark room, hold the egg to the light of the candler to observe the contents of the egg. Cooling that occurs for short periods (less than 10 minutes) during careful examination of eggs does not harm the development of the embryo. However, limit the exposure of the egg to the hot light source!
The presence of embryos can be confirmed easily after 8 days to 12 days of incubation.
After day 3 you should see something. At about 8 days, you can see the chick wiggling and kicking in his egg. See movie http://www.youtube.com/watch?v=mQgiHCDQpMc&NR=1

How do I spot bad eggs?

The egg on the left shows a ring at 6 days. This ring is formed by concentrated bacteria which has invaded the eggs' membrane. It can become present very early, or after the chick has already started to form, as in the picture on the right. In the picture on the right the ring, or portion of it, can be seen at the bottom of the egg with the expired chick in the middle.

For a different reason. The egg on the left shows a blood spot. In my experience an egg with a blood spot will not hatch. They will go bad and blow up, though. The egg on the right at 6 days shows "clear". It is infertile, or too old to germinate.

The egg on the left shows a blood spot incubated to 8 days. You can see the bacterial ring forming at this point. Soon this egg will start to "weep", and if it isn't caught in time, it will explode into a stinky mess. The egg on the right shows highly defined pores. Eggs that look like this under candling have a slim chance of hatching in my experience. I've noticed that it mostly depends on the severity of the porosity.

Candling is best learned by doing it, and really is just as simple as you make it. However, if questions arise about candling, contact someone with experience for advice. Remove infertile or non-growing eggs from the incubator.

Fertile eggs

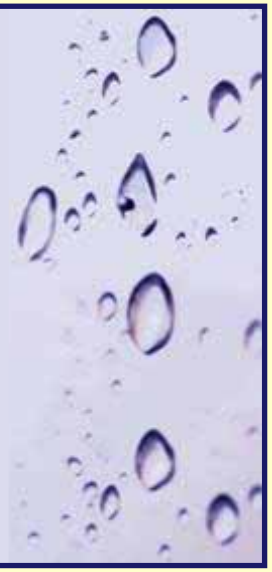
On the left, you can see the "spider" of veins growing away from the peep. This egg is at 6 days. Sometimes you can see this spider in a smaller version at 3 days already. The egg on the right is at 2 weeks. You can see the clear spot beneath, with the yolk and peep floating at the top.

The embryo is located in the large end of the egg, where blood vessels radiate under the surface of the shell. The living embryo will appear as a dark spot in the large end of the egg surrounded by a faint outline of blood vessels. The dark spot that becomes larger as incubation progresses. Eventually only a dark mass and the air cell are seen.

Hatching http://www.youtube.com/watch?v=tof5b1Qs_OE&feature=related

HUMIDITY

Getting the humidity to become as accurate as your temperature is nearly impossible. It is almost completely impossible with a small incubator. Try to get the humidity as close as you can, and you'll be fine. To adjust humidity, you need to change the ‘surface area’ of water in your incubator. The depth of water has absolutely no bearing on the humidity in the incubator (unless the depth is zero). If the humidity is too low in your incubator, add surface area; thus place an extra pan of water in the incubator, or a wet sponge. To decrease the humidity, remove surface area, thus use smaller or less containers of water.



See also http://www.hatchitincubators.com/incubation_guide.asp

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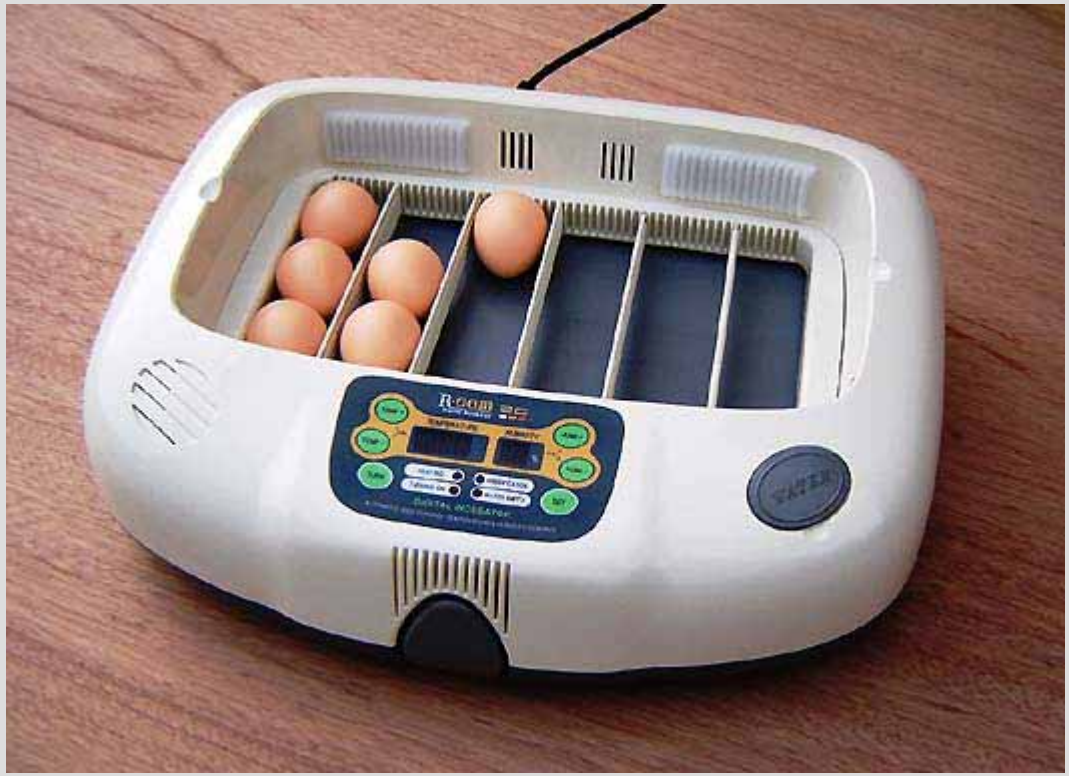

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NEW!

CONTACT INCUBATION TECHNOLOGY

THE COMPLETE COMBINATION OF BIRD AND NEST

Conventional artificial incubation is very artificial. It surrounds the eggs with warm air, rotating them regularly but not changing their environment greatly. This has proved successful for the mass breeding of poultry, particularly as, over many generations, the breeding programmes have self-selected for birds which flourish in the artificial environment. But for other species, artificial incubation is less satisfactory. Compare this artificial environment with natural incubation in the nest. The bird sits on the eggs with a brood patch, often plucked to bare skin, passing body warmth from the bird to the egg through a small contact area. At irregular intervals the bird gets up and rearranges the eggs. This exposes them to cool air. When she settles down, a different part of the egg is in contact with the brood patch. Some species even leave the eggs exposed, letting them cool while they forage for food or defend their territory.

Academic research on egg incubation has shown that for some species in the nest there can be a temperature difference across the egg of over 10 degrees. The top of the egg, in contact with the brood patch, can be as high as 40 degrees centigrade while the bottom of the egg can be as low as 29 degrees while brooding. (And during bird absences, the whole egg can fall to as low as 20 degrees). How heat flow, the developing embryo and the brood patch interact to produce strong chicks, has proved to be far more complex than previously suspected. It is now established that the heat flow through the egg, passed downward from the contact area, is important in determining embryo growth and successful incubation.

Building on this research, Brinsea have created Contact Incubation Technology (CIT). This reproduces the brood area by inflating a plastic skin with warm air. As it inflates, the skin presses gently but firmly on the eggs sitting on rollers on a moveable base. Air can flow through this base, creating an environment which mimics the nest. Deflating the skin simulates the bird standing while moving the base reproduces the natural egg movements.

For Key Standard Features and Specifications on the CONTAQ Z6 please see next page.

C.I.T & Z6 the complete combination of bird and nest

CONTAQ Z6 Key standard features

•Contact incubation, conventional moving air and hatching modes.
•Reliable, flexible and easy to use micro-processor control system with improved temperature stability with Enhanced Proportional Derivative (PD) temperature control.
Microprocessor controlled roller turning system allowing full control of turning interval, angle and direction including randomization feature.
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•High quality stainless and galvanised steel cabinet construction for long life and ease of cleaning with integral heat retaining insulation panels improving electrical efficiency and temperature control.
•Two stage air filtration in moving air and hatching modes to keep the air clean for emerging chicks.
•Front loading drawer design gives ideal access to eggs and chicks whilst being stackable and space efficient.

Specifications:
External dimensions: 32cm x 66cm x 59cm (121/2" x 26" x 231/4") – H x W x D
Weight: 30Kg
Power consumption: 110W max and 60W nominal operating
Input voltage: 12v DC and 115v AC or 12v DC and 230v AC as specified
Examples of typical maximum egg capacities:
Quail 152, hen 60, goose 24, macaw 100, parakeet 200

Brinsea Products Ltd
www.brinsea.co.uk
e-mail: sales@brinsea.co.uk

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STILL AIR INCUBATOR

The still air type incubator is the trickier of the two to set up correctly. An incubator works best in a room with a steady air temperature of around 68-70 degrees Farenheit. The incubator must be set exactly level or temperature variations will occur inside the egg chamber. The temperature is set to 103 degrees Farenheit, which is very close to that which is found under a broody hen. The temperature in this type of incubator is measured at the top of the egg. Unfortunately, this means that eggs of different sizes cannot be successfully incubated together in a still air machine. Wet bulb thermometers do not prove successful in still air incubators, so humidity must be measured by regularly checking the air cell inside the eggs. Eggs which have air cells which grow too large indicate humidity settings which are too low. When turning eggs in a still air incubator, it is best to have an external turning mechanism. This means the egg chamber does not have to be disturbed too often, lessening the occurrences of excessive temperature fluctuations.

FORCED AIR INCUBATOR

The forced air incubator uses a fan mechanism to move the warm air around the egg chamber. This means a wider range of egg sizes can be incubated together as the ambient air temperature is more evenly dispersed within the incubator. This incubator is usually set at 99 to 100 degrees Farenheit.

Humidity setting can be accurately measured with a wet bulb thermometer with usual settings of 82 to 88 degrees Farenheit for setting and 94 degrees Farenheit and over for hatching. Egg turning is usually facilitated from outside the egg chamber by a mechanical device. With both kinds of incubators, it is important to stop egg turning three days before the hatching date.

No matter which type of incubator you opt for, keep a notebook detailing any problems and successes which are encountered. The next page details incubator problems and how to fix them: http://www.users.on.net/~greggles/incubate4.html

This info is with courtesy of Greg Davies ‘The Chook Shed’ at http://www.users.on.net/~greggles/index.html

Photo: Gea Markvoort

Temperature
Development of the embryo can only take place at the correct temperature. Too cool and the chicks hatch late and are generally soft and weak. Too hot and the chicks hatch early, may be deformed, have bloody navels which refuse to heal and are generally weak. The correct temperature varies depending on the type of machine is being used.

Humidity
Without adequate humidity, the egg loses too much moisture; too much humidity the egg loses too little moisture. Again, this is variable between the two kinds of incubators, due to air flow and ventilation methods.

Egg turning
For many years it was believed that the hen turned the egg to prevent the embryo sticking to the shell membranes. While this is certainly one reason for turning the eggs, the main reasons are to float the embryo to fresh food within the egg and to move it away from its own wastes. To give the embryo the best chance, turning should take place at least three times each day and optimally more often. Eggs which are collected from breeding birds which have not been fed a high protein diet must be turned more often than those from well-fed stock.

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http://www.users.on.net/~greggles/index.html

Turning by hand
•If eggs are turned by hand they should be turned several times per day (minimum five times daily), and always turned an odd number of times so that the egg is on opposite sides for the longest internal (overnight) on alternate nights.
•Eggs should be marked with "O" on one side and "X" on the opposite side, and all turned so that the "O" is uppermost on all the eggs after one turning and the "X" is uppermost after the following turning.
•Eggs should be turned in one direction one day and the other direction the following day (i.e. rotated along their long axis clockwise and anticlockwise alternately). Continual rotation in the same direction may lead to problems such as twisting of the chalazae, rupture of the yolk sac or rupture of blood vessels in the embryo.

More Incubation Info & Tips http://www.surehatch.com/
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