





Instructions for use

COVATUTTO 24 - COVATUTTO 24 ECO - COVATUTTO 54

DIRECTIONS

This incubator has been created to provide an ideal condition, so that the fertilised eggs placed in continue their embryonic development, which already started before they were laid, up to the little chicken birth. In order that this can happen, it is essential to remember the focus is to be on the egg, i.e. the most important subject.

In order to obtain an excellent birth percentage, you need to concentrate on the eggs fertilisation as well as whole following cycle, i.e. from the egg formation to the laying, which is why you are invited to pay attention to the following directions:

- Please do not use eggs that are normally on the market for feeding purposes. Instead it is highly recommended to use eggs collected from poultry pens, where sexually mature, healthy and well-nourished animals live, not too young or too old, considering that the male number shall be proportional to the female one, in order to obtain a good percentage of fertilised eggs.

Please below find a table, which you are advised to follow in order to reach satisfying results:

egg type	Sexual maturity		Proportion between males and females	
	male	female	N°	N°
QUAIL	60 days	50 days	1	3
HEN	6/8 Months	6/8 Months	1	10
GREY PARTRIDGE	10/12 Months	10/12 Months	1	1
HEN-PHEASANT	6/7 Months	6/7 Months	1	7
GUINEA-FOWL	8/10 Months	8/10 Months	1	2
DUCK	8 Months	4 Months	1	4
TURKEY-HEN	7 Months	7 Months	1	10
GOOSE	8 Months	7 Months	1	4

- Avoid crossbreeding consanguineous animals, for they could beget eggs containing weak embryos that will inevitably die.

- Accustom animals to lay eggs into their own nests and not on the ground. This will prevent the eggs to get dirty or infected. Place the nests in the shade and keep them clean.

- The most fertile time for animals is related the most luminous time of the year, i.e. from February to October. Also, you need to pay attention to the environment temperature, which shall not be less than 16°C or more than 24°C, while the relative humidity may vary from 55 to 75 %.

- It is important to avoid exposing the laid eggs directly in the sunshine or in very hot places, for germination is starting inside them, which is interrupted conservation point necessary before their incubation.

- Eggs shall be collected four times a day, with clean hands, and placed on suitable trays and their points turned downward. Should the temperature be too high or too low, you are advised to collect eggs every hour.

- At the end of each day, you are kindly advised to collect all the eggs left, avoiding leaving them in the nests during night, moreover, you shall close the access to the nests and reopen it very early in the morning, before the new laying.

- Eggs shall be collected just after the laying without shaking them or bumping one another and shall be selected according to their size, shape, weight and shell porosity. The eggs shall be of medium size (neither small nor big ones), not too tapered or rounded, with little porous shell and possibly looking similar one another. They need to be cleaned avoiding the use of water.

Tapered or too rounded eggs might lead to weak chicks, whereas the ones with wrinkled shell shall be excluded as they contain too much calcium and humidity together with heat will harden them, thus preventing the embryo from developing regularly leading to consequent death inside the shell.

Using other kind of eggs, i.e. different from the ones above described may result in decreasing the birth percentage.

The selected eggs shall be placed into the apposite well cleaned egg trays (available anywhere) with the point downwards and kept for at least 24 hours in a room at a stable temperature ranging of 15° - 18° C with a relative humidity between 70 and 75 % before they can be placed inside the incubator.

In order to get a good results, it is important not to preserve the eggs for more than 5 days since they were laid.

Please note that the fresher the eggs are, the more the hatching is regular, and therefore the hatched chicks are healthy and robust.

You should use eggs laid more than 5 days before, incubation is likely to be compromised and may result with the following:

- 1) No hatching occurring and unborn chicks dying inside the eggs.
- 2) Embryos will not become mature enough.
- 3) Hatching will occur late and irregularly, consequently chicks will be very weak or misshapen.
- 4) Some hatched chicks might succeed in making a hole in the shell but they usually remain trapped in the eggs as they are too weak.
- 5) "Bright eggs" might be in large amounts when the germ is too old and does not develop.

It is known that old eggs are the main reason for birth decrease.

Incubation is often irremediably compromised by the ones who want to preserve eggs for more than 5 days since they were laid, just to collect enough of them to fill the incubator.

In conclusion, before incubating the eggs, 24 hours shall go by, not more than 5 days since they were laid, as previously advised.

EGGS TO BE PUT INTO THE INCUBATOR

Shape, size, weight of eggs suitable to be put into the incubator, incubator indicative capacity.

EGGS TYPE	Indicative measures Diameter x height mm	Indicative weight grams	Indicative capacity covatutto 24 covatutto 24 ECO N°	Indicative capacity covatutto 54 N°
QUAIL	25x30	11	70	140
HEN	40x50	45	24	54
"	43x50	53	24	48
GREY PARTRIDGE	30x40	12-14	42	84
HEN- PHEASANT	35x46	30-35	30	60
GUINEA-FOWL	35x49	45	30	60
"	38x49	50	24	54
DUCK	46x60	70	20	40
"	46x65	75	16	32
TURKEY-HEN	46x66	70	16	32
"	50x70	85	12	28
GOOSE	65x100	120	6	15
"	68x106	140	4	10

DESCRIPTION OF THE EGG-HOLDER UNIT

It is used to collect the eggs of all the species that can be incubated and it is suitable for local hatching. The eggs are to be laid and lined up in it and held in this position by some mobile separators running in some guides, according to egg size.

The egg rotation occurs by moving the sliding unit by-means egg-turning tie rod of an, first in one way (morning) and then in the other way (evening). Besides being used to collect the eggs and allowing the hatching in it, the sliding unit also gives the opportunity of turning the eggs from the outside without opening the incubator. The "automatic egg-turning device" may be supplied on request. If applied to the incubator, it allows turning the eggs automatically, without having to intervene manually.

HOW TO USE THE SEPARATORS

Insert the separators inside the appropriate runnings and space them out, according to the eggs size, leaving a slight clearance for the rotation. Insert one row of eggs between the separators, or two-three rows as long as there is enough space to enable the egg rotation. This solution is recommended for small eggs incubation (quails, pheasants, etc.), or even for quite big hens' eggs, in which case some separators shall be removed, so as to obtain enough space and enable them to rotate freely (see pic. 1).

WHERE TO PLACE THE INCUBATOR

We recommend that you choose a room where the temperature is stable, not lower than 16 °C for "COVATUTTO 24 ECO" and 12 °C for "COVATUTTO 24" and "COVATUTTO 54" (otherwise the incubator temperature would diminish) and not higher than 26 °C, even if the incubator may function in a room where the temperature reaches 31 °C. Humidity shall be between 45-55%, free of smells, well-aired and not dry, without leaving windows or doors open as they could cause draughts, harmful for the incubated eggs. The room shall be dimly lit, and the incubator shall be put on a wooden and solid base not lower than 80 centimetres high above the floor. The incubator shall not be placed next to direct sources of heat, as they

may alter the inner temperature. Neither animals, nor the hatched ones, shall be allowed inside the room. No washing operation shall take place near the incubator; otherwise eventual jets may deteriorate the insulation and cause electrocution (electric shock).

INCUBATOR PREPARATION AND START

Before start the machine, you are strongly advised to read all the instructions.

Use the machine for the above-mentioned purpose only, if used for other purposes it is considered to be dangerous and the Manufacturing Company declines all responsibilities for eventual damages to people, animals or things resulting from inobservance of this warning.

Remove the machine from its packaging and make sure nothing is missing or damaged. Do not scatter the packaging in the environment. Keep both the machine and the packaging out from the reach of children, minors and /or animals.

Make sure all its parts are well secured and in the right place and then, before reassembling them, check the machine name plate data and make sure they are suitable for the rated mains voltage and the available power.

1) Mount the accessories found in the package or to the incubator (refer to the indication in the following pages) and make sure the thermometer reading scale is visible and matching the magnifying lens, before fitting it in the incubator. To adjust the thermometer, hold it through the two gaps on the bottom of its box and rotate until it is necessary (see fig. 2).

2) When the incubator is closed, without eggs inside, place the thermometer correctly and plug the machine in. Wait until the green light (see fig. 3) starts blinking as to advise the internal temperature is starting to stabilize. Wait for about an hour and then check the thermometer scale: the liquid should be approximately on the red line or 100°F, without necessarily matching with it (see fig. 4). You may change the temperature only if the liquid stabilizes itself two lines under or above the red one or 100°F. After completing "PREPARATION AND START" phase to point 6, you may vary the incubator temperature, if necessary, by following the instructions described in paragraph "THERMOMETER AND TEMPERATURE CONTROL".

3) Prepare one or more little bottles of tepid water to fill the basin on the bottom of the incubator (see fig. 5).
• Before opening the incubator door and carry out any operation, unplug the machine to avoid sudden increases of the temperature. We recommend however to open the door only if necessary and just for short periods of times.

4) When the internal temperature is stable and the liquid is on the red line, the eggs shall be laid on the sliding unit as shown in the picture, making sure that there is enough space between the eggs and the separators in order to make the rotation easier. It is recommended to move the turning-egg tie rod in the both ways gently to ensure egg rotation.

5) Fill the basin up to the rim and for an easier water charging, which will be carried out with a small bottle, move the sliding bottom by pulling the egg-turning tie rod towards the outer side of incubator.

6) Close the incubator and, after about an hour, check the thermometer temperature, the liquid shall be on the red line/100°F. If the liquid has not reached the red line/100°F after 4/5 hours since it started working, you may change the temperature yourself according to the instructions described in paragraph "THERMOMETER AND TEMPERATURE CONTROL".

At this point, the incubation cycle begins: you are therefore advised to mark down the day on a calendar and follow the instructions as per below-mentioned schedule.

BIRTH RULES

A) Freshly collected eggs shall be kept 24 hours with their points facing downwards in a cool place with a temperature ranging between 15°C and 18°C.

B) Incubated eggs laid not longer than 5 days before, with regular shape and weight.

C) Turn the eggs half twice a day (morning and evening) by means of the egg-turning tie rod jutting out of the incubator (semiautomatic type).

D) Add tepid water into the basin about every two days.

• The operations (point B-C-D) shall not be carried out in the last 3 days before the hatching; the water shall be therefore put at level in the basin immediately before the 3-day-hatching begins. In fact, during this span of time, the incubator shall not be opened, otherwise the birth would be disturbed.

E) Check that the thermometer temperature is on the red line or 100°F each time eggs are turned. A slight variation in the red line or 100°F does not cause problems, especially if it is a consequence of the movements of the first hatched chicks.

F) If eggs to be incubated are not enough to fill the egg-holder unit, they shall be always arranged on the base proportionally and not be all concentrated in the middle or at the sides, so that to balance air and circulation.

G) By the sixth-seventh day eggs can be "candled" (not indispensable), in order to remove the unfertilised ones.

This operation shall be carried out inside a dark room, lighting the egg on the round edge, which should face downwards, using a bright light torch or the proper "egg-candling" device.

When a little oscillating red spider-like shape is visible inside the fertilised egg, it means it contains a developing embryo.

Other visible shapes different from the above mentioned, are equal to unfertilised eggs or eggs containing dead embryos, to be therefore removed. The remaining eggs shall be arranged in the drawer as previously specified in point E.

H) In case of duck and goose eggs are incubated, the incubator shall be opened (removing the transparent cover) each day starting from the ninth incubation day and the eggs shall be let cooling down for 15-20 minutes. After that, before closing the incubator to continue the incubation, the eggs shall be moistened with tepid water by means of a nebulizer or a sponge. This operation is to be avoid during the last three day preceding the hatching.

I) Remove the separators from the incubator, at the beginning of the 3 days before the hatching, so that they do not hinder the unborn chicks. Move the sliding unit to an equidistant position from the walls and put some separators (already provided with the machine) horizontally over the two resulting gaps. This will prevent the new born chicks to fall into the gaps above mentioned and below the unit itself (see fig. 6).

L) After the hatching, chicks shall remain inside the incubator for about 24 hours to get dry themselves and then they shall be put in a hot place, in the apposite heated cages or under a heater equipped with an infrared ray lamp. From the moment when the heat is enough, chicks will not frenetically crowd and move away from the heat source either. They shall be watered and fed with a proper trough and feed, available in specialized shops. It is good custom not to disturb the new born chicks, as they consequently would disturb the ones about to be born, thus temporarily altering conditions inside the incubator.

L) At the end of incubation, clean the incubator with a moist cloth and as well as tepid water, where it is possible.

USEFUL INSTRUCTIONS

A) If possible, do not incubate eggs of different species or with different hatching terms. In case of strong smells during the hatching, followed by the chicks' death, you shall disinfect the incubator at the end of the incubation with some formalin and potassium permanganate, available at any chemist's. Fill all the holes made in the incubator and then place a plastic container into the incubator with about 30 grams 40% formaldehyde solution (formalin) inside. Immediately, add half spoonful of potassium permanganate before closing the incubator, to avoid breathing poisonous vapours, and then take the incubator to incubation temperature.

Finally leave the incubator door opened for 24 hours to discharge vapours and smells. In any case, all necessary precautions shall be taken in order to avoid breathing poisonous vapours both before and after the operation. It is therefore recommended to make use of gloves, goggles and a mask, carrying out this operation in an open but sheltered place, temporarily unplugging the machine.

B) Should the transparent cover mist up and consequently small drops appear during incubation, you shall lift the cover up for few minutes to let the internal humidity stabilize itself. By hatching time instead, it is normal that the cover gets wet, therefore do not open the incubator, otherwise the humidity degree decreases.

C) Should electric energy supply fail for some hours, incubation will not be compromised, as long as the incubator is not opened. In the case electricity is not supplied for more than 5-6 hours, as last attempt, move the incubator to a quite warm room: leave the cover open, so that the eggs can cool as little as possible.

D) At the beginning of the three days immediately before the hatching remove the separators from the drawers and make room for the unborn chicks.

AT THE END OF INCUBATION

After each incubation the state of the eggs eventually left, shall be checked. Therefore we advise to candle the eggs or break them, remembering the developing germ might not be able to ripen and hatch.

THERMOMETER AND TEMPERATURE CONTROL

The temperature control thermometer shall be put in its apposite seat. It is covered by a transparent anti-shock and magnifying glass, to help checking the temperature. In case the thermometer reading does not correspond to the one on the magnifying glass, turn the outer part of the thermometer as much as it is needed, by holding the thermometer base through the two gaps in the bottom.

The thermometer the machine is equipped with is used for checking the internal temperature only, which will be completely right only when the liquid inside the thermometer has reached the line corresponding to 100°F.

As a matter of fact, after starting the incubator, you will notice a green light. When it starts blinking, the internal temperature will be ideal for incubation. You may change it by using a little screwdriver on the apposite calibration screw (see fig. 7)

To enable this operation, please refer to the green light constantly, i.e. it stays lit at the beginning and then starts blinking when it is ready. In order to increase the temperature turn the screw little by little waiting for few seconds since the green light starts blinking, to let the temperature stabilize itself. Repeat this operation until the liquid rises to the point wished on the control thermometer scale. As for decreasing the temperature, turn the screw little by little counter clockwise waiting for few seconds until the green lights starts blinking, to let the temperature stabilize. Repeat this operation until the liquid rises to the point wished on the control thermometer scale. Please be advised this operation shall be performed with extreme care and only if necessary.

As a consequence, before incubation make sure the thermometer liquid has not been broken because of banging. The liquid is supposed to be a single and continuous in the capillary, starting from the bulb on the point (see fig. 8). Should the liquid be broken, a spare thermometer is necessary.

WARNINGS

If, during functioning, the green light (see fig. 3) turns red and starts blinking, it means that the temperature is not right. If the temperature is too low, you will need to wait for some time before adjusting it. Incubation can still continue, by controlling it carefully. Differently, if temperature is too high or two lines above the red line/100°C wait for 10 minutes.

If the situation does not improve and the green/red light is off/blinking, you may try to regulate the temperature manually, after assuring everything is safe. Alternatively, switch off the incubator and contact NOVITAL or an authorised Maintenance Centre.

If the thermometer is a mercury type (that is to say that liquid is silver colour), and the thermometer bulb happens to break and the mercury goes lost, please follow the instruction below:

- collect the mercury in a glass or plastic container with hermetic plug and send it to NOVITAL for disposal.
- Should the mercury thermometer be defective even if unbroken, send it to NOVITAL for disposal.
- The machine is an electric device, therefore never touch it with wet hands or barefoot.
- The machine is conceived for inner use only, water jets might lead to electric shock.
- Avoid using improper extensions, do not wet connections, and do not damage the feeder, which has to be protected and away from the reach of animals.
- The machine shall definitely never be used in dangerous places, where the saturation liquids with inflammable gases may occur or where it may get in contact with several liquids or inflammable substances and liquids.

- Cleaning and maintenance of the machine shall be done with cloth or/and brush without using tools or liquids. Dusts can be removed with a gentle air jet, just after unplugging the machine.

Maintenance shall be limited to the usual periodic inspections (before the use) of the moving parts and of the feeder, in order to check if they are eventually damaged or worn. Should the machine be damaged, it shall not be used.

- Other cleaning and/or maintenance operations shall be carried out by qualified personnel of an authorised Service Centre or NOVITAL only.

- Do not move the machine by pulling its feeder and always unplug it before moving it, anyway.

- For eventual repairing, feeder replacement included, apply to qualified personnel at an Authorised Maintenance Service Centre or NOVITAL only.

- As it is an electric device, in case of fire, use powder fire extinguishers. Never use water in order to avoid the occurring of electrocutions.

- Should the machine be declared as out of order, it needs to be dumped in an authorised tip. Hence, it shall firstly be made idle by cutting the feeder as much close as possible to the machine output point, after unplugging the machine itself.

INCUBATION TABLE		
Egg species	Incubation days no.	Egg rotation
QUAIL	16-17	From the 1 st to the 14 th day
HEN	20-21	From the 1 st to the 18 th day
GREY PARTRIDGE	23-24	From the 1 st to the 20 th day
HEN-PHEASANT	24-25	From the 1 st to the 21 st day
GUINEA-FOWL	26-27	From the 1 st to the 23 rd day
DUCK	27-28	From the 1 st to the 25 th day
TURKEY-HEN	28-30	From the 1 st to the 26 th day
GOOSE	29-30	From the 1 st to the 27 th day