

MAKE YOUR OWN INCUBATOR

Poultry keeping is a good investment for many families as the products can be sold to meet domestic financial requirements. Poultry meat and eggs are a good source of protein. Chicken is also used in many African societies during religious and traditional ceremonies. However there are many problems associated with poultry keeping, these include diseases, housing and breeding. Imported technologies discourage small farmers and many of them rely on large farms to supply them with young chicks.

However, there is a cheaper way for small-scale farmers to breed chicken using a homemade incubator, this incubator enables you to have 40 chicks in only 21 days!

How to make and use the incubator

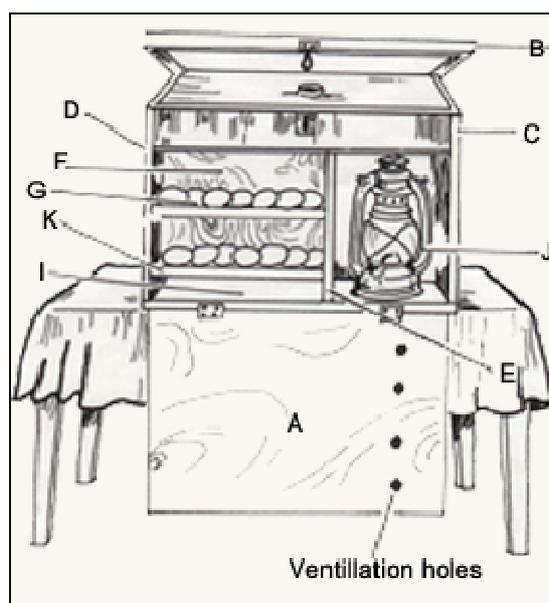
The incubator can be made using locally available materials, it can also be made using any locally available materials and can be made by any local artisan.

Materials

- Wooden boards
- A paraffin lamp
- A metallic reservoir to keep the water hot
- A variable thermometer (special) different from clinical thermometer
- Grills to hold brooding eggs
- 2 pairs of hinges
- A strip of cloth about 20 meters to prevent heat loss
- A chain for the door
- A bowl full of sand and water to preserve humidity

The parts

- A. Door 60cm x 40cm
- B. Cover 60cm x 35cm
- C. Side wall partition
- D. Side wall partition
- E. Separate partition 35cm x 35cm
- F. Back wall partition 60cm x 40cm
- G. Grilled shelf (for the eggs) 40cm x 35cm
- H. Water tank 55 x 30 x 6cm
- I. Incubator bottom 60 x 40cm
- J. A lamp
- K. 1 to K6: angle blocks to hold the boards and the water tank. They are fixed on the wall partition D, E and C and are 35 x 2 x 2cm



How to make it

Make some holes on the front door A to facilitate airflow, the holes should be on the side of the lamp. The metallic reservoir is made to keep the place hot incase the lamp goes off. The reservoir must not be too heavy because the angle blocks hold it. Separate the incubator length into 3 sections so that the lamp can take up a 1/3 of the space and put the grilled shelves in the remaining space.

How to use it

Use only those eggs that were laid 2-5 days before. Before the start of the operation,

- Close the holes on the front door with wet cotton and
- Remove the cotton when the chamber is hot.
- Heat the incubator with up to 36 or 38 degree.
- Keep the eggs in a way that the sharper edge points downwards.

The operating temperatures and activities are as described in the chart.

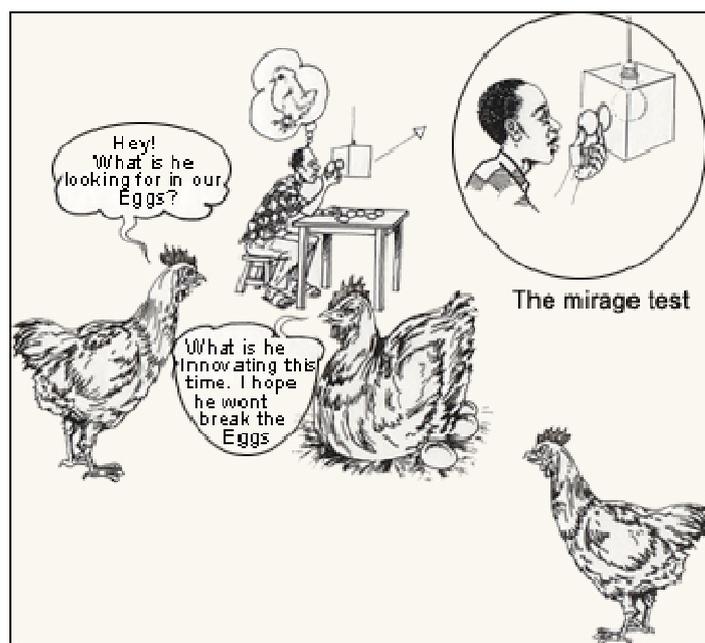
Follow the activities described in the chart below:

Days	Temperatures	Activities
From 1st to 7th day	380 to 390	Turn the eggs 3 to 5 times a day
From 8th to 10th	380 to 390	Turn the eggs 3 to 5 times a day and perform a mirage test to remove the bad eggs
dayFrom 11th to 12th day	390 to 400	Turn the eggs 3 to 5 times a day
From 13th to 19th day	390 to 400	Turn the eggs 3 to 5 times a day
From 20th to 21st day	390 to 400	Put some papers on the grill to prevent the chicks from falling through it

Put a different mark on the two sides of the egg in order to know if you have turned all the eggs. If the eggs are not turned as required they will be less fertile and you will get fewer chicks.

Mirage test

Make a box with a small hole from cardboard. Put a strong source of light e.g. lamp or an electric bulb in it. Put an egg in front of the source of light to see how the embryo is developing. A good egg will have a dark spot followed by lines (veins) spreading across the whole egg. Check the temperature regularly and change the intensity of the light according to your needs. Ensure that the thermometer is put on the lower shelf. The number of chicks from this incubator depends on the number of eggs and care in handling the incubator.



How to calculate your profits

Here are some calculations by Kossi, the author of this article.

Activity	Unit price US\$	Quantity	Total US\$
Buying of eggs	0.12	50	6.04
Depreciation of the incubator			4
Petroleum (1ltr day)	0.21	21	4.57
TOTAL	0.33	71	14.61

The profit from the incubator is the value of the chicken less the total amount of labor. Assuming you get 40 chickens and each costs US\$ 2 in market, then you have $40 \times 2 = \text{UD\$}80$. Profits are $\text{US\$}80 - 14.61 = 65.39$ dollars!

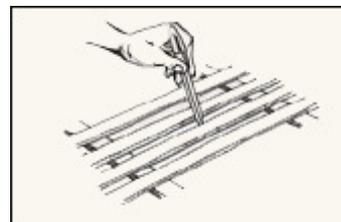
Exotic breeds

Local chicken is known to be resistant to diseases and have good quality meat. For years, research has been done to improve their quality resulting in improved breeds. This has had its problems such as weak production and high mortality.

Improved breeds mature fast, some eat less food and yet give the same amount of meat and eggs. Other exotic breeds are available but they require a lot of care. These species are available from brooding stations and farmers. Your veterinary and agriculture department can help you get breeds suitable for your area.

Hygiene

Poultry require a clean environment in order to stay healthy. The roost must have an elevated wooden floor with gaps to allow the droppings to go through. The floor can be made of wood, bamboo or thin strips of wood. The gaps should be minimized to avoid the birds' feet being trapped between the gaps. Use a pen width to determine the size of the gaps but make them big enough for the droppings to pass through.

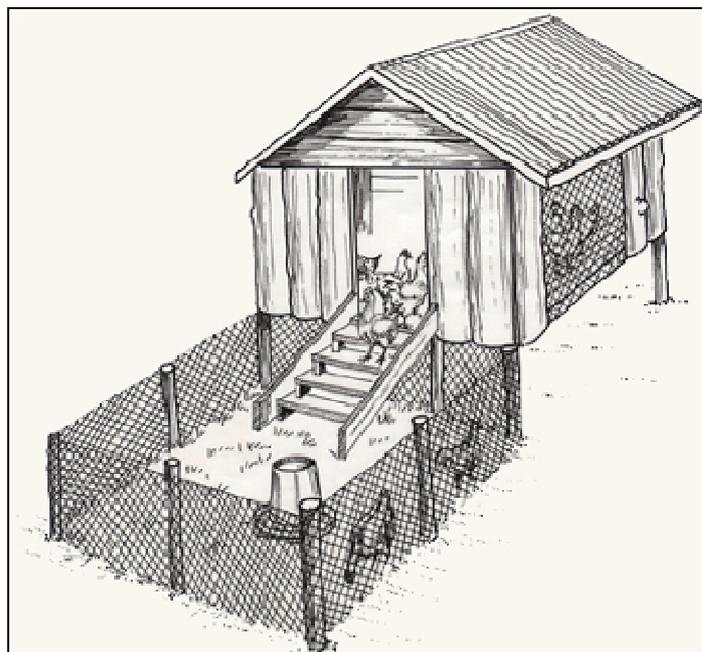


Space

For 25 chicken make a roost 10metres wide and 15metres long. Make a staircase to enable the chicken to climb up and down the elevated house.

Herbs and trees

You can plant in the yard good and nutritive herbs for your chicken in Togo and West African countries, the farmers' plant species such as desmodium and Bracharia can be used. Once the herbs grow, put fences in some parts of yard to protect fresh herbs from damage. Some farmers trees in their yard whose leaves can be eaten. If you decide to plant some trees to hold your fences, choose those that will add nutrients to the soil like leucaena, Acacia, Calliandra etc.



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Arid Land Information Network
AAYMCA Building
State House Crescent off State House Avenue
PO Box 10098 - 00100 Nairobi,
Kenya
Tel: +254 (20) 2731557 / +254 (20) 2629761/62
Mobile: +254 728 606 916
E-mail info@alin.net
Website <http://www.alin.or.ke/>

Arid Lands Information Network (ALIN) is an International NGO that facilitates information and knowledge exchange to and between extension workers or infomediaries and arid lands communities in Kenya, Uganda and Tanzania. The information exchange activities focus on small-scale sustainable agriculture, climate change adaptation, natural resources management and other livelihood issues.

Practical Action
P.O. Box 39493 – 00623 Nairobi
Kenya
Tel: +254 20 2595 311 /12 /13 /14 /15 /16
E-mail: practicalaction@practicalaction.or.ke
Website: <http://practicalaction.org/practicalanswers/>
 [@PracticalAnswer](#)

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technical note