




# ICAR KRISHI VIGYAN KENDRA

ARIYALUR DISTRICT, TAMILNADU

Hosted by Center of Rural Education and Economic Development (CREED)



## ICAR Krishi Vigyan Kendra (Hosted by CREED) Ariyalur District, Tamil Nadu

1	Title of Innovation	:	Low cost hatchery makes Desi chick rearing a profitable venture	
2	Thematic Area	:	Poultry	
3	Profile of the Innovator			
	Name and Address	:		Mr.R.Suresh S/o.Rajagopal South street,Thathanur Kudikadu Thathanur Post, Udayarpalayam Tk., Ariyalur Dt.- 621804
	Mobile Number	:		8098455485
	Age of the farmer (Years)	:		36
	Educational Qualification	:		BBA
	Land ownership (ac)	:		2.5 ac.
	Crops grown	:		Groundnut (1 ac.) + Paddy (1.5 ac.)
	Farming Experience (Years)	:		20

#### 4. Problem/Challenge addressed:

Normally the native chickens starts egg laying from its six month of age and lays about 60 to 70 eggs per year by its brooding nature of country birds. The interval between two egg laying is prolonged. Moreover the hatching percentage is also less upto 55 %. So the per bird productivity and income is less.

By the innovation of Mr.R.Suresh and Mr.T.Saravanan in developing a low cost hatchery unit. The farmer can get around 120 eggs per bird per year. Moreover the hatching is also more than 80% in this low cost hatchery makes more production of chicks. The hatchery is available at affordable price even by a marginal farmer and thereby he /she could hatched the eggs in the hatchery and the hens can be facilitated towards more egg laying. This innovation will pave the way for increased production of native chick in rural areas increased income and thereby improvement of socio economic status of rural poor.

## 5. Description of Innovative practice/ Technology

Mr.R.Suresh has developed low cost hatchery with the capacity of loading 120 desi chicken eggs. The system consists of the following major components.



1. Thermocol box - 1 No.
2. Welded mesh tray - 2 Nos,
3. 12 volt DC fan - 2 Nos.
4. Bulb with holder - 1 No.
5. Plastic box for watering - 1 No.
6. 12 volt SMPS unit - 1 No.
7. PCB Board - 1 No.
8. Thermometer - 1 No.

He is assembling all these components in such a way to bring a box like hatchery unit.

The unit functions with the electricity to light 40 watts incandescent bulb. The bulb is covered with aluminium foil cover to generate heat required for the hatching of eggs. Normally 99.9°F (37.5 °C) is generated inside the incubating unit. There is provision to insert thermometer and to check the temperature inside.

To maintain the relative humidity required i.e 80% a provision made with two plastic trays. In the first plastic tray water is filled and kept inside for the first 18 days of loading eggs. On 19<sup>th</sup> day, the second tray filled with water and kept inside to maintain relative humidity of upto 60 to 70 %. At the time of hatching the relative humidity of 80% is required. After few alteration with the guidance of ICAR-KVK, Ariyalur, he has added one more water tray and a mesh is placed in the water tray and it is covered with cotton cloth to increase the humidity level upto 80%. This works well and upto 80 to 90 % hatching is being obtained depends on the quality of eggs. The eggs should be rotated manually 3 times per day at the interval of six hours. The water level in the trays should be maintained by regular filling up of water.



The eggs can be candled (checking for its liveability with the light) on 5<sup>th</sup> day to ascertain whether the embryo is alive or not. The failed eggs in candling on 5<sup>th</sup> day may be taken for cooking purpose. Other eggs can be retained in the hatchery unit. By this

way the eggs can be effectively utilized for both cooking and hatching purpose.

## Precautions

- The quality of the eggs should be ensured before loading into the hatchery. The eggs should be loaded within 5 to 7 days of laid.
- The temperature should be periodically checked and maintained at the range of 99 to 101°F.
- The relative humidity should be maintained between 75 to 85%.
- The eggs are to be rotated three times at a day at regular intervals.
- The water level in the tray should be maintained.

## 6. Practical Utility

By this innovation of Mr.R.Suresh the backyard poultry is becoming remunerative one. From January 2016, he has supplied 96 manual hatcheries to 96 farm families belongs to Ariyalur, Namakkal, Salem, Perambalur, Thanjavur and Cuddalore district. In 21 days, farmers can hatch 120 eggs without the support of mother bird. The mother birds are allowed to lay eggs in the next month onwards. Here frequency of egg laying in the desi birds are increased and we can expect around 120 eggs/year/bird. While, the normal egg laying capacity only 60 to 70 /year/bird. So the egg production is almost doubled the way of using the hatchery unit.



The hatching percentage with incubation of mother bird is around 50 to 70% only. Whereas in this low cost hatchery one can expect a minimum of 80% hatching. This low cost hatchery certainly will occupy a place in every rural household and will improve their income and livelihood.

This is also results in increase of family income of Rs.1200 bird/bird/year (42 chicks@Rs.30) increased upto Rs.3000/bird/year (100 chicks@Rs.30).

## 7. Source of Information

He has attended the training programme held at KVK on 09.11.2016 in the topic of Desi bird rearing. After training he came up with the idea of developing low cost hatchery with his initial idea and discussion with the Scientist at ICAR-KVK, Ariyalur and Veterinary University Training and Research Centre, Perambalur, he has fine tuned upto this level.

## 8. Details of scientific verification

ICAR Krishi Vigyan Kendra, Ariyalur has tested his first hatchery unit and succeeded with the hatching percentage of 64. The reduction in hatching percentage was due to the difficulties encountered and maintaining relative humidity inside the hatchery. After that only the second water tray was provided inside to increase the relative humidity upto 80%.

Dr.Balasubramanian, Associate Professor and Head, VUTRC, Perambalur is frequently monitoring the performance of the hatchery and suggesting required modifications. The feedback from 96 person those who bought this unit reveals that a good hatching percentage of 75 to 80% is being recorded.

## 9. Funding Support

So far he has not availed any funding support from bank and department. But he is in need of funding support to analyse his production volume and to make the demand. Further he is also planning to upgrade the hatchery with some more innovations, this also required financial assistance.

## 10. Economics/ profitability of innovative practice/technology (costs and return) (per intervention or area or household)

### Assumptions

- 15 batch can be obtained
- Eggs are purchased @Rs.10 from outside
- Hatching percentage 80%

Sl.No.	Particulars	Amount (Rs.)
<b>A</b>	<b>Non Recurring</b>	
	Cost of the Hatchery unit	4,000
	<b>Total</b>	<b>4,000</b>
<b>B.</b>	<b>Recurring</b>	
1	Cost of the eggs 15 batch x 120 egg =1800 @Rs.10	18,000
2	Electricity charges @Rs.10/batch for 15 batches	150
3	Cleaning, Rotating of eggs, Filling up of water, etc. 2 labour /batch. For 30 labours@Rs.150	4,500
4	Vaccination for chicks	1,350
	<b>Total</b>	<b>24,000</b>
<b>C</b>	<b>Total Expenditure (A+B)</b>	<b>28,000</b>
<b>D</b>	<b>Gross income</b>	
1	No. of chicks to be produced and sold per year (day old) – 1400 Nos. Cost of day old chick @Rs.40/chick for 1400 chicks	56,000
	<b>Total Gross income</b>	<b>56,000</b>
	<b>Net income (D-C)</b>	<b>28,000</b>
	<b>Benefit Cost Ratio (BCR)</b>	<b>1:2</b>

Note : If the eggs are from their own source the net income will be further increased. Besides this income the eggs produced additionally by a bird from 60 to 120 can also be taken for calculation. By this way, the additional income of Rs.2,000 can be obtained per bird per year.

#### **11. Potential : Acceptance level, horizontal spread of innovation and number of farmer adopting**

So far he has produced and supplied 96 low cost hatchery unit to the farmers belongs to six district of Tamil Nadu. Further there is heavy demand for these hatchery among the backyard poultry farmers. The cost can be further reduced to Rs.4,000. to Rs.3,500 if the production volume increases.



The messages been broadcasted by All India Radio, Trichy for mass dissemination. Normally our KVK conducts a minimum of four programme on Desi chick rearing per year. In the training also this hatchery is being demonstrated and popularized among the farmers.

#### **12. Whether registered/patented**

Yet to be applied for patent. Our KVK is taking steps to register / patent this innovation made by Mr.R.Suresh and Mr.T.Saravanan.

#### **13. Recognitions received for innovative practice/ technology.**

- This low cost hatchery unit was recognized by Dr.D.V.S.Reddy, Principal Scientist, ICAR-ATARI, Bengaluru and he was given with Best Entrepreneur Award on 10.08.2016.
- Dr.Sreenath Dixit, Director, ICAR-ATARI, Bengaluru appreciated his innovation while the Scientific Advisory Meeting (SAC) held at our Kendra on 15.12.2016
- Dr.Y.G.Prasad, Director, ICAR-ATARI, Hyderabad appreciated his innovation while the Scientific Advisory Meeting (SAC) held at our Kendra on 06.12.2017



**14. Additional Information, if any**

Mr.R.Suresh is having the vision of supplying this low cost hatchery unit at the rate of Rs.3,000. He is also planning for giving solar supported heating system with solar panel with the slightly increased cost.

**15. Illustrate with high quality photos with caption, tables, graph**



**Components of Low Cost Hatchery units**



**Filling of eggs in low cost Hatchery unit**



**Candling of eggs**



**Maintenance of Relative Humidity**



**Hatchery unit**

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