



# DESIGN, FABRICATION AND FIELD LEVEL STUDY OF A MODEL RABBIT CAGE WITH SPECIAL REFERENCE TO PREVAILING RABBIT HOUSING SYSTEMS IN KERALA

A.Prasad<sup>1</sup> and Smitha S<sup>2</sup>

College of Veterinary and Animal Sciences , Mannuthy

## ABSTRACT

A survey was conducted to investigate the housing pattern of rabbits in Kerala. Data were collected from 72 rabbit farmers (3 from each district) using a well structured questionnaire and personal interview. The survey study included various aspects like types of rabbit cages used by farmers in Kerala, types of roofing material used for sheds, number of rabbits per cage and frequency of cleaning the cages. Based on the data collected a model rabbit cage (one tier) was designed and 10 farmers from different locations of Kerala were persuaded to install this cage in their farm for a field level study. The results were analyzed for a period of 2.5 years. Comparative study of the model rabbit cage with other cages revealed that model rabbit cage was finer than other types in the studied parameters viz. cost of construction, time required for cleaning the cages and incidence of coccidiosis in rabbits. The durability of the model cage was comparable to Type III (wire mesh with iron stand) and Type IV (wire mesh with iron angler and iron stand) while it was superior to Type I (wood with wire mesh) and Type II (wire mesh with wooden stand).

## INTRODUCTION

Rabbit rearing is an important subsidiary occupation among farmers of Kerala. Housing of rabbits is a critical concern in the hot humid climatic conditions of Kerala. Stress in rabbits can lead to rise in infections causing retarded growth, morbidity, and mortality. The realm of housing management needs more attention to reduce the stress and thereby rabbit mortality. Various innovative techniques to reduce stress in rabbits have been invented. In the present study the common types of rabbit cages used by farmers in Kerala were analyzed and an effort was made to design a cost effective rabbit cage suited to the agro climatic conditions in Kerala.

## MATERIALS AND METHODS

A survey was carried out to investigate the housing pattern of rabbits in Kerala. Data were collected from 72 rabbit farmers (3 from each district) using a well structured questionnaire and personal interview. The survey study included various aspects like types of rabbit cages used by farmers in Kerala, types of roofing material used for sheds, and number of rabbits per cage and frequency of cleaning the cages. Based on the data

collected a model rabbit cage (one tier) was designed and 10 farmers from different locations of Kerala were persuaded to install this cage in their farm for a field level study. The results were analyzed for a period of 2.5 years. A comparison was done between model rabbit cage and other type cages.

### One tier Model Rabbit cage

Cage Measurements for a one tier rabbit cage (fig 1):

Length = 60 cm (2 feet)

Breadth = 60cm (2 feet)

Height of the cage = 45cm (1.75 feet)

Distance of the cage from the ground = 100 cm

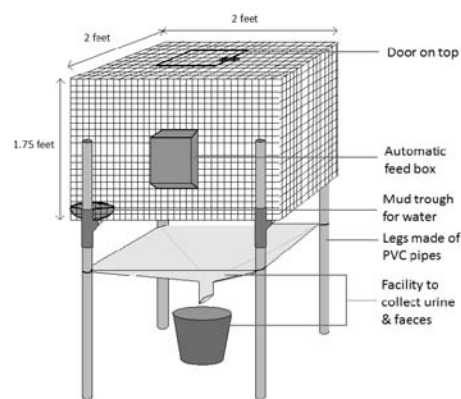


Fig 1. Proto type of Model Rabbit Cage designed for Field study

<sup>1</sup>Assistant Professor, Department of Livestock Production Management, COVAS, Mannuthy

<sup>2</sup>Teaching Assistant, Department of Dairy Husbandry, College of Dairy Science and Technology, Mannuthy



### Construction of model rabbit cage for a ten rabbit unit

Materials required:

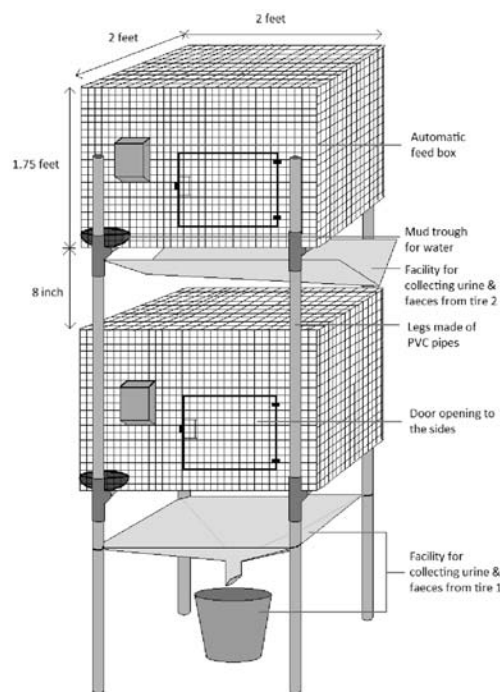
14 Gauge iron wire mesh sheet rolls (available in 120 and 90 cm widths), PVC pipes, Silpaulin sheets, tin sheets, tin containers (feeder), mud containers (waterer), iron cutters or marble cutters.

The cage space and materials required for housing of 10 rabbits (individual housing) was worked out and the construction was carried out as follows

1. Two pieces of 120 cm wide, 14 gauge wire mesh (1.2X1.2 cm<sup>2</sup> area for each square of the mesh) were taken and each was cut at a length of 3m.
2. The 90 cm wide, 14 gauge wire mesh wire mesh sheet was cut width wise to obtain two 45 cm wide wire meshes. Three pieces of 45 cm wide, 3 m length wire meshes were used in the sides and for separation of individual rabbits. Iron cutters or marble cutters were used for cutting the iron sheets. The wire meshes were cut near to the joints.
3. Two wire meshes were joined by forceful bending of projecting wires of the cut ends over each other using cutting pliers.
4. The cages were placed at a height of 100cm from the floor. The legs of the cages were constructed using 2" diameter PVC pipes. The stand was prepared by connecting 60 cm long PVC pipe horizontally between two vertically placed 1.5 m long PVC pipes by means of PVC pipe joints. Three such stands could hold 10 rabbits on a straight floor.
5. Mud waterers each having 20 cm diameter and capacity of 750 ml was fixed at one corner of each cage using plastic cable wires
6. Feeder made of tin sheet was fixed each on one side of the cage
7. Silpaulin sheet (removable) with a hole in the middle was placed below the cage to collect the fecal pellets in the sheets and urine in the bucket

provided at the bottom (Fig 1)

8. 25 cm<sup>2</sup> square doors were cut on the top of the cage.
9. Nest boxes made of plywood on the sides and net at the bottom were used. The dimensions were 25 cm breadth, 55 cm length, and 10 cm height.



**Fig 2. Proto type of two tier Model Rabbit Cage**

In two tier cage, the distance between two cages would be 20 cm (8 inches) and distance of the lower tier from the ground would be 50 cm. The feces and urine from the lower tier could be disposed through silpaulin sheets as mentioned above. While in case of upper tier removable tin sheets could be fixed at slanting position diverting the feces and urine to the drain.

### RESULTS AND DISCUSSION

The survey study revealed that most preferred rabbit cage by the farmers was wire meshed with iron angler and iron stand type (40.28%) (Table 1) and most

**Table 1. Types of rabbit cages used by farmers in Kerala**

Cages	Types of cages	Percentage
Type I	wood with wire mesh	15.28
Type II	wire mesh with wooden stand	16.66
Type III	wire mesh with iron stand	27.78
Type IV	wire mesh with iron angler and iron stand	40.28

**Table 2. Types of roofing material used for sheds.**

Roofing material	Percentage
Tin sheet	62.5
Coconut leaves	25
Tiles	12.5

**Table 3. Number of rabbits per cage**

Number of rabbits per cage	Percentage
single rabbits per cage	61.11
two rabbits per cage	15.28
More than two	23.61

**Table 4. Frequency of cleaning the cages**

Frequency of cleaning the cages	Percentage
Daily	6.25
Weekly	12.5
Once in four days	75

**Table 5. Comparison of model rabbit cage with other cage types**

Type of cages		Construction cost per cage	Durability (months)	Time required for cleaning of 10 cages (minutes)	Incidence of coccidiosis (percentage of cases)
Type I	wood with wire mesh	5427±22	23.09±0.59	32.27±0.79	18.18
Type II	wire mesh with wooden stand	5225±28	24.22±0.43	22.25±0.68	8.33
Type III	wire mesh with iron stand	6459±25	27.30±0.18	20.14±0.67	5
Type IV	Wire mesh with iron angler and iron stand	7912±27	27.50±0.52	25.18±0.72	3.44
Model rabbit cage	14G wire mesh with PVC pipes as stand	4604±21	27.40±0.11	13.54±0.48	nil

acceptable roofing material for shed was Tin sheet (62.5%) (Table 2). Majority of the farmers housed single rabbits per cage (61.11 percent) (Table 3). Frequency of cleaning the cages was once in four days in majority of the cases (Table 4).

Comparative study of the model rabbit cage with other cages (Table 5) revealed that model rabbit cage was finer than other types in the studied parameters viz. cost of construction, time required for cleaning the cages and incidence of coccidiosis. The durability of the model cage was comparable to Type III and Type IV while it was superior to Type I and Type II.

## CONCLUSION

From the study it was concluded that installation of Model rabbit cages (14 G Wire mesh with PVC pipes) in the farms through out Kerala is not only beneficial from the animal welfare point of view but also from the farmer's point of view. The peculiarity of these cages were that valuable organic matter was not wasted. Moreover, humidity level in the rabbitry was controlled by efficient removal of organic manure. Thus temperature-humidity stress was alleviated. Cost of construction is low in this type of cages, therefore capital investment is low. Moreover these cages are easy to clean and comparatively durable.

## REFERENCES

- CPCSEA guidelines for laboratory animal facility. 2003. *Indian J. Pharmacol.* 35: 257-274
- Hoy, St. 2008. Guidelines for minimum standards on rabbit housing in Germany. *Proceedings of 9th World Rabbit Congress June 10-13, 2008, Verona, Italy. p. 1183-1187.*

- McCroskey, R.A. 2001. Integration of rabbit production into populated areas, especially in hot climates A review. *Pan-American Rabbit Sci Newsletter.* Newsletter6: 18-20.
- Prathap, D.P. and Ponnusamy, K.A. 2008. Factors influencing the attitude of farmers of Tamil Nadu, India towards rabbit farming. *Livestock Research for Rural Development. Volume 20, Article #9.*
- Saravana Kumar, V.R., Sivakumar KD, Singh AP, Ramesh V, Muralidharan J and Viswanathan K (2008). Development of improvised housing system for commercial rearing of broiler rabbits. *Livestock Research for Rural Development. Volume 20, Article #154.*
- Smitha S. and Prasad, A. 2010. Rabbit rearing, an emerging enterprise in Kerala: A survey report. *Proceedings of the 22<sup>nd</sup> Kerala Science Congress.* January 28-31, 2010, Peechi, Thrissur. pp.183.