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EFFICIENCY OF A NEW OPEN AIR RABBIT HOUSING SYSTEM

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ABSTRACT

A new open air housing system have been tested for 15 months in Sardinia. The housing was constituted by prefabricated cement tubes specifically adapted to the need. Observed results were: fertility 70.1%; lag between parturitions 53.2 days; parturitions/doe/year 6.9; total born/parturition 10.2; weaned/parturition 6.8; sold/doe/year 42.6; sold/mother cage/ year 66.1; feed conversion ratio 4.4. The cost was 104 US dollars per mother shelter. It was possible to sell rabbits at a constant price of 3.0 US dollars when produced in the new open air system, in comparison to 2.8 dollars as a mean for the local industrial rabbits.

INTRODUCTION

According to a research line aiming to develop unconventional rabbit-breeding systems (DE LAZZER and FINZI, 1992; FINZI, 1994; FINZI et al., 1992; 1994) a new housing prototype was projected and preliminarily tested (SEDILESU et al., 1999). Industrial prefabricated cement tubes were used and the prototype showed to posses the main requested traits of being cheap, simple, functional and easy to be built by the owner, to favour rural development. It was than put in place a small open air unit to control for one year the efficiency of the system in the climatic conditions of Sardinia.

MATERIAL AND METHODS

Prefabricated cement tubes, measuring 1 m both in diameter and length, were placed horizontally as in figure 1. In correspondence of the diameter it was placed a wire-net 1x1 m, constituting the floor. This surface was divided into three sections by vertical partitions as shown in figure 2. The partition between reproduction and other sections was a solid cement wall. It left a 10 cm space in the top and in the bottom to reduce air flow through the tube. The partition between the weaning and growing section was made by wire-net. Each of the sections in the tube was provided with feeder and drip drinker.

A smaller tube, measuring 0.5 m both in diameter and length, was disposed vertically between two reproduction sections. It was divided by a vertical partition in order to form two contiguous nest places.

The system was managed placing a doe in the reproduction section three days before the expected parturition. The doe was re-mated 11 days after kindling and displaced to the weaning section, together with her litter, after 28 days, as to say 25 days after parturition, being pregnant since 14 days. At this time, the reproduction section remained empty and ready to be occupied again by a new pregnant doe, according to an over-occupation planning.

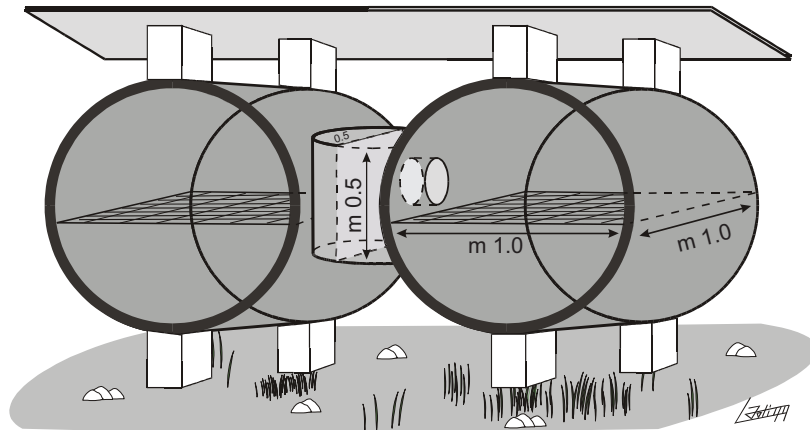


Fig. 1. Scheme of the prototype of a rabbit housing unit made by two cement tubes, containing the reproduction and growing section, and one smallest tube containing two nests.

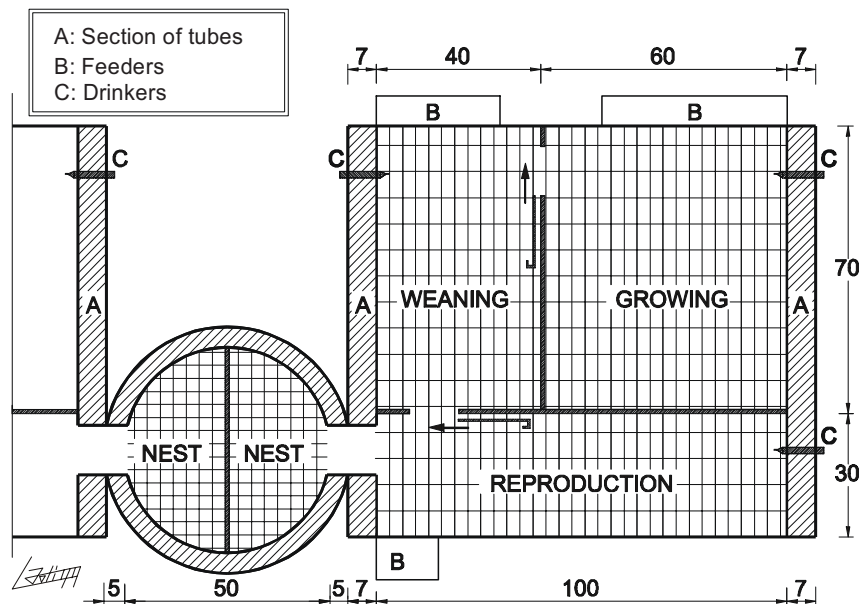


Fig. 2. Outline of space utilisation in the rabbit housing system built inside prefabricated cement tubes.

The doe remained in the weaning section two weeks more, when it had to be displaced again to a reproduction section, being ready for a new parturition. In this moment the litter was 39 days old and it remained in the same place until 55 days of age without suffering any weaning stress. The litter passed then to the growth section where it remained till the 11th week, when it was sold at a live weight of 2.5 kg or more, according to the Italian marketing habit.

The transferring from one section to the other was done simply opening the special passage, thus avoiding any stress by place changing.

Does were naturally mated and, since the unit was intended to produce organic meat, there was no medical control. The unit was controlled for 15 months, from the end of September 1998 throughout December 1999. During the trial the mean of minima in winter was 3.9°C and the lower observed temperature was -3.6°C; the mean of maxima in summer was 34.0°C and the higher observed value was 39.6°C (S.A.R., 1999).

To get an idea about production level in Sardinia the only available data are reported. They are referred to a 500 does industrial farm near which the experimental unit was activated. The farm was artificially ventilated and feed was automatically administered. Does were artificially inseminated. Antibiotic treatments were done when necessary. The two systems are completely different and not comparable. The only common points were the use of the same genetic strain and management made by the same two workers.

RESULTS AND DISCUSSION

The cost of one reproduction unit, completely equipped with feeders, drinkers and nest-place, was 104 US dollars or euros. The cost of the wider cement tube was 29 dollars and the cost of the small one was 3 dollars. The difference of 72 dollars was for wire-net, feeders, drinkers and work and can be sensibly reduced producing at a larger scale.

Technical data are reported in table 1. Fertility was 70.1%; lag between parturitions 53.2; parturitions/doe/year 6.86; born/parturitions 10.21 (born alive 9.10); weaned/parturition 6.79; Mortality was rather high (10.8% at birth; 25.4% at weaning; 8.4% after weaning). Rabbits sold/doe/year were 42.6 and sold/ mother cage/year were 66.1.

Tab. 1. Technical data on one-year production basis (15 months observation period).

Parameters	Open Air Prototype	Industrial indoor
Does number	14	500
Nest over-occupation %	155	147
Does replacement rate %	114.3	120.0
Positive palpations %	77.4	66.8
Fertility %	70.1	56.7
Lag between parturitions (days)	53.2	55.3
Parturitions / doe	6.9	6.6
Total litter size	10.2	9.5
Litter size born alive	9.1	8.7
Weaned / litter	6.8	6.5
Born / doe / year	70.0	62.4
Mortality at birth %	10.8	7.9
Mortality at weaning %	25.4	25.3
Mortality after weaning %	8.4	9.6
Sold / doe / year	42.6	38.8
Sold / mother cage / year	66.1	57.0
Feed conversion ratio	4.4	4.5
Slaughter weight (kg)	2.5	2.5
Age at slaughter (days)	77	80

It is possible that workers gave a better care to rabbits in the experimental unit, due to the interest to be successful. When looking at the industrial unit, the main observed difference was a rather low fertility (56.7%) in the industrial system.

It was possible to sell the rabbits produced in the unconventional system at a price of 3.0 US dollars/kg live weight v.s. 2.8 US dollars, as a mean, when produced in the 500 does industrial

farm. This should be considered not enough for organic meat, but local market is not yet sensible to quality production.

CONCLUSION

The unconventional open air system is relatively cheap, simple, easy to be built by the owner and showed to be sustainable and efficient in comparison to an industrial farm. It showed also that it is suitable for some specific traits of management, aiming to reduce the stress depending on weaning and cage changing. Profitability of the system is good and suitability to produce organic meat must also be considered as a positive trait.

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