

TECHNICAL AND ECONOMICAL EFFICIENCY OF AN UNCONVENTIONAL RABBIT BREEDING.*

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ABSTRACT

An unconventional rabbit housing system, firstly studied for hot climates developing countries, was utilized in Italy to produce high quality meat in a small commercial farm.

It was based on an underground cell linked through a short pipe to an external cage. Weaned rabbit were fattened in special cages placed on the turf. They were studied in order to permit the animals to graze and to be displaced when necessary.

It was possible to sell the rabbits as a quality meat at a price 88.7% higher than normal commercial price.

Economical analysis showed a very high net income of 252 U.S.dollars per doe per year and the system appeared as a low-capital, direct-selling, part-time work activity able to increase to an acceptable level the normally insufficient income of very small farms.

INTRODUCTION

The research on unconventional rabbit breeding systems has produced some models which took the interest of Italian breeders. One of them decided to adopt the partly underground cell system formerly studied for developing countries (Finzi, 1987; Morera and Kuzminsky, 1990).

It was then possible to study in real field conditions the technical and economical parameters of the breeding which was set up with the aim to produce quality meat to integrate the income of a small farm.

The system was adopted considering that the housing structures are much cheaper than the industrial buildings, they can be self-made and the dimensions, own to their module, can grow progressively according to the economical means and the needs of part-time employment.

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MATERIAL AND METHODS

The breeding began to be built in 1989 and was full-functioning in 1990. It was set in a marginal land (on the border of a wood) of a 4 ha farm.

The breeding is illustrated in figure 1. It was formed by a close stone cell connected by a short pipe to an external cage. This measured cm 60 x 58 x 34, and it was provided of feeder and water nipple. The connecting pipe had a diameter of cm 15 and was 90 cm long.

The close-cell was set directly on the ground on a base of hollow bricks and it was formed with local tufa blocks cm 37 x 28. The thickness of 11 cm was considered enough to assure a good insulation to the cell (fig.2).

The internal total area of the cell was cm 74 x 52 and it was divided by one more stone block into two parts. One was by the side of the pipe mouth (resting place) and measured cm 52 x 33. The last area (nest place) measured cm 52 x 33 and could be separated by a stone when not utilized. The cell was covered by a corrugated asbestos lumber slab lid easily able to be lifted to control the nest. Under the lid a thin fibreglass leaf was disposed to keep warmer the nest area in wintertime.

The final breeding dimensions were 12 mother-cages, 2 bucks-cages and 2 cages for young does (2 does each).

Weaned rabbits were fattened during 11 weeks in special movable cages, placed on the turf (fig.3). The wire-net of the cage floor had cm 1.5 x 1.5 holes in order to permit rabbits to graze. The movable cage dimensions were m 1.5 x 0.98. The roof was 2/5 wire-net and 3/5 covered by a plastic leaf to protect the animals from the rain (and sometimes the snow) and to cover the drinking and feeding area. This was composed by a feeder where pelleted rabbit feed, free of any chemical molecule, was administered *ad libitum* and by a small rack where alfalfa hay was also administered *ad libitum*. Watering system was formed by a small plastic container with two nipples inserted at its base.

Cages were displaced each two days with the aim to avoid coccidiosis and all the soil surface was worked after the grazing period.

This grazing system was adopted to produce rabbits according to the new regional law (Reg.Lazio,1989) for quality meat (so called "ecological" production in the commercial terminology). In the grazing cages were lodged 8 weaned rabbits for 3 weeks. The number was then reduced to 5 for 8 weeks more. The rabbits produced were sold directly to purchasers looking for quality meat and all intermediate passages through slaughter-house and commercialization were eliminated.

To match the peculiar request of coloured-fur animals expressed by the purchasers since the beginning of the production (1989), does of N.Z.W. and local origin (about 60% and 40% respectively) were produced.

The observation period was one year from November 1990 to November 1991.

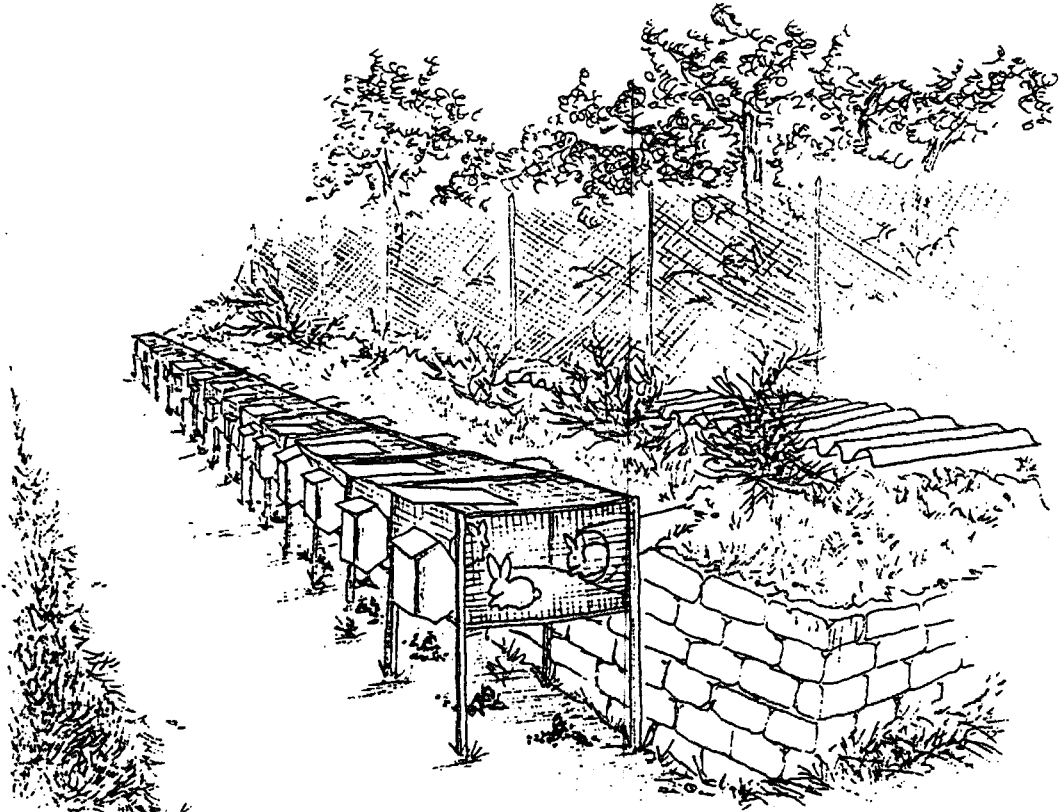


Figure 1 - A picture of the breeding. The cages are on the left. The cells are on the right under the corrugated asbestos ladders.

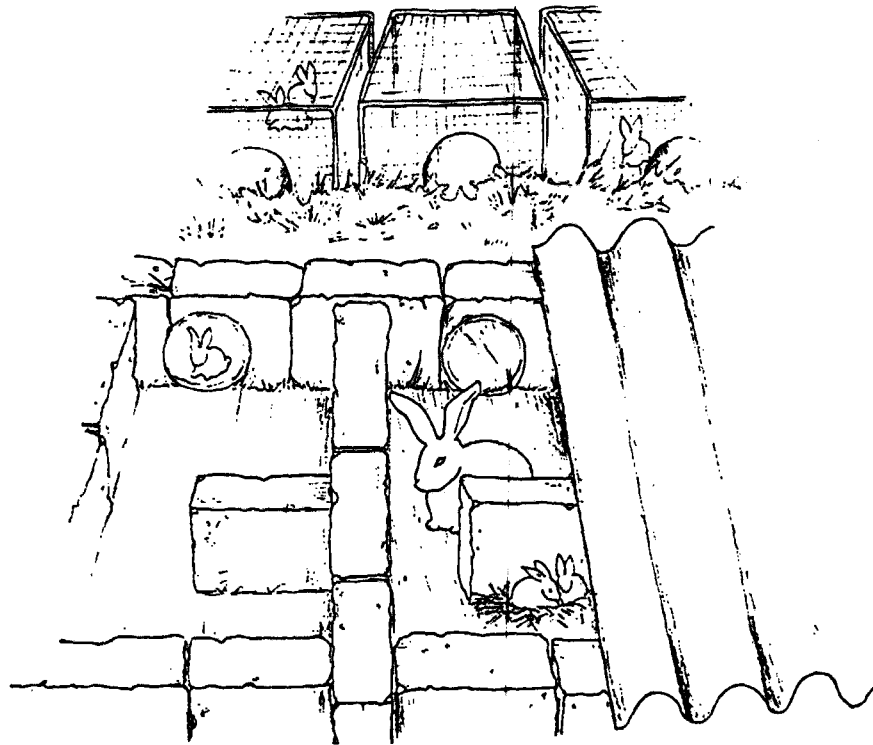


Figure 2 - A unity of the breeding. From bottom to top: nest place, doe resting place, pipe and cage.

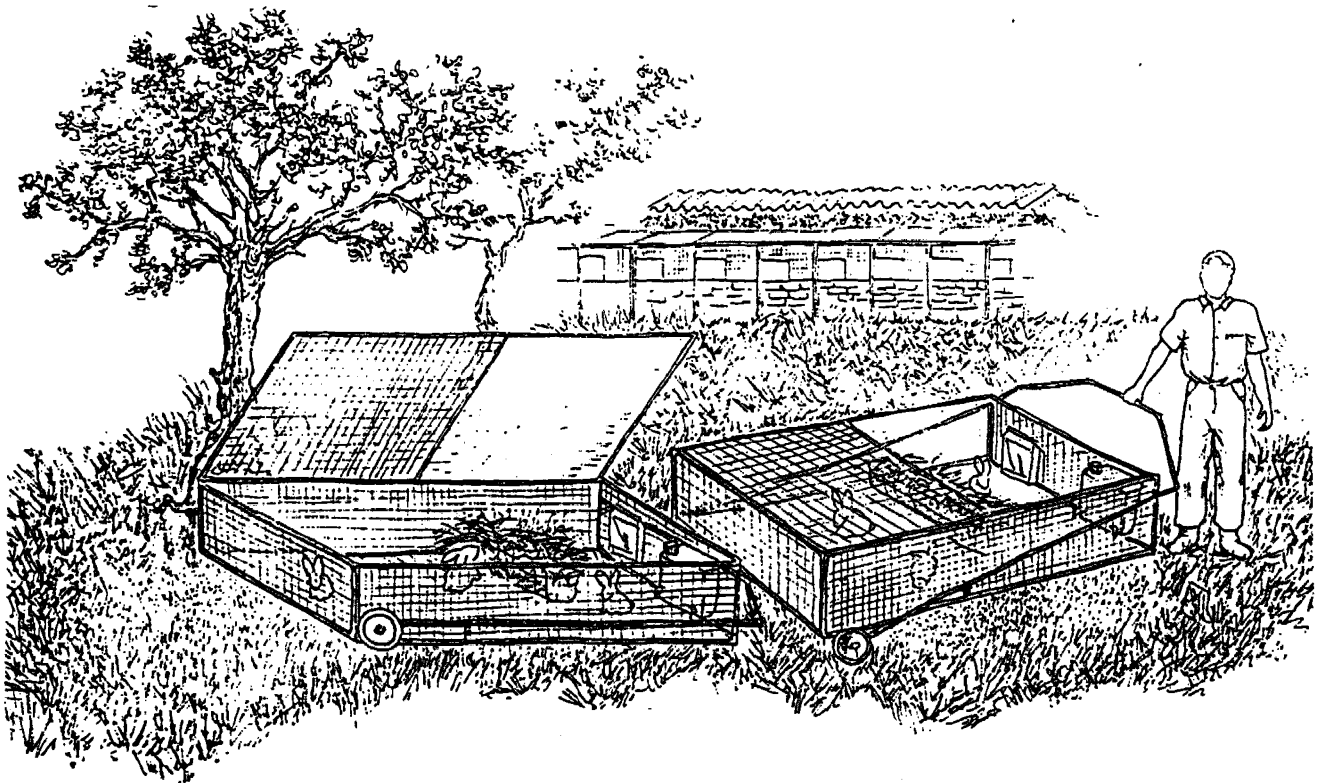


Figure 3 - Movable grazing cages on the turf.

RESULTS AND DISCUSSION

The technical parameter are shown in table 1. Fertility was rather low but mortality was also very low both in the nest and during the fattening period.

The other data indicate a good productivity with 40 rabbits which were sold per doe per year.

Table 1. Technical efficiency (average production per doe per year).

Conception rate % :	67.9
No. of live born:	46.2
No. of weaned :	42.0
Mortality to weaning % :	9.1
No. of sold :	39.9
Mortality weaned-market % :	5.0
L.W. at slaughter Kg :	2.2
Total feed conversion :	4.6

Being based on direct selling of the animals the number of does bred had to be limited to local commercial potentiality that was about 35-40 pieces per month.

The labour was made by the housewife which considered it partly as a hobby activity. She had not any other activity nor possibility of working.

The main expenditure was for feeding does and fattening rabbits (feed consumption 67.1% of total costs). The amortization cost represented the 30.9 percent.

The "ecological" rabbits were sold as a quality meat at a price 88.7% higher than normal commercial price (5.0 vs 2.65 U.S.dollars per kg L.W.). The breeding was soon well known and breeders began to come asking for parents. The breeder was then able to sell the does to be culled as pregnant does (86% of total culled does). To do this he had to maintain a rather higher replacement rate.

All this consented to obtain a net income of 252.3 U.S.dollars per doe per year (Table 2).

Table 2. Economic balance from November '90 to November '91 (U.S.dollars per doe/year).

EXPENDITURES		RETURNS	
Total amortization	82.9	Fattening rabbits	438.9
Feed consumption	180.3	Pregn. & culling does	81.9
Other exp.	5.3		
NET COST :	268.5	NET RETURNS:	520.8
NET INCOME PER DOE PER YEAR : 252.3 U.S.dollars.			

The economic efficiency of industrial rabbit production compared to the farming household system indicate that the unconventional rabbit breeding system adopted to produce quality meat can give an economic yield nearly twice as much as the mean live weight value from industrial production.

The superiority of farming rabbit system as an economic meat producer, under the ecological system and low investment for installations, make the farmer obtain a security income. Such a positive component make it possible an important alternative for no income lands or marginal areas.

Until a market for quality meat will be created the dimensions of the breeding are limited by the potentiality of direct selling.

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