

A TWO-FLOOR CAGE FOR RABBIT WELFARE

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Abstract - To increase the cage floor surface without widening the horizontal measures, a two-floor cage was projected and tested. The trials showed the rabbits to use both floors with noticeable individual differences. As a mean the rabbits occupied the upper part 53% of the time and stayed in the lower part 45% of the time. The difference was not significant. A covered part was utilised by the animals only seldom (2% of the time). The results show that two floor-cages can match a future possible request for animal welfare without reducing the number of cages.

INTRODUCTION

Increasing social sensibility towards animals welfare is asking for less stressing breeding systems, mainly for wider available floor surfaces of rabbit cages (DEC. LEG. ITALIANO, 1992 ; CEE DIR., 1992 ; DEUTSCHE VETERINARMED. GESELLSCHAFT., 1987 ; UK, MINISTRY OF AGRIC., 1988).

These new parameters look incompatible with economical production of industrial farms which represent an important branch of animal husbandry in Southern European Countries. Industrial production is based, in fact, on maximum animal density, made possible by ambient conditioning technologies and pharmacological control of pathologies.

To increase the cage floor surface available for the animals without widening the floor standard dimensions a two-floor cage prototype was projected. A trial was then performed to control if both upper and lower available surfaces are utilised by the animals and if no trouble is emerging as possible hindrance to the use of these cages for practical production purposes.

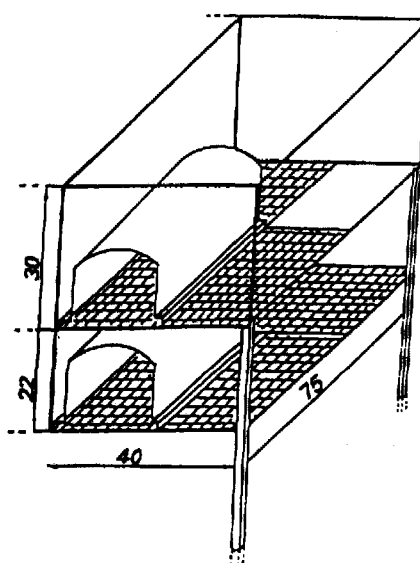
MATERIAL AND METHODS

A set of three two-floor cages was built using only wire net (Figure 1). The dimensions were 40x75 cm, total height was 52 cm and the second floor was disposed at 22 cm from the base. Consequently the upper part was 30 cm high to permit the animal some vertical movement, at least in one of the two floors of the cage. This was still easier in the cm 22x35 communication area which permitted the animals to jump from one floor to the other. The feeder and the drinker have been placed in the lower part of the cage.

Considering the ethology of the rabbit which in free conditions, lies a long part of the day inside the protected system constituted by the burrows or in equivalent artificial structures (FINZI and AMICI, 1991; FINZI *et al.*, 1992; LOCKLEY, 1964), a covered part 16x40x16 cm was introduced both in the upper and lower floor. Three areas were thus obtained where the animals could freely ubicate. These were called: « up », « down » and « covered ».

In a pre-trials period the animals were seen to urinate and defecate not only in the lower part but also in the upper one. Since this condition is not desirable for hygienic reasons, it was adopted the management

Figure 1 : Structure of the experimental two-floor cage



technology yet tested in the underground cell housing system (FINZI and AMICI, 1991) which consists in closing the animals for two days in an area where it is wanted they chose the place where to depose the excreta. Consequently the does were obliged to remain two days in the lower part by closing the connecting passage.

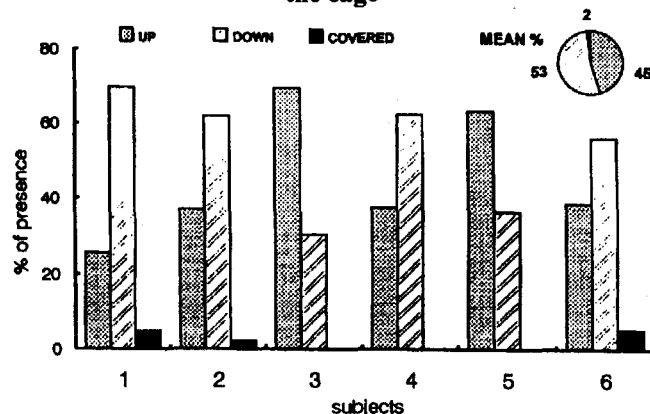
A female aged 18 weeks was introduced in each cage. Then, by means of a video tape fixed on tripod, it was possible to control continuously where the animals were situated. The observation time was from 8:00 to 16:00 for two weeks and data were recorded each 10 minutes. The trial was repeated with three new females.

A χ^2 statistical analysis was performed to test behavioural differences.

RESULTS AND DISCUSSION

As it is shown in Figure 2 both floor surfaces were utilised by the animals but individual behaviour showed evident differences, ranging from 25% « up », 70% « down », 5% « covered » (subject 1) to 70% « down », 30% « up », 0% « covered » (subject 3). The mean proportion was 53% « up », 45% « down » (not significant difference). Contrary to the work hypothesis, the presence of rabbits in the covered area was only 2% ($P < 0.01$). This latter result can be due to different causes: a not suitable structure of the covered area, domestication effect, or the animal feeling sufficiently sure inside the building not to need an adjunctive protection. Anyhow the covered area, as it was done, looks as a technical complication without ethological value.

Figure 2 : Presence of the rabbits in the different parts of the cage



As a consequence of the two days training period in the lower part, the animals chose their excretion place and in no case they were observed to dirt the upper part.

The really important result obtained by the trial was the demonstration that a two-floor cage is a possible operative solution to widen the floor surface at disposal of the animals. This can be obtained only modifying the vertical structures of the cages without changing the standard horizontal dimensions, in order not to be obliged to reduce the number of cages, in case of laws very restrictive about this peculiar aspect of animal welfare.

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Una jaula de dos pisos planeada para el bienestar del conejo - Se ha proyectado y ensayado un prototipo de jaula de dos pisos para aumentar la superficie disponible sin hacer jaulas más anchas. Le conejos utilizaron ambos pisos de la jaula con diferencias individuales pero, en el promedio, el tiempo de ocupación no se diferenció en forma significativa (53% en el piso de arriba; 46% en él de abajo). Una parte cubierta fue muy poco utilizada por los animales (2%). El ensayo indica que es posible construir jaulas de dos pisos para enfrentar posibles futuros pedidos de mayor superficie por los animales sin reducir el número de jaulas en la nave.