AN INTENSIVE SYSTEM FOR GUINEA-PIGS

By W. LANE-PETTER

Laboratory Animals Bureau, M.R.C. Laboratories, Holly Hill, Hampstead, London, N.W. 3

(With 2 Figures in the Text)

Guinea-pigs are gregarious animals, and their natural mode of progression is by short darting movements. These two characteristics make it desirable to keep them in groups (unlike adult rabbits, which tend to fight) and even to breed them in communities, so that they have room to run about. The conventional method employed for the purpose is to establish colonies in pens on the floor; by suitable arrangement of the dividing partitions cleaning out can be done at regular intervals, and up to 80 % of the available floor space kept in permanent use (Fig. 1).

There are many variations of this arrangement, some of them utilizing a lower percentage of available floor space. The advantages of such a method are: its simplicity; the fact that the pens are easy and cheap to construct; and the ease with which the colonies can be inspected and attended to. The disadvantages are: the extravagant use of accommodation, for the guinea-pigs are living in the lower 6 in. of a room which is 7–10 ft. high, all of which must be heated and ventilated; and the fact that the animals are running about in their own soil thus encouraging the spread of those infections which are transmitted by ingestion. To put in a false floor immediately robs the arrangement of most of its simplicity.

These two drawbacks seemed sufficiently serious to warrant an investigation of an intensive system of breeding and maintaining guinea-pigs which combined the advantages of colony grouping with the better hygiene and more efficient utilization of room space of racks and cages. The system adopted was similar to that used for rearing young poultry in pens of several tiers, running on wire through which the droppings fall on to a sheet of paper beneath. Each tier is served by its own cafeteria—water supply, food hopper and (sometimes) racks for hay or greenstuff.

THE BATTERY

Each battery of pens has four tiers (Fig. 2), with a headroom of 12 in. (30 cm.) for the guinea-pigs, and a space of 3 in. (7·5 cm.) between the wire floor and the paper beneath. The metal sheet supporting the paper forms the roof of the pen below. The pens are 6 ft. (185 cm.) long and 2 ft. $4\frac{1}{4}$ in. (71 cm.) wide; if they are much wider the pigs are hard to catch. The floors are of very heavy gauge galvanized crinkle wire mesh, $\frac{5}{8}$ in. (16 mm.) square. As there may be animals aggregating as much as 20 lb. (9 kg.) in a single pen, and they often tend to huddle together in one place, the necessity for strength is evident. The mesh size is important. A smaller mesh ($\frac{1}{2}$ in. (13 mm.)) occasionally led to a damaged leg in a young animal, for very young guinea-pigs are liable to get their flexed hocks stuck in the mesh; if it is big

enough the joint comes out easily, however. Older, and presumably wiser, pigs are not vulnerable to this hazard.

Attention is paid in the construction to the avoidance of angles and corners where urine and faeces can lodge. Unless this precaution is taken, the advantages of wire floors are lost.

The sides of the pens are wired glass, Perspex, or some other transparent material. Guinea-pigs like light and a view of their surroundings, but not lateral draughts. The pen can be used to accommodate young, but not adult, rabbits, in

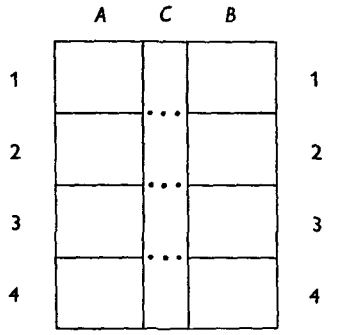

Fig. 1. *A* 1, *A* 2, *A* 3, *A* 4, and *B* 1, *B* 2, *B* 3, *B* 4 are eight separate colonies. *C* is the gangway. For cleaning, pigs from *A* 1 are driven into *C* 1, which is temporarily divided off. *A* 1 is cleaned out, replenished with bedding, and the pigs driven back. The same procedure is repeated for *B* 1, *A* 2, *B* 2, etc. in order. Maximum utilization of floor space 80 %.

which case the side panels can be of wire. Water is offered either by bottles, or by 'dew drop' or other automatic drinkers. Pelleted diet is supplied in hoppers. Hay is given on the wire floor, where most of it is eaten and the remainder falls through, or in a rack. Greenstuff is given on the wire floor, or in a tray.

The paper underneath the wire floor is on a long roll fixed at one end of each tier. It is bitumenized, and pulled through about twice a week. A sprinkling of sawdust absorbs urine and prevents it running over the edge.

The battery can be completely dismantled for cleaning, repair, re-coating, etc. It is so designed as to be very easy to keep clean in use, and of course there is no need to move the animals.

MANAGEMENT

Each tier can accommodate permanently a breeding unit of one boar and about ten sows. If each sow produces by this method twelve young per annum (a very modest output for good stock) the whole unit will produce 480 guinea-pigs a year. Alternatively, the pens may be used to house young stock for 'growing on' or for quarantine, for each tier is an isolated unit. If only three out of four tiers are used for breeding, the young being harvested as they reach a given weight (150 g. in the Hampstead animals) and placed in the fourth tier, one four-tier unit can produce and hold the progeny of thirty sows.

The floor space occupied is about 15 sq.ft. (1·36 sq.m.) to which must be added perhaps another 30 sq.ft. (2·7 sq.m.) for gangways, etc. The effective floor space

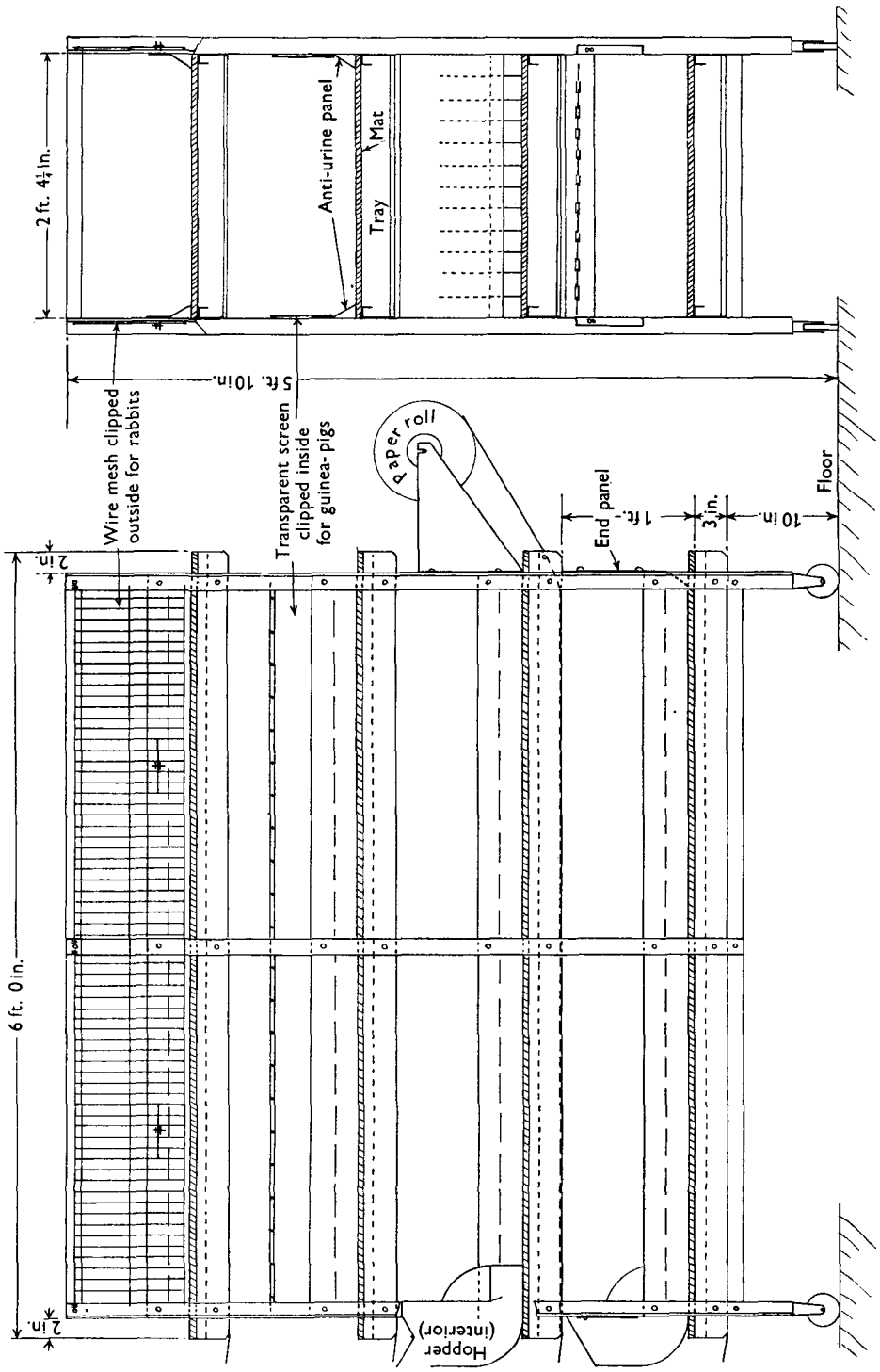

Fig. 2. Side and end elevations of a four-tier guinea-pig battery. The roll of paper is shown in one tier only, the food hoppers in two. The whole is mounted on castors. (By courtesy of The Plux Company.)

https://doi.org/10.1017/S0022172400027352 Published online by Cambridge University Press

for the guinea-pigs is 54 sq.ft. (5 sq.m.) giving a percentage utilization of floor space of 120 %—half as much again as the best possible arrangement of floor pens.

As an intensive system, whether for breeding or holding, it has the merits of economy of room space, of economy in first cost in comparison with an equivalent number of cages, of ideal hygiene, of economy of labour in daily attention, and of good visibility for inspection, although in this respect it is not as good as floor pens. Wire floors have not proved in any way harmful to the animals, provided the mesh is large enough; and no bedding is provided, even for farrowing sows. Sore feet are unknown, and newborn young are able to negotiate the wire without difficulty.

SUMMARY

Guinea-pigs are suited to colony management, whether for breeding or maintenance, and single cages are only necessary when experimental or other requirements demand them.

Floor pens are extravagant of space and open to criticism on grounds of hygiene.

Wire floored pens, in batteries of four tiers, have many advantages, both in economy and hygiene, and are compatible with excellent health and breeding performance.

Certain details in the design of such batteries are important; among them being the size of mesh of the wire floor, the avoidance of corners and ledges where soil can accumulate, and the observance of convenient dimensions.

I first saw this method developed by an accredited guinea-pig breeder, Mr Ashton Poole, who has since given up breeding. Although the present battery is a far cry from Mr Poole's pens, the method is the same, and the unblemished health record of his very large stud over a period of some years was impressive. I am glad therefore to acknowledge my indebtedness to him.

(*MS. received for publication* 26. x. 53)