

STOCK DIET FOR RATS

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FROM time to time workers in various laboratories have published details of diets capable of maintaining their respective rat colonies in good health and supplying reasonably uniform animals for laboratory requirements. In response to enquiries regarding our feeding methods, the present note records the stock diet used at this Institute.

The colony was established in 1929 with albinos from the Glaxo Laboratories and hooded from the Lister Institute. No fresh breeding stock has been introduced since that time. Up to the spring of 1932 various stock diets were used, but the results obtained did not appear to justify the labour and cost entailed. Although a diet varying from day to day gives good results when well managed, it was thought that a more simple mixture of concentrates properly balanced with minerals and vitamins ought, in theory at least, to give as good results with rats as, say, with pigs. Further, if such a mixture could be manufactured into pellets or cubes, then labour in preparation and feeding would be at a minimum. With this aim in view various mixtures were tried and the following finally adopted.

	%
Wheat offal (fine middlings No. 2) ...	19.2
Ground wheat	19.2
Sussex ground oats	19.2
Ground barley	9.5
Ground maize	9.5
Meat and bone meal (45% protein) ...	9.5
Dried skimmed milk	7.0
White fish meal (60% protein)	4.7
Dried yeast (40% protein)	1.2
Sodium chloride	0.5
Cod-liver oil	0.5

The calculated food values of this mixture are, in percentages, digestible true protein 14.9, digestible protein equivalent 15.6, starch value 65.9, Ca 1.18 and P 0.99, giving a Ca : P ratio of 1.19. This mixture, finely ground, is made up in quantities of about 10 cwt. and compressed into half-inch cubes in the usual food-cubing machine. This work is carried out by a firm of grain and foodstuffs merchants in Aberdeen. At present prices the cubes cost about 10s. 6d. per cwt.

The cubes are simply placed in a corner of the cage. They require no dish, and are fed on weekdays along with approximately 5 g. of green food, usually

kale, and 10 ml. separated milk per growing rat. The number of cubes required per rat varies with age and sex, but excess is easily detected. We consider green food essential for good results. On Sundays food is limited to a mixture of whole wheat, oats and barley, and dried cooked maize. By experiment we have found that, except for nursing mothers and very young rats, liquid separated milk along with the cubes is not absolutely necessary, but we feed it to all stock rats.

The colony has flourished for three and a half years on this regimen. During that time over 6000 rats have been bred and reared, and no difficulty is experienced in winter breeding. All rats are ear numbered and weighed individually at weaning. As a routine, litters are reduced to eight at birth and weaned at 21–23 days. In both the albino and hooded stock the average weight at 23 days is 43 g. for males and 41.5 g. for females. These weights compare very favourably with those published by other breeders (Donaldson, 1924; Simmonds, 1924; Slonaker, 1931; Greenman and Duhring, 1931; Mapson, 1932; Kellermann, 1934; Hain, 1934). Simmonds states that a litter of six should average 40 g. at 25 days, while Kellermann gets an average of 40–60 g. for litters of six at 23 days.

The advantages of the cube method of feeding are (1) simplicity, (2) economy: the food cannot be scattered, as wet or dry mash so often is, and is not readily fouled, (3) the cages are more easily cleaned, and (4), last but not least, the rats appear to enjoy holding the cubes in their “hands”.

REFERENCES

- DONALDSON, H. H. (1924). *The Rat*. Philadelphia: Wistar Institute.
 GREENMAN, M. J. and DUHRING, F. L. (1931). *Breeding and Care of the Albino Rat*, 2nd ed. Philadelphia: Wistar Institute.
 HAIN, A. M. (1934). *Anat. Rec.* **59**, 383.
 KELLERMANN, J. H. (1934). *Onderstepoort J. Vet. Sci. and Animal Industry*, **2**, 649.
 MAPSON, L. W. (1932). *Biochem. J.* **26**, 970.
 SIMMONDS, N. (1924). *Amer. J. Hyg.* **4**, 1–108 (suppl.).
 SLONAKER, J. R. (1931). *Amer. J. Physiol.* **96**, 547.

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