BREEDING OF RATS IN SMALL LABORATORIES

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There is apparently a prevailing opinion that the breeding of rats for research purposes is impracticable for laboratories with small to moderate animal needs. Our experience over the last five years contradicts that. During this time a breeding program has been maintained as a source of supply mainly for our own research and that of graduate students. Originally started for the purpose of having at hand young pups, it was soon found that the little trouble associated with the breeding process was more than compensated for by the advantages. To list these briefly: (a) *E* has knowledge of and control over the conditions of rearing (including handling) from birth to the time that the animals enter experimentation, and, of course, standardization of many facets of rearing is a simple matter; (b) littermates are known and always available for split-litter designs; (c) a fair stock of animals reduces to a minimum the delay, often lengthy, between the planning of an experiment and the acquiring of the necessary animals; (d) in a well-maintained colony, losses due to illness are infrequent, a small fraction of that likely to occur with commercially obtained animals. On the debit side: (a) since animals are always on hand someone must be in attendance year around; (b) a certain amount of advance planning is necessary if the animal supply is to match the research needs.

The actual labor involved in breeding rats is negligible. Procedure here is as follows. One adult male is placed with two females (over 90 days of age) in a breeding cage. About 20 days later, or when the females are obviously

gravid, they are removed to separate breeding cages. A few days after birth the pups are counted. It has been the custom here to reduce the number of pups in a litter to 10 when that number is exceeded, using the excess pups to increase the size of smaller litters. At 21 days of age the litter is weaned, though the pups are allowed to remain in the breeding cage for an additional week. When about 30 days of age the animals are sexed and placed in stock, two per cage, where they remain until needed. Diets have never been supplemented; standard Purina laboratory chow comprises the entire diet, and health and fertility of the animals have been quite satisfactory over the years.

An index card is filed for each litter carrying the litter number, date of birth, number of pups born, sex distribution, and litter number of the dam. A record of the sires is also maintained. An up-to-date inventory is posted, so that numbers and ages of animals available for research are easily determined.

The capital outlay required for rat breeding is small. Assuming an average litter size of 10, a yearly production of 900 animals can be managed with 15 breeding cages (*e.g.*, Hoeltge, Inc., Cincinnati, Ohio, HB-15B, \$11 each in stainless steel) fitted into a single-faced stand (HB-10, about \$106).

Even if rats are not to be bred routinely, frequently it will be desirable to have on hand breeding facilities sufficient to accommodate experimental projects with special requirements relating to subjects' early experiences or rearing conditions. Such an arrangement should prove feasible for most laboratories.