

TECH-2-TECH

Haven't the time to write a paper but want to get something published? Then read on!

This section offers readers the opportunity to submit informal contributions about any aspects of animal technology. Comments, observations, descriptions of new or refined techniques, new products or equipment, old products or equipment adapted to new use, any subject that may be useful to technicians in other institutions. Submissions can be presented as technical notes and do not need to be structured and can be as short or as long as is necessary. Accompanying illustrations and/or photos should be high resolution.

NB. Descriptions of new products or equipment submitted by manufacturers are welcome but should be a factual account of the product. However, the Editorial Board gives no warranty as to the accuracy or fitness for purpose of the product.

Development of a sifting cage change method for rats to improve welfare

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Introduction

I would like to explain to you about some improvements in relation to the 3Rs with a development of a sifting cage change method for rats to improve welfare.

I came up with the idea after seeing how skittish and stressed the rats in my unit were and wanted to develop a way to improve how they interacted with my colleagues and myself.

Normally during a cage change a small handful of dirty bedding is placed into the clean cage but I felt this was not enough to comfort the rats. After trialling a few methods I finally came up with a sieve as the best tool for the job. The technique can be easily adopted with minimal cost, saving on consumables and is good for the environment but the biggest impact has been on the rats themselves, they are so calm and naturally inquisitive, instead of hiding for cover when I enter the room.

Long-term goal

To continue to provide the animals with a high level of welfare and to ease stress when changing cages by introducing them back into their own familiar smell while retaining olfactory cues for the rats.



Figure 1. Image shows a cage of 4 adult male rats prior to being cleaned out after a period of 1 week.



Figure 2. Image shows the corn cob before being sifted.

Chewed and dirty sizzle nest and cardboard are removed and binned but if any is clean and dry, it is reused again.



Figure 3. Cage base after the removal of all dirty nesting material. Before sifting, any wet patches are also removed.



Figure 4. The final result, dry scent impregnated corn cob to which the rats are then re-introduced back into along with their used tunnels, sizzle, etc.



Figures 5A and B. Bag A contains all the waste produced from 67 rats housed in 27 cages that have been sifted changed. Bag B are bags containing waste from the same numbers of cages undergoing a full change.



Figure 6. This is the sieve pan used.

Initially I trialed a cat litter scoop but found that the holes in it did not separate the corn cob from the faeces.



Figure 7. An apparently happy rat asleep. (This photo was taken approximately 10 minutes after being re-introduced back into it's sifted cage).



Figure 8. Female rat asleep back in her nest approximately 10 mins after her cage was sift changed.



Figure 9. This rat dam straight back to feeding her pups.

There was no apparent panic due to her nest being disturbed, no moving her litter out of the original nest, no frantic digging and scurrying just minimal signs of stress.

Advantages of method

- Animals happier, relaxed due to introduction to familiar scent.
- Re-use of bedding material is cost effective and reduces waste.
- Has increased animal breeding success.
- Bedding can be sifted up to 3 weeks – depending on sex, cage numbers and animal age.

Disadvantages

- Process is dusty and use of a pure-flow helmet is advised, but not essential. However, a face mask must be worn. Best carried out in a change station.
- Can take a little longer to change cages (short-term).
- Some cages need a full change every week (e.g. large males as they produce more waste products)
 - 50% sifted and 50% fresh is used **instead**.

Putting the method into practice

- 5-6 bags of corn cob **less** used each week. Saving approx. £1656 per year.
- 12-15 black bags used **less** each week.
- Cages not put through cage wash as often – benefits to staff welfare and environmental damage.

In addition to the benefits to the rats, I have also noticed that there is a considerable difference in the cost of consumables, saving an approximate of £1656 per annum on corn cob alone. Each bag costs around £11.50, alternate full change cages from weekly to fortnightly saves £69 a week, which is £138 a month, hence the annual saving. There is also a reduction in waste going to landfill, electricity used in cage wash machines, detergents, manpower, freeing up staff to carry out other tasks as well as many other benefits including those to the research team.

A case study

Reported benefit from one of our researchers

The number of successful matings that result in offspring in WKY and SHRSP female rodents prior to (PRE) and following (POST) Seonagh Henderson’s arrival to the CVRU on first attempt (based on personal records). In both strains, % of successful matings significantly increased following Ms Henderson’s start date. *** $p < 0.001$, PRE vs POST. Data expressed as mean \pm SEM. Data analysed by one-way ANOVA.

