Troubleshooting Aggressive Behaviors in Pair Housed Rabbits Using Environmental Enrichment
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ABSTRACT
The 8th edition of the Guide For The Care And Use Of Laboratory Animals states that single housing of a social species should be the exception to housing standards. Based upon these guidelines we have developed a process of pair housing our colony of New Zealand White rabbits. Adult non-related females in addition to male and female related weanlings have been effectively paired using our pair housing process.

HYPOTHESIS
Previous studies have found adequate environmental enrichment may reduce anxiety and stress reactivity. Therefore, we hypothesized that environmental enrichment would facilitate greater success in pair housing by decreasing aggressive behaviors that arise around the age of sexual maturity (12-17 weeks).

METHODS
We carefully track the rabbits’ ages such that we can increase enrichment around 12-17 weeks and closely observe the rabbits for visual cues of behaviors that may precede aggression. These behaviors include excessive urine spraying, barbering and increased chasing. All cages are provided with at least 1 toy plus food treats as approved by our environmental enrichment committee. If any of these aggressive behaviors are observed, extra enrichment is added to the cage from that point forward. This additional enrichment includes hay daily in addition to novel interaction items three times per week (Figure 4).

MATERIALS
- 63 pairs of New Zealand White rabbits bred in house (26 male pairs and 37 female pairs)
- Rabbit Pairing Enrichment Sheet (Figure 1)
- Double cages with dividers - Allentown and Techniplast cages were used (Figure 2)
- Dedicated room and staff to ensure consistent care, enrichment and monitoring
- Novel Enrichment Items
  a. Hay stuffed ball
  b. Bag stuffed with hay, treats or toys
  c. Brush for grooming
  d. Box stuffed with hay, treats or toys
  e. Cardboard tube stuffed with hay
  f. Cardboard tube stuffed with Crink-T-Nest™
  g. Various Toys
  h. Wood Gnawing block
  i. Manzanita Wood Gnawing Stick
  j. Lavender essential oil applied to toys or liner
  k. Pizone fruit
  l. Classical music
  m. Carrot and parsley stuffed ball
- Nontoxic Ketchum markers for identification
- Thick leather gloves to intervene in aggressive interactions
- Spray water bottle to discourage negative behaviors
- Brush for grooming
- Bag stuffed with hay, treats or toys
- Novel Enrichment Items
  a. Hay stuffed ball
  b. Bag stuffed with hay, treats or toys
  c. Brush for grooming

RESULTS
- 34 successful pairs (22 female and 12 male pairs)
- Oldest current male and female pairs both 42 weeks old

Figure 4. Novel Enrichment Items
Figure 5. Reasons pairs were separated
Figure 6. Reasons pairs were separated by sex
Figure 7. Age when negative behaviors first noted

CONCLUSION
To decrease aggressive behaviors and increase the number of pairs that are maintained successfully past sexual maturity
- Increase monitoring around the age of sexual maturity
- Increase environmental enrichment
- Utilize a variety of enrichment items to maintain novelty

REFERENCES

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