FARMED MINK

Animal Welfare Judging and Assessment Competition, 2013

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FARM 1: OVERVIEW

- Family farm in Utah owned and managed by a husband and wife team
- 3 employees assist with care of mink, farm maintenance, and pelting
- Population consists of 3,000 breeding pairs of black mink
FARM 2: OVERVIEW

- Independently owned farm in Wisconsin
- 9 full-time staff + owner/manager
- 20,000 breeding pairs of several color varieties of mink (White, Pearl, Palomino, and Mahogany)

FARM 1: HOUSING

- Mink are housed in wire mesh cages arranged rows in outdoor sheds
  - Solid wood partitions divide cages
  - Whelping pens: 18\text{w} \times 16\text{h} \times 32\text{d} \text{ in}
    \quad (46\text{w} \times 41\text{h} \times 81\text{d} \text{ cm})
  - Single male: 12\text{w} \times 16\text{h} \times 32\text{d} \text{ in}
    \quad (30\text{w} \times 41\text{h} \times 81\text{d} \text{ cm})
  - Juveniles: 12\text{w} \times 16\text{h} \times 32\text{d} \text{ in}
    \quad (30\text{w} \times 41\text{h} \times 81\text{d} \text{ cm})
- Adult mink are housed singly except during breeding season
- Juveniles are housed in pairs
FARM 2: HOUSING

- Wire mesh cages are arranged in rows in partially enclosed sheds
  - Cages are stacked in two tiers
  - Mesh dividers separate cages
  - Whelping pen: $12_w \times 12_h \times 24_d$ in ($30_w \times 30_h \times 61_d$ cm)
  - Single male: $12_w \times 12_h \times 24_d$ in ($30_w \times 30_h \times 61_d$ cm)
  - Juveniles: $12_w \times 12_h \times 27_d$ in ($30_w \times 30_h \times 69_d$ cm)
- Adult mink are housed singly except during breeding season
- Juveniles are housed in groups of 2-4
NEST BOXES

FARM 1

- All cages have attached nest boxes with solid wood sides and bottoms
  - 12\,w \times 12\,h \times 10\,d\;\text{in (30\,w \times 30\,h \times 25\,d \;\text{cm})}
- Bedding: aspen shavings

FARM 2

- All cages have attached nest boxes with removable wire baskets
  - 12\,w \times 8\,h \times 8\,d\;\text{in (30\,w \times 20\,h \times 20\,d \;\text{cm})}
- Bedding: straw
NEST QUALITY

FARM 1

©MSU ABWG

Average nest score = 2-3

FARM 2

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Average nest score = 3-4

Nest scoring based on a 0-5 scale with 0 = no substrate manipulation or hollowing of nest and 5 = a nest shape is formed, 2 or more sided walls, greater than 5 cm deep, well packed.
CLEANING SCHEDULE

FARM 1

- Cages and nest boxes are cleaned:
  - Every 3 days during lactation
  - Every 2 weeks in summer
  - Every month in winter
- Manure under cages is removed:
  - Every week in summer
  - Every month in winter

FARM 2

- Cages and nest boxes are cleaned:
  - Every week during lactation
  - Every 3-4 weeks in summer
  - Every month in winter
- Manure under cages is removed:
  - Every 2 weeks in summer
  - Every 2 months in winter
Clean water is supplied *ad libitum* using an automated watering system.

- A water cup is located at the front of each cage near the nest box entry.
- Each waterline checked twice daily after feeding and in a subset of cages.

Clean water is supplied *ad libitum* using an automated watering system.

- A nipple drinker is located at the rear of each cage.
- The system is typically checked daily after feeding.
FARMS: NUTRITION

- Fed to meet nutrient requirements for stage of life/growth using cereal, poultry, red meat, and fish by-products
- A vitamin/mineral supplement is also provided in diets
FEEDING ROUTINE

FARM 1
- Fed through wire mesh near the nest box, where the cage top is lower
  - Provided daily at 0900h and 1700h; there is usually feed left over when fed the following day

FARM 2
- Fed through wire mesh over the nest box or at the very front of the cage
  - Provided daily at 1300h; there is usually little to no feed left the following day
MINK BEHAVIOR NEAR FEEDING

FARM 1
- Mink activity increases with the approach of feeding and at sunrise and sunset
- Stereotypic behavior increases by 2% near feeding

FARM 2
- Mink activity increases markedly before feeding time and to a lesser degree at sunrise and sunset
- Stereotypic behavior increased by 8% near feeding
FEED RESTRICTION

FARM 1

- Prior to the breeding season, breeding females are feed restricted for 2-3 week period
  - Only heavy/obese females restricted (~10%)
  - Fed daily using a diet with fewer calories and larger particle size

FARM 2

- Prior to the breeding season, breeding females are feed restricted for 2 months
  - 100% of females are restricted
  - Feed portions are reduced by 10%
  - Skip a day feeding is also used weekly
HEALTH

FARM 1

- Tested 2 times/year for Aleutian Disease
- Given a 3-way vaccine to protect against Mink Distemper, Mink Virus Enteritis, and Botulism
- No cases of Hemorrhagic Pneumonia

FARM 2

- Tested 1 time/year for Aleutian Disease
- Given a 4-way vaccine to protect against Mink Distemper, Mink Virus Enteritis, Botulism and Hemorrhagic Pneumonia
<table>
<thead>
<tr>
<th></th>
<th>Farm 1</th>
<th>Farm 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female BCS* before Breeding</td>
<td>2.5</td>
<td>2.3</td>
</tr>
<tr>
<td>Female BCS* in Late Gestation</td>
<td>3</td>
<td>2.8</td>
</tr>
<tr>
<td>Female BCS during Lactation</td>
<td>2.7</td>
<td>2.2</td>
</tr>
<tr>
<td>Adult Mortality</td>
<td>4%</td>
<td>5%</td>
</tr>
<tr>
<td>Disease Incidence of Note (last 5 yrs)</td>
<td>2 breeding males diagnosed with Epizootic Catarrhal Gastroenteritis</td>
<td>40 breeding males diagnosed with Epizootic Catarrhal Gastroenteritis</td>
</tr>
</tbody>
</table>

*Body condition scored on 5 point scale with 1 = very thin, 3 = ideal, 5 = obese.
FARM 1: BREEDING

- Each female is moved to a male’s cage
  - Females are captured and moved by hand
- Breeding pairs are monitored closely for aggression
- Female is removed from cage if mating does not occur within 15 minutes
  - She is paired with another male the next day
- Selection for breeding is based partly on their behavior towards humans
  - Docility, reduced fear response in presence of handler, low incidence of biting
FARM 2: BREEDING

- Each female is moved to a male’s cage
  - Cages are used to move females
- Breeding pairs are monitored periodically for aggression
- Female is removed from cage if mating does not occur within 40 minutes
  - She is paired with another male the next day
- Selection for breeding is based on coat color and characteristics
### BREEDING OUTCOMES

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Aggression at Breeding (requiring separation)</td>
<td>5%</td>
<td>11%</td>
</tr>
<tr>
<td>% Females rebred</td>
<td>16%</td>
<td>18%</td>
</tr>
<tr>
<td>Average Litter Size</td>
<td>5 kits (3-6)</td>
<td>8 kits (4-10)</td>
</tr>
<tr>
<td>Kit Mortality*</td>
<td>10%</td>
<td>20%</td>
</tr>
<tr>
<td>Nursing Sickness in Dams</td>
<td>2%</td>
<td>6%</td>
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*Primary causes of kit mortality: Farm 1 = hypothermia and greasy/sticky kit syndrome; Farm 2 = insufficient nursing and enteritis.*
## WEANING

<table>
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<tr>
<th><strong>FARM 1</strong></th>
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<tbody>
<tr>
<td>- Kits are weaned at 8 wk by moving the dam to a different cage</td>
<td>- Kits are weaned at 6 wk by moving the dam to a different cage</td>
</tr>
<tr>
<td>- Litter is split at 10 wk into heterosexual pairs until pelting</td>
<td>- At 10 wk, the litter is split into groups of 2-4</td>
</tr>
<tr>
<td>- Kits are vaccinated at time of split</td>
<td>- Kits are vaccinated when the litter is split</td>
</tr>
</tbody>
</table>
BEHAVIOR OF KITS AFTER WEANING

% Time engaged in behavior

- Eating
- Drinking
- Resting
- Playing
- Social grooming
- Fighting
- Exploring

FARM 1
FARM 2
CAGE ENRICHMENTS

FARM 1
- Each cage contains a wire bunk

FARM 2
- Each cage contains a plastic cylinder
ADDITIONAL ENRICHMENTS

FARM 1
- One enrichment/cage
  - Golf ball
  - Length of chain attached to cage top
  - Short length of small diameter PVC pipe
- Enrichments are cleaned & rotated btwn cages at cage cleaning

FARM 2
- Every 2-3 cages has an enrichment item
  - Short length of small diameter PVC pipe
  - Golf ball
  - Length of chain attached to cage top
- Enrichments are moved to new cages during cage cleaning
## Incidence of Stereotypies

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<td>Adults</td>
<td>50% exhibit some form of stereotypic behavior, mostly before feeding but some instances throughout the day</td>
<td>80% exhibit some form of stereotypic behavior, occurs throughout the day</td>
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<tr>
<td>Juveniles (3-9 mo)</td>
<td>10% exhibit some form of stereotypic behavior, mostly right before feeding</td>
<td>20% exhibit some form of stereotypic behavior, mostly before feeding but some instances throughout the day</td>
</tr>
</tbody>
</table>

Common stereotypies include pacing, running in and out of the nest box, head-twirling, and nodding.
EXAMPLES OF STEREOTYPIES
EXAMPLES OF STEREOTYPIES
EUTHANASIA PRIOR TO PELTING

Farm 1
- Euthanasia agent is Pure Carbon Monoxide (CO)
- When maximum concentration of CO is reached, 20 mink are moved into the gas chamber for euthanasia

Farm 2
- Euthanasia agent is Pure Carbon Dioxide (CO$_2$)
- When maximum concentration of CO$_2$ is reached, 40 mink are moved into the gas chamber for euthanasia