



FARMED MINK

Animal Welfare Judging and
Assessment Competition, 2013

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



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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)



Photo source: Wikipedia

FARM 1: HOUSING

- Mink are housed in wire mesh cages arranged rows in outdoor sheds
 - Solid wood partitions divide cages
 - Whelping pens: $18_w \times 16_h \times 32_d$ in ($46_w \times 41_h \times 81_d$ cm)
 - Single male: $12_w \times 16_h \times 32_d$ in ($30_w \times 41_h \times 81_d$ cm)
 - Juveniles: $12_w \times 16_h \times 32_d$ in ($30_w \times 41_h \times 81_d$ 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
 - $12_w \times 12_h \times 10_d$ in ($30_w \times 30_h \times 25_d$ cm)
- Bedding: aspen shavings



FARM 2

- All cages have attached nest boxes with removable wire baskets
 - $12_w \times 8_h \times 8_d$ in ($30_w \times 20_h \times 20_d$ cm)
- Bedding: straw



NEST QUALITY

FARM 1



Average nest score = 2-3

FARM 2



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 d during lactation
 - Every 2 wk 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 wk in summer
 - Every month in winter
- Manure under cages is removed:
 - Every 2 wk in summer
 - Every 2 mo in winter

WATER

FARM 1

- ▶ 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

FARM 2

- ▶ 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

FARM 1



FARM 2



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



PHYSICAL OUTCOMES

	Farm 1	Farm 2
Female BCS* before Breeding	2.5	2.3
Female BCS* in Late Gestation	3	2.8
Female BCS during Lactation	2.7	2.2
Adult Mortality	4%	5%
Disease Incidence of Note (last 5 yrs)	2 breeding males diagnosed with Epizootic Catarrhal Gastroenteritis	40 breeding males diagnosed with Epizootic Catarrhal Gastroenteritis

*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

	Farm 1	Farm 2
Aggression at Breeding (requiring separation)	5%	11%
% Females rebred	16%	18%
Average Litter Size	5 kits (3-6)	8 kits (4-10)
Kit Mortality*	10%	20%
Nursing Sickness in Dams	2%	6%

*Primary causes of kit mortality: Farm 1 = hypothermia and greasy/sticky kit syndrome; Farm 2 = insufficient nursing and enteritis.

WEANING

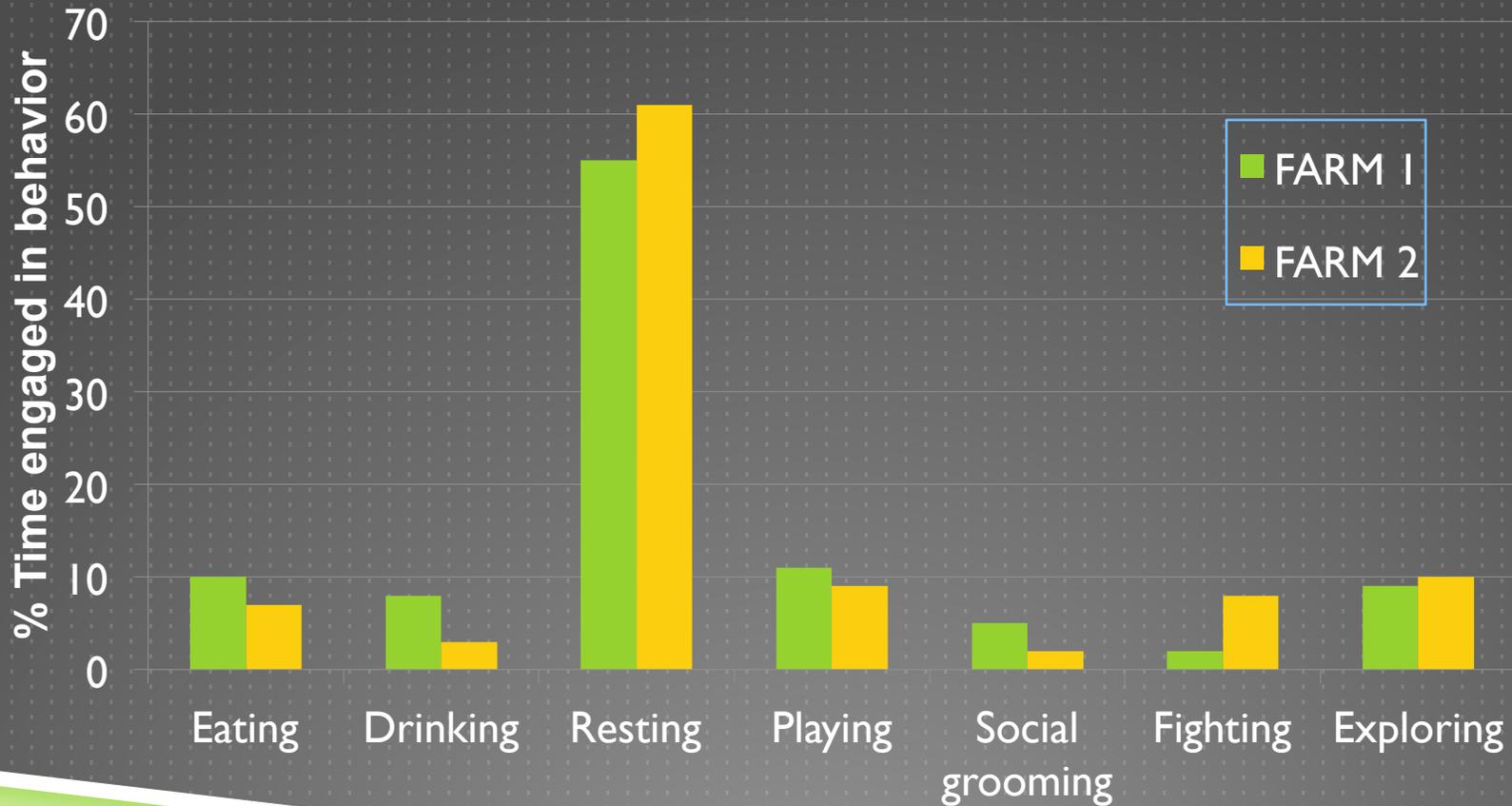
FARM 1

- ▶ Kits are weaned at 8 wk by moving the dam to a different cage
- ▶ Litter is split at 10 wk into heterosexual pairs until pelting
- ▶ Kits are vaccinated at time of split

FARM 2

- ▶ Kits are weaned at 6 wk by moving the dam to a different cage
- ▶ At 10 wk, the litter is split into groups of 2-4
- ▶ Kits are vaccinated when the litter is split

BEHAVIOR OF KITS AFTER WEANING



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

	Farm 1	Farm 2
Adults	50% exhibit some form of stereotypic behavior, mostly before feeding but some instances throughout the day	80% exhibit some form of stereotypic behavior, occurs throughout the day
Juveniles (3-9 mo)	10% exhibit some form of stereotypic behavior, mostly right before feeding	20% exhibit some form of stereotypic behavior, mostly before feeding but some instances throughout the day

Common stereotypies include pacing, running in and out of the nest box, head-twirling, and nodding.

EXAMPLES OF STEREOTYPIES



EXAMPLES OF STEREOTYPES



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 (CO₂)
- ▶ When maximum concentration of CO₂ is reached, 40 mink are moved into the gas chamber for euthanasia