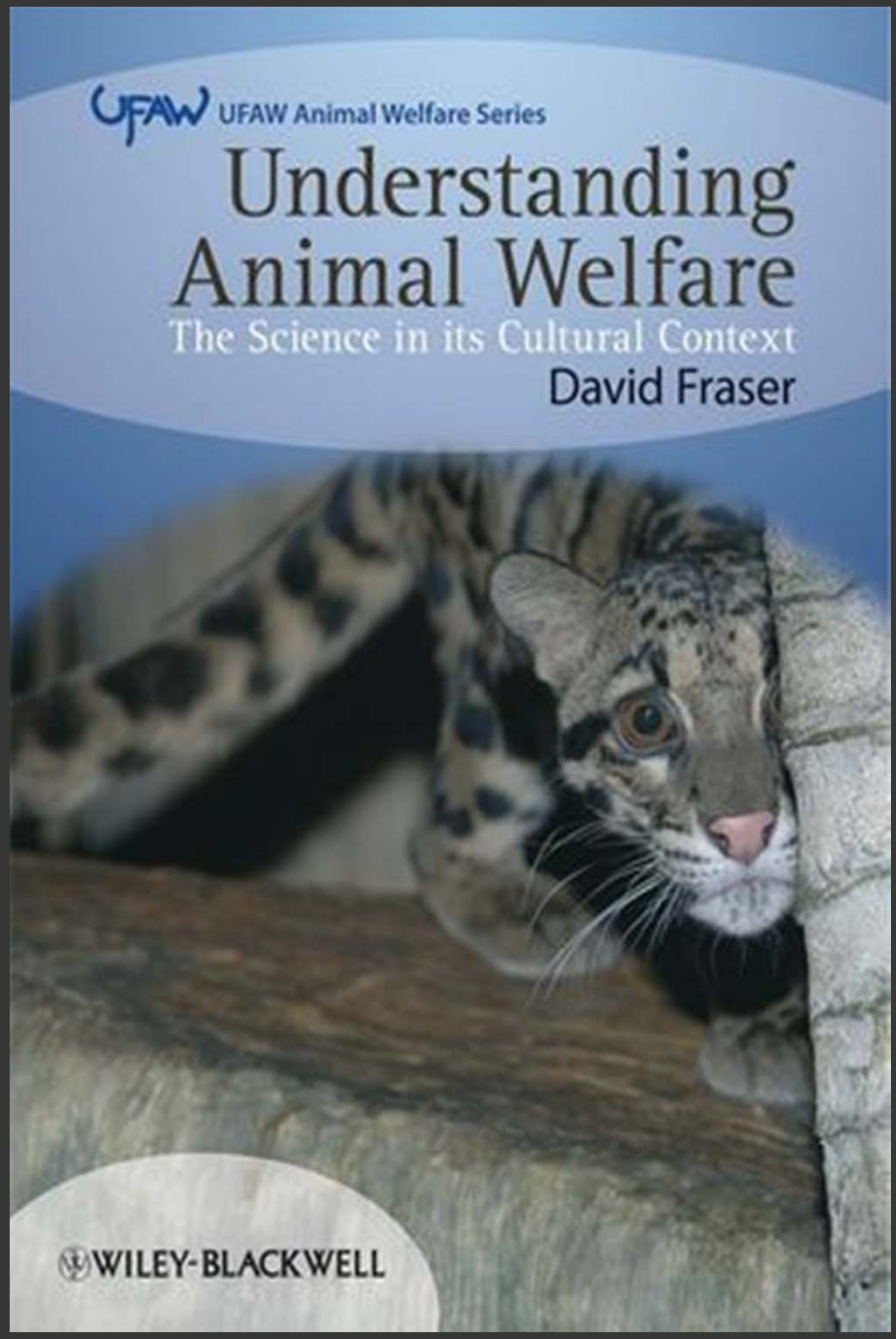
THE WELFARE OF ANIMALS IN PRODUCTION SYSTEMS

General Principles and Underlying Research

David Fraser
Animal Welfare Program
University of British Columbia

General principles for the welfare of animals in livestock production systems


UFAW
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Understanding
Animal Welfare
The Science in its Cultural Context
David Fraser
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1. Genetic selection should always take into account the health and welfare of animals.

Traditional genetics

- Production gains (growth, yield, reproduction)

Traditional genetics

- Production gains (growth, yield, reproduction)

Animal welfare research

- Correlated health effects
- Fit between genetics and environment

- mastitis
- lameness
- metabolic disorders
- short life span

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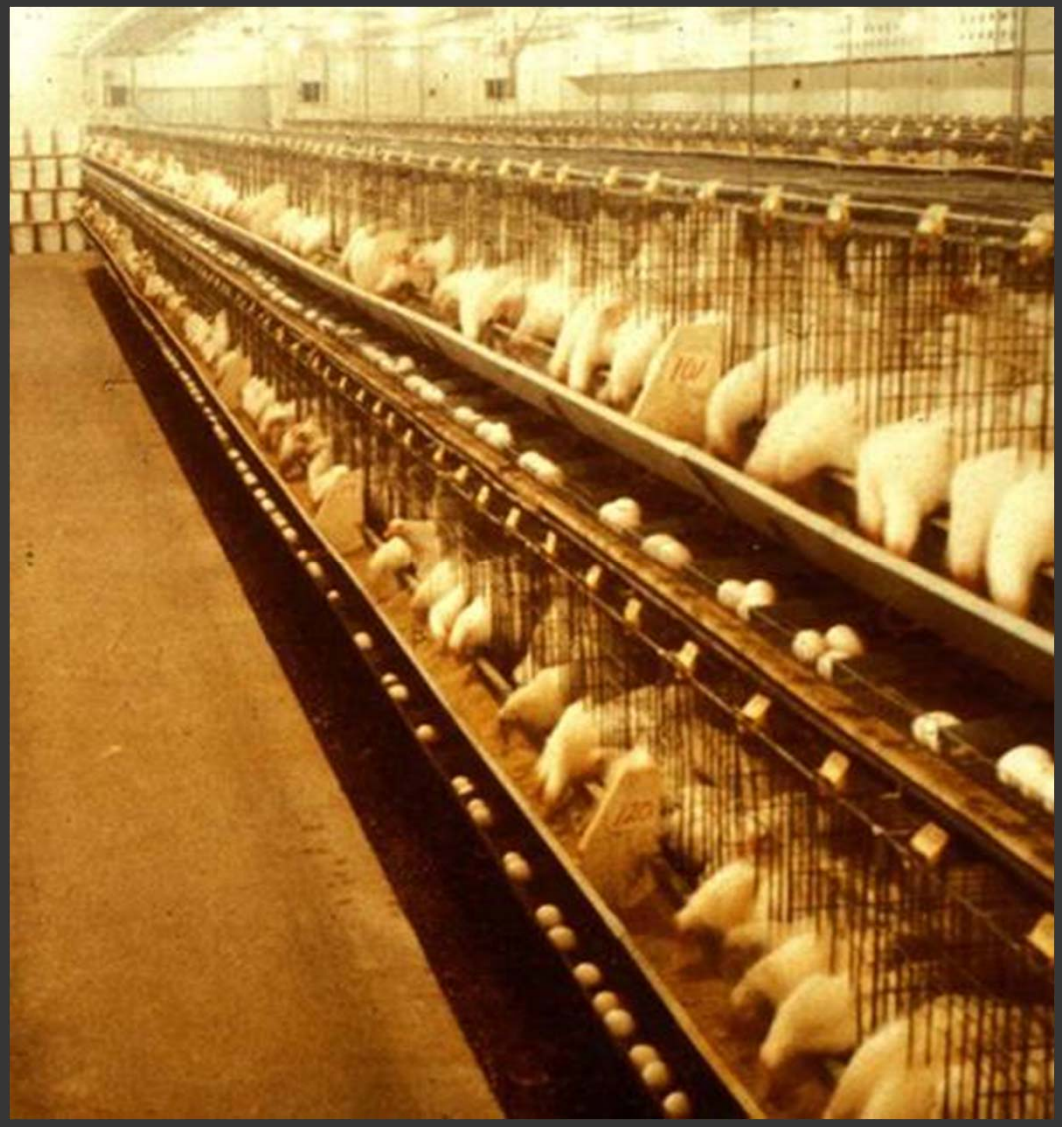
- lameness
- metabolic disorders
- short life span

Solutions:

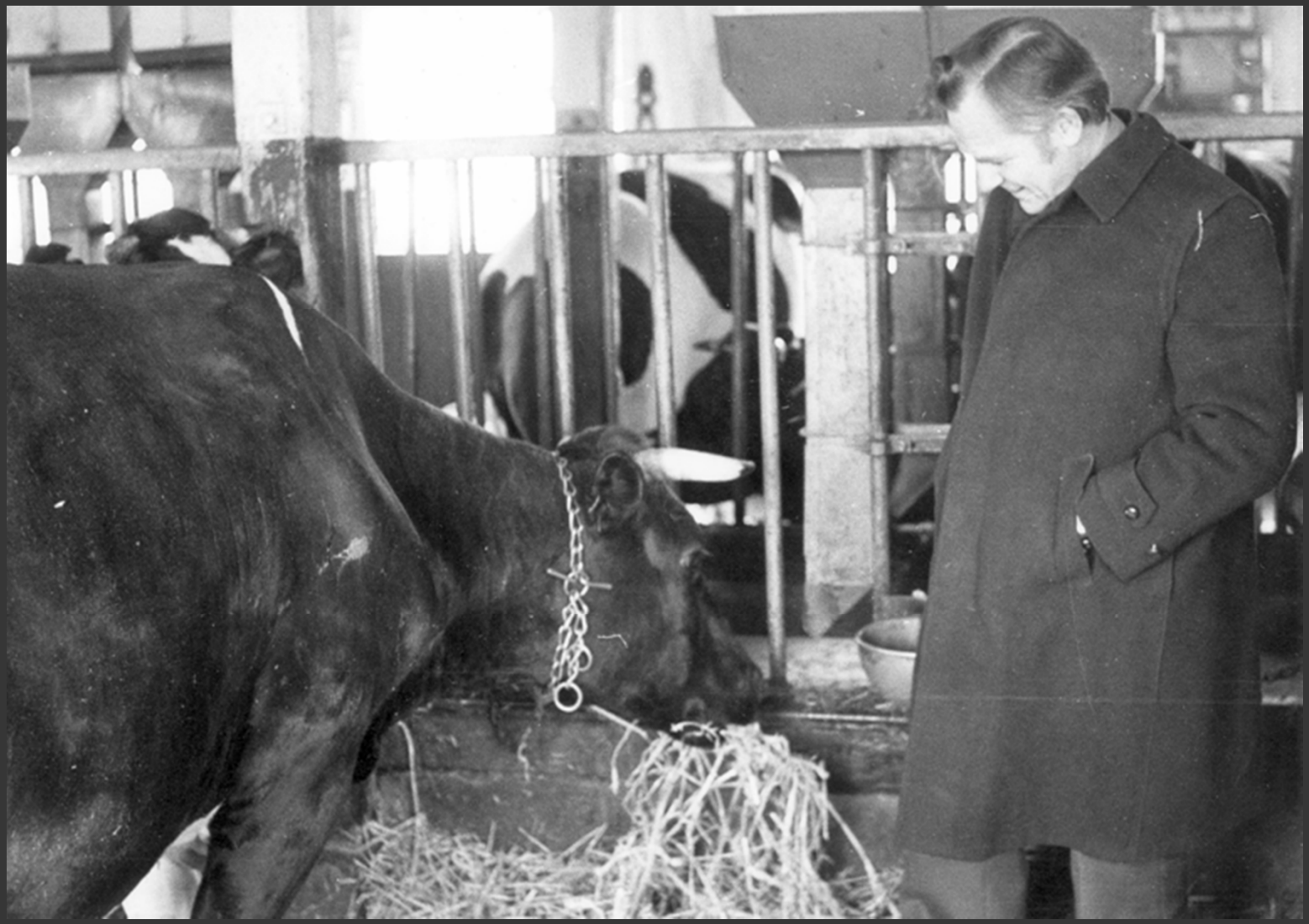
- broader selection indices
- counter-selection
- use of indigenous genetics

2. The physical environment, including the substrate (walking surface, resting surface etc.), should be suited to the species and breed, so as to minimise risk of injury and transmission of diseases or parasites to animals.

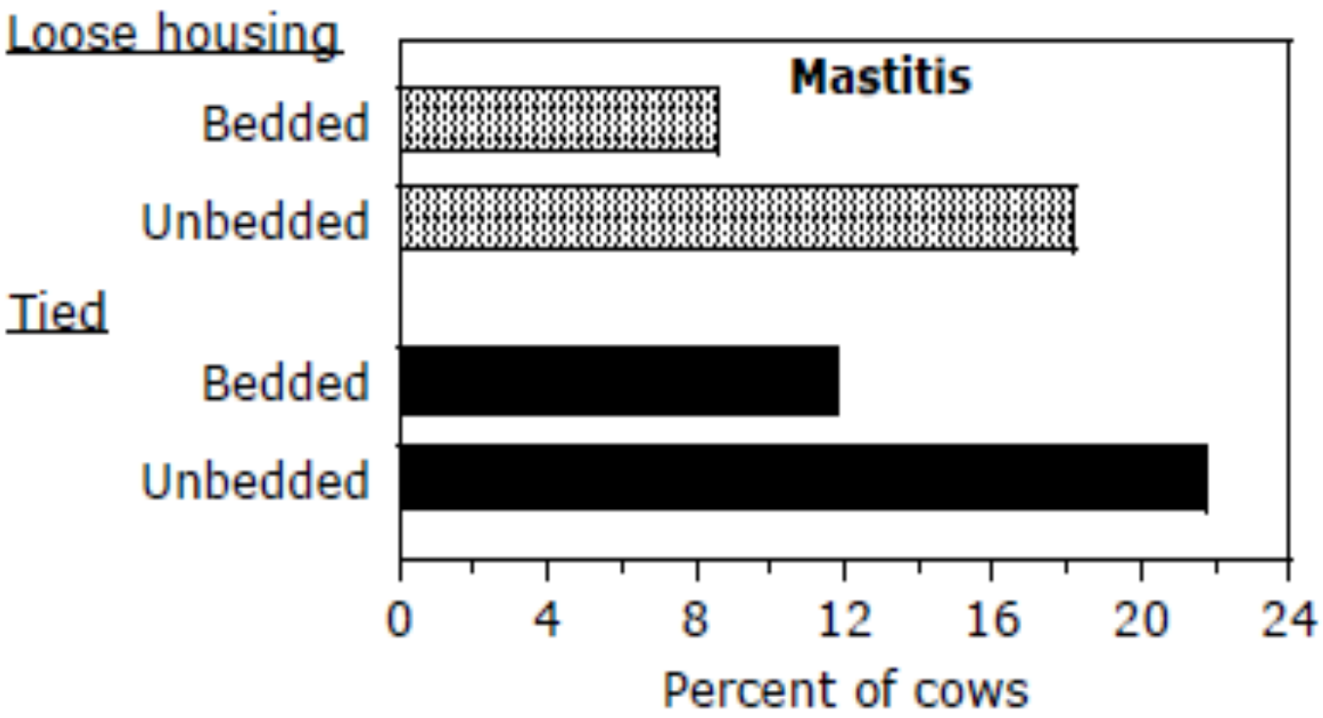
Ragnar Tauson



- foot lesions
- neck lesions
- feather damage
- overgrown claws

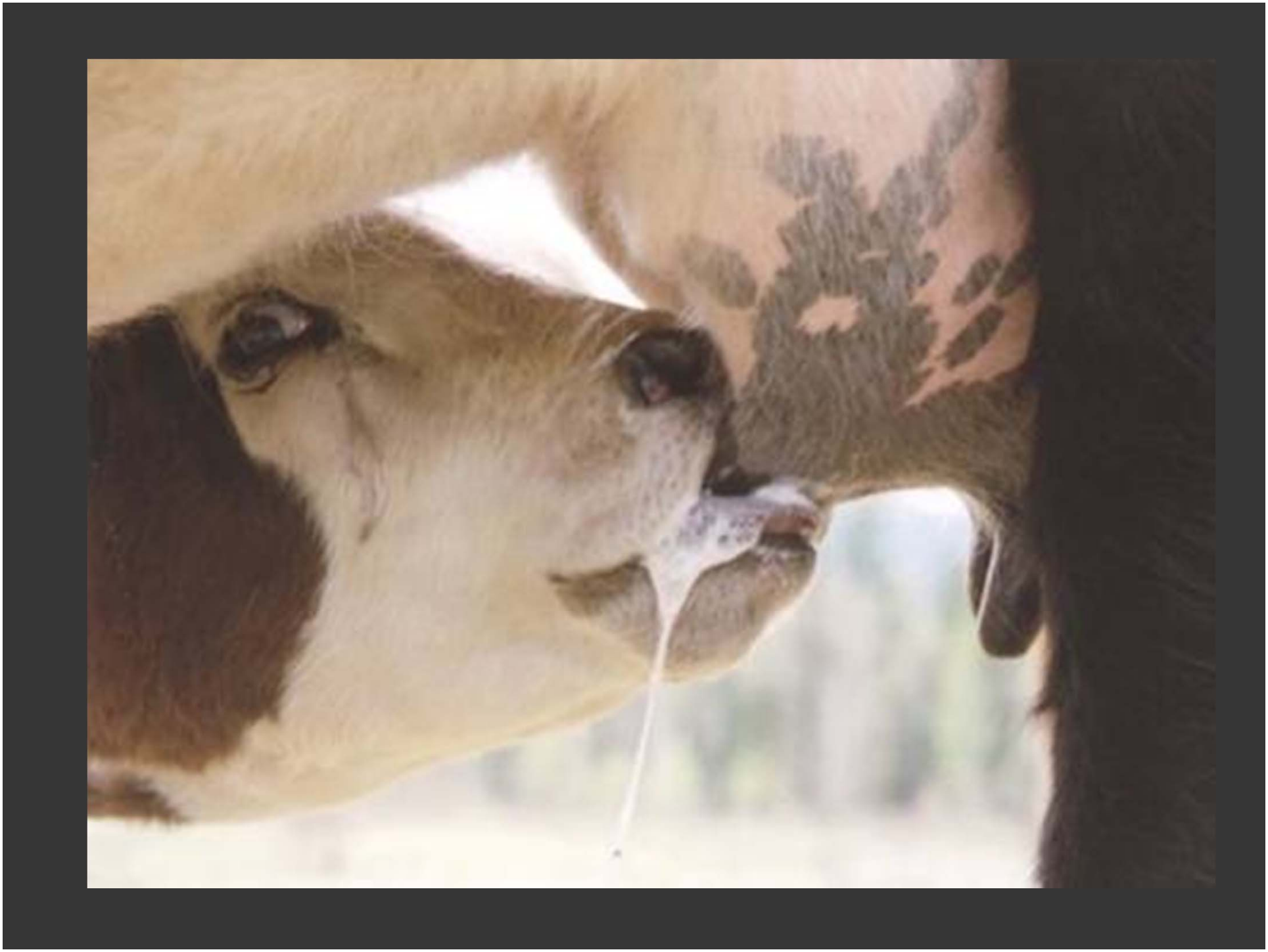


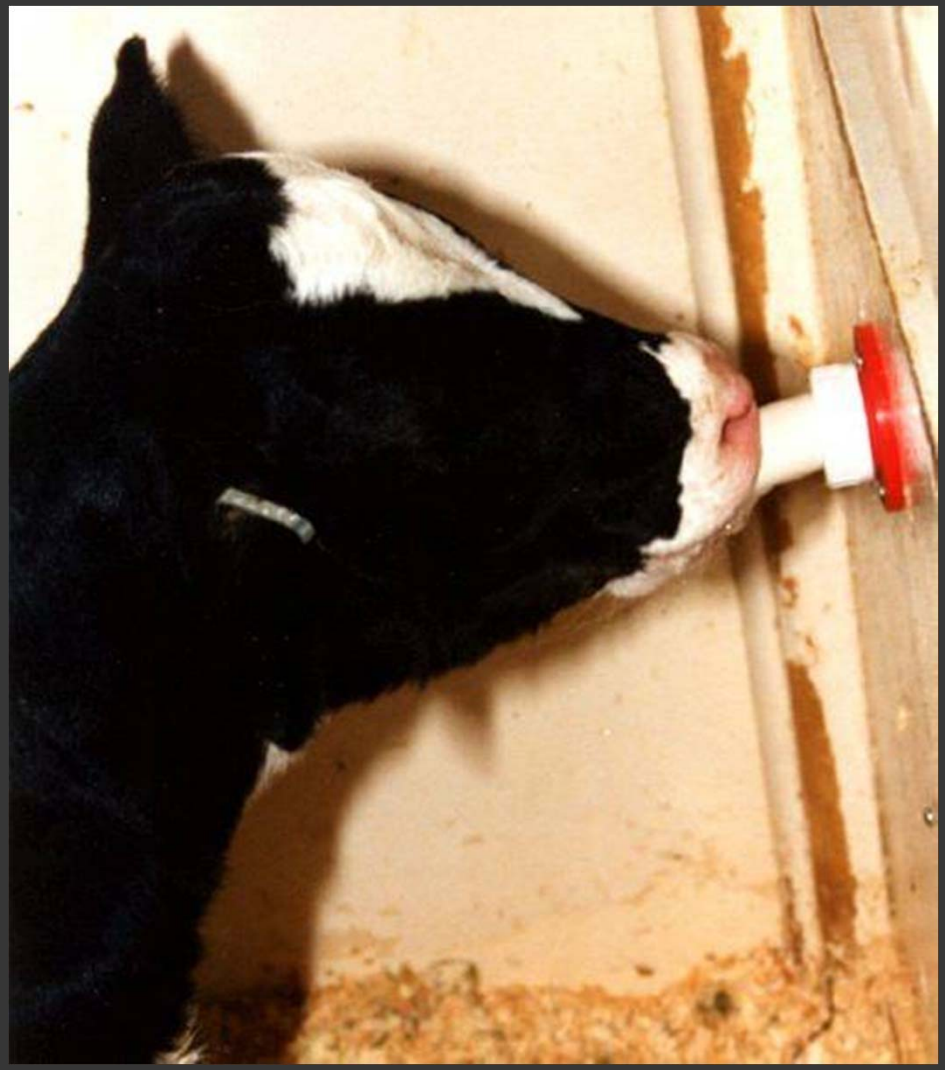
Ingvar Ekesbo, c. 1972


Loose housing
Mastitis
Bedded
Unbedded
Tied
Bedded
Unbedded
0
4
8
12
16
20
24
Percent of cows

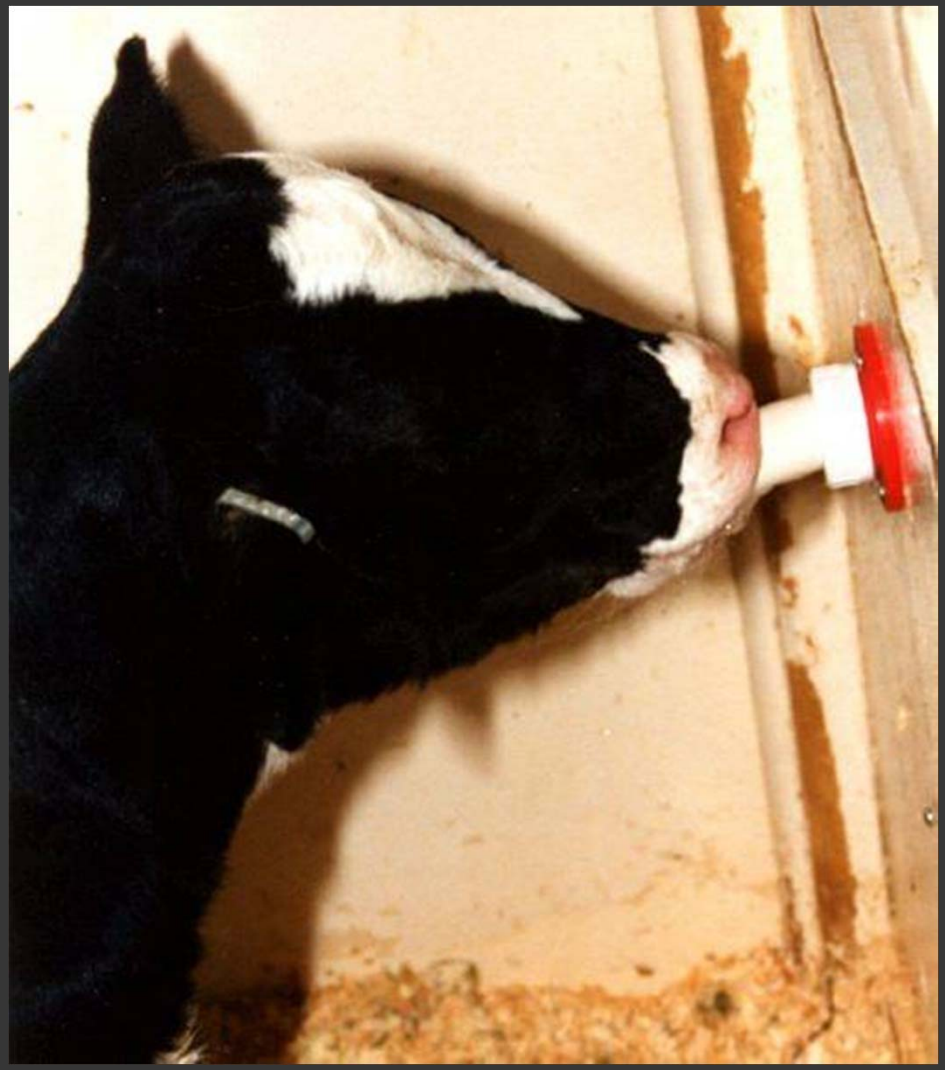
3. The physical environment should allow

- comfortable resting,
- safe and comfortable movement including normal postural changes, and
- the opportunity to perform types of natural behaviour that animals are motivated to perform



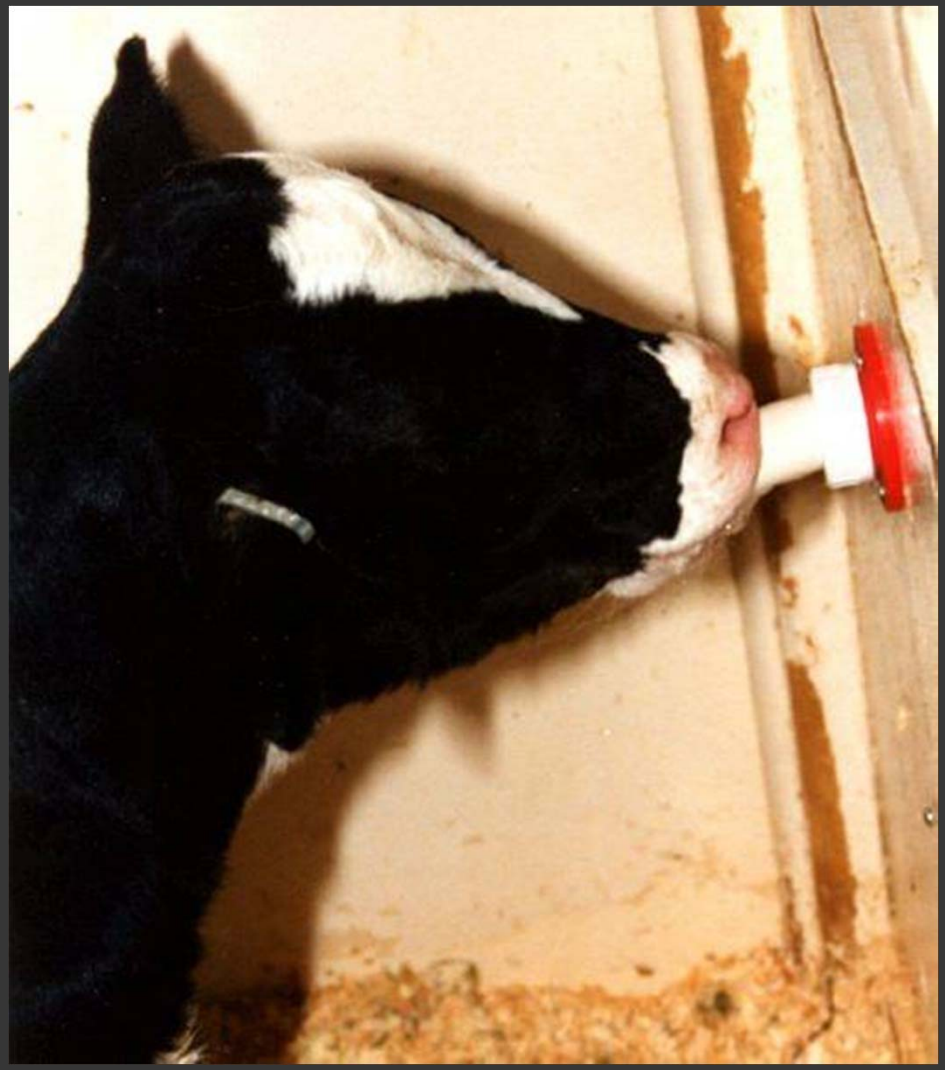


Suck + Frequent Meals



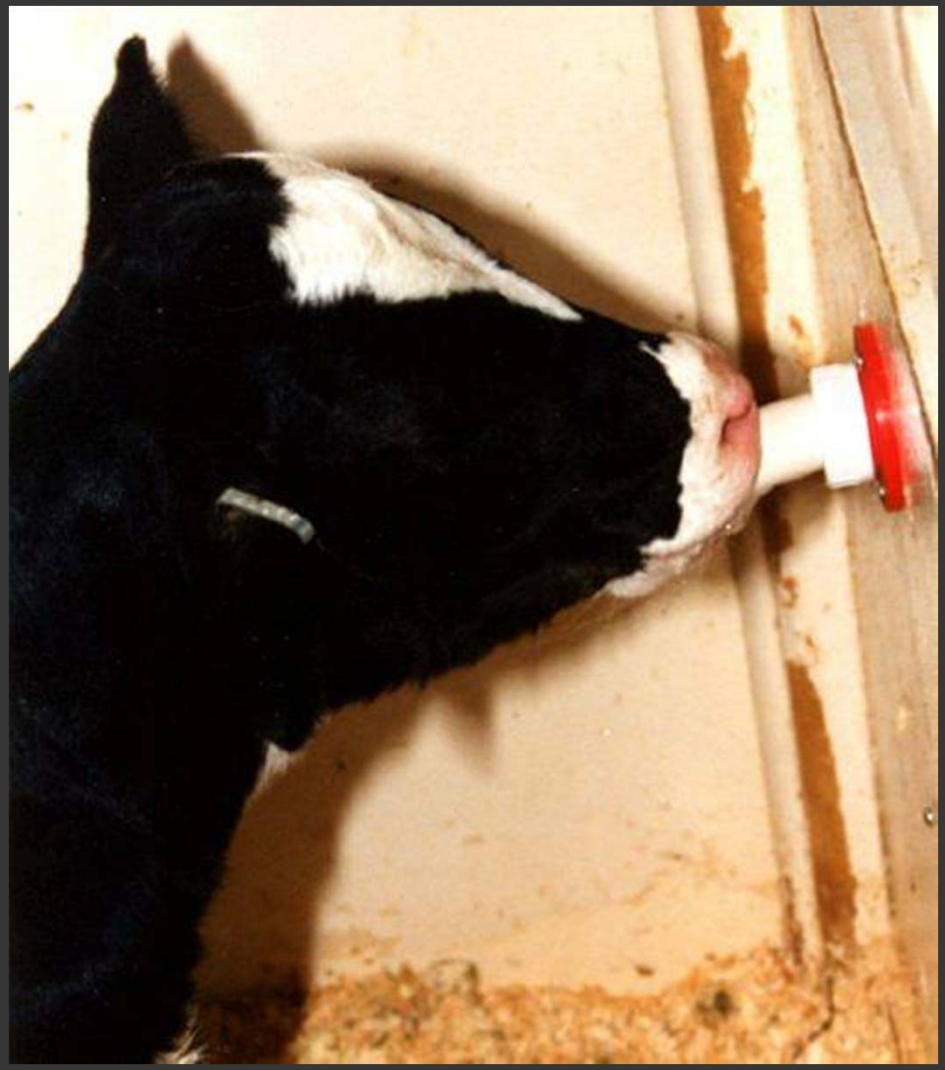
Suck + Frequent Meals

- stimulates digestive hormones



Suck + Frequent Meals

- stimulates digestive hormones
- greater intake



Suck + Frequent Meals

- stimulates digestive hormones
- greater intake
- allows group housing

4. Social grouping of animals should be managed to allow positive social behaviour and minimise injury, distress and chronic fear.

Mounting by intact males kept in groups of similar age

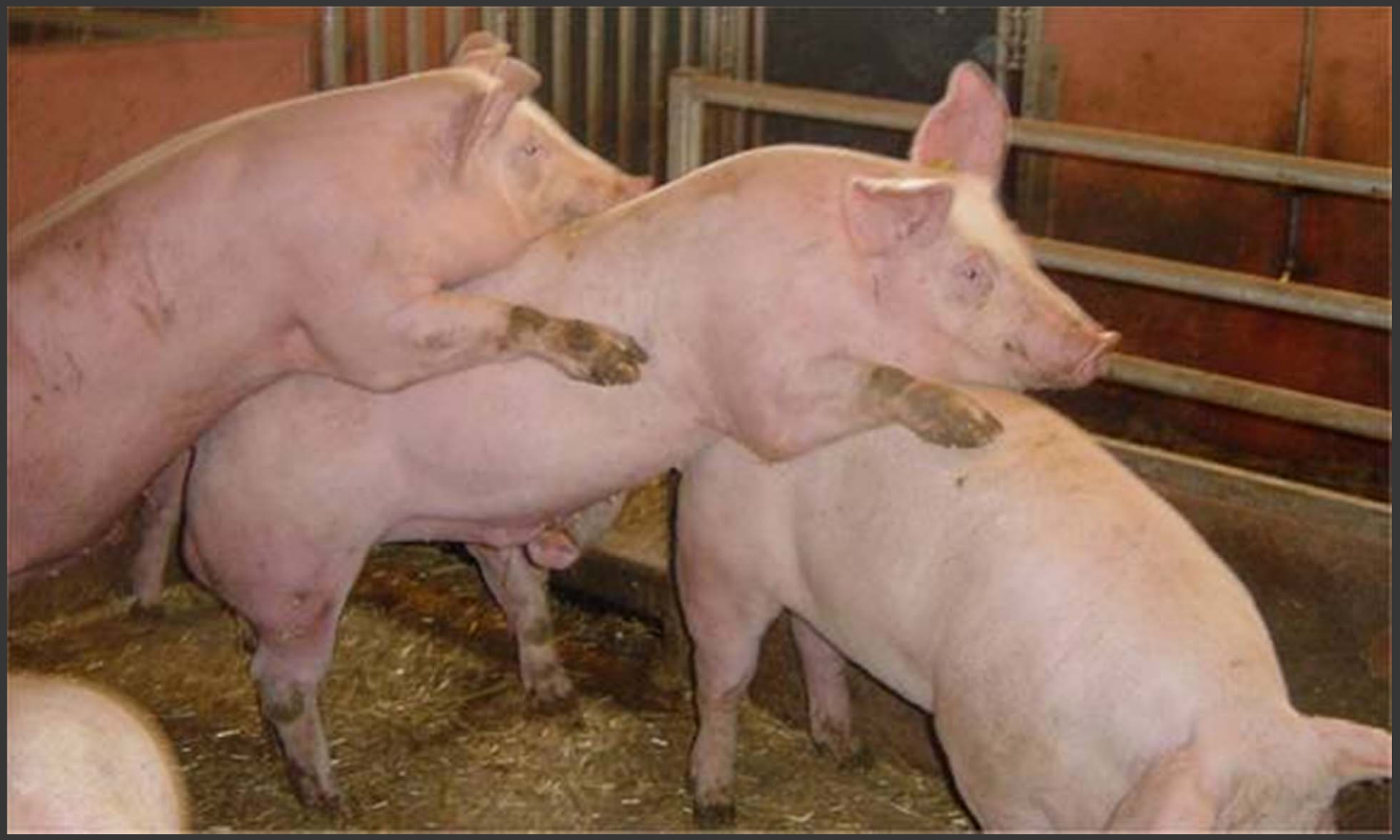
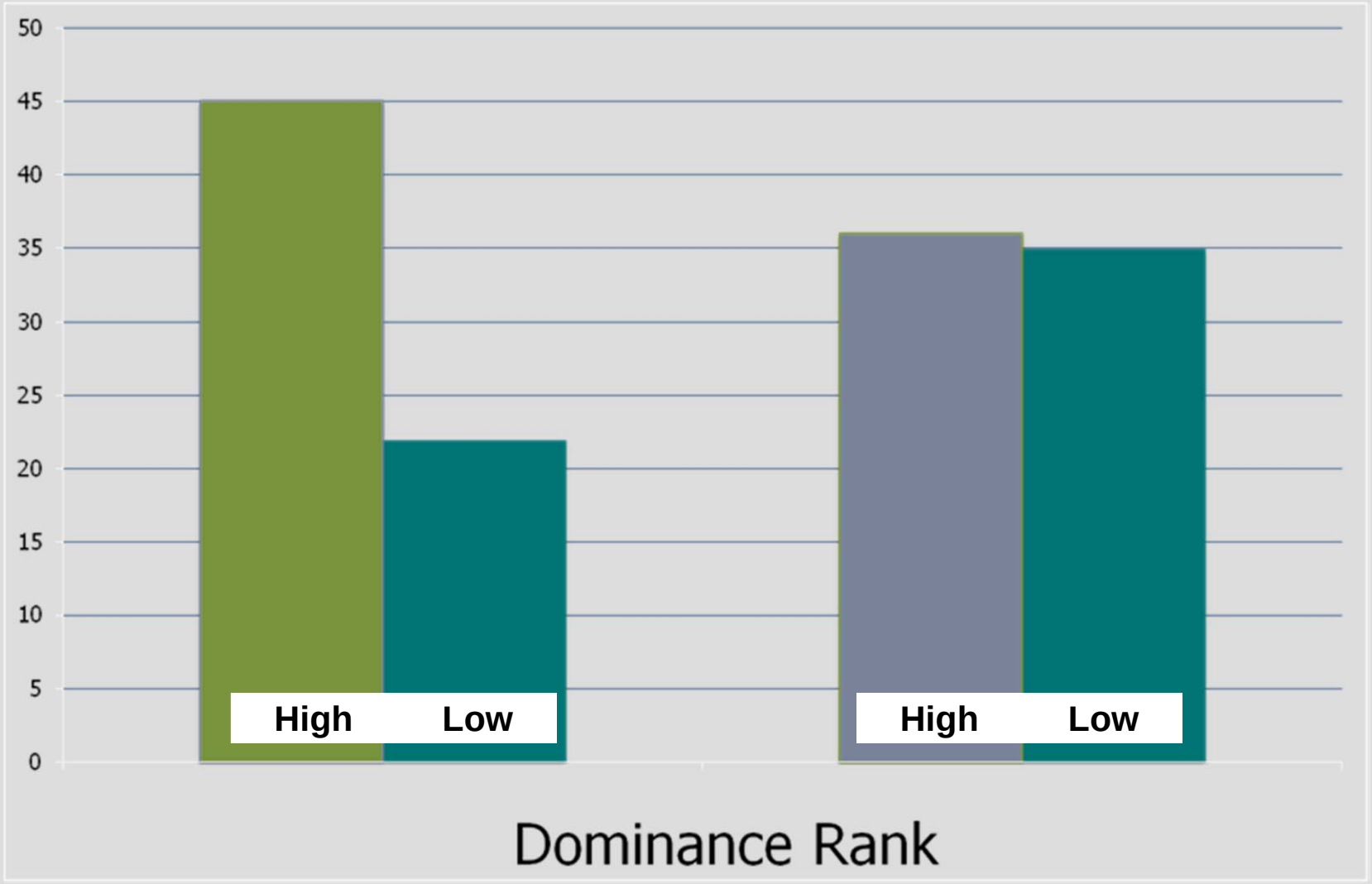


Photo: Ingemar Hansson

Body weight gain of sows (kg)



F. Brouns & S.A. Edwards, 1994. Appl. Anim. Behav. Sci. 39: 225–235

5. Air quality, temperature and humidity in confined spaces should support good animal health and not be aversive to animals.

Where extreme conditions occur, animals should not be prevented from using their natural methods of thermo-regulation.

Performance of broiler chickens

Ammonia	Deaths (%)	Reduction in body wt (%)
0 ppm	5.8	-
25 ppm	2.8	2
50 ppm	10.6	17
75 ppm	13.9	21

D.M. Miles et al. 2004, Poultry Science 83: 1650-1654

Other issues:

- Poor air quality can increase the risk of infectious diseases
- Hot, humid conditions can suppress growth, reproduction and survival

6. Animals should have access to sufficient feed and water, suited to the animals' age and needs

- to maintain normal health and productivity, &
- to prevent prolonged hunger, thirst, malnutrition or dehydration.

Traditional Nutrition

- Diet composition (protein, energy, micro-nutrients)

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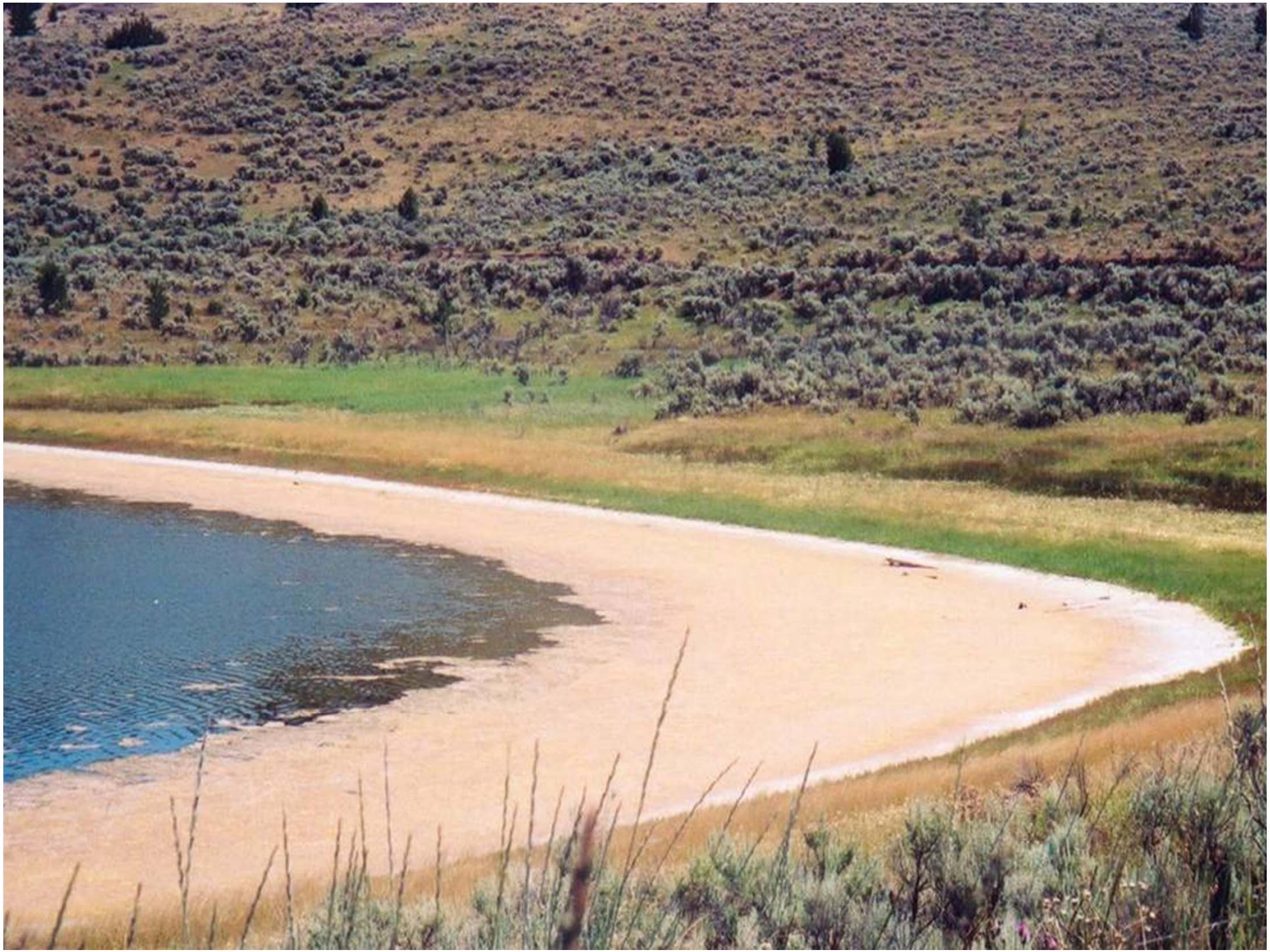
Animal welfare research

- Access to feed and water
- Effects of feeding systems

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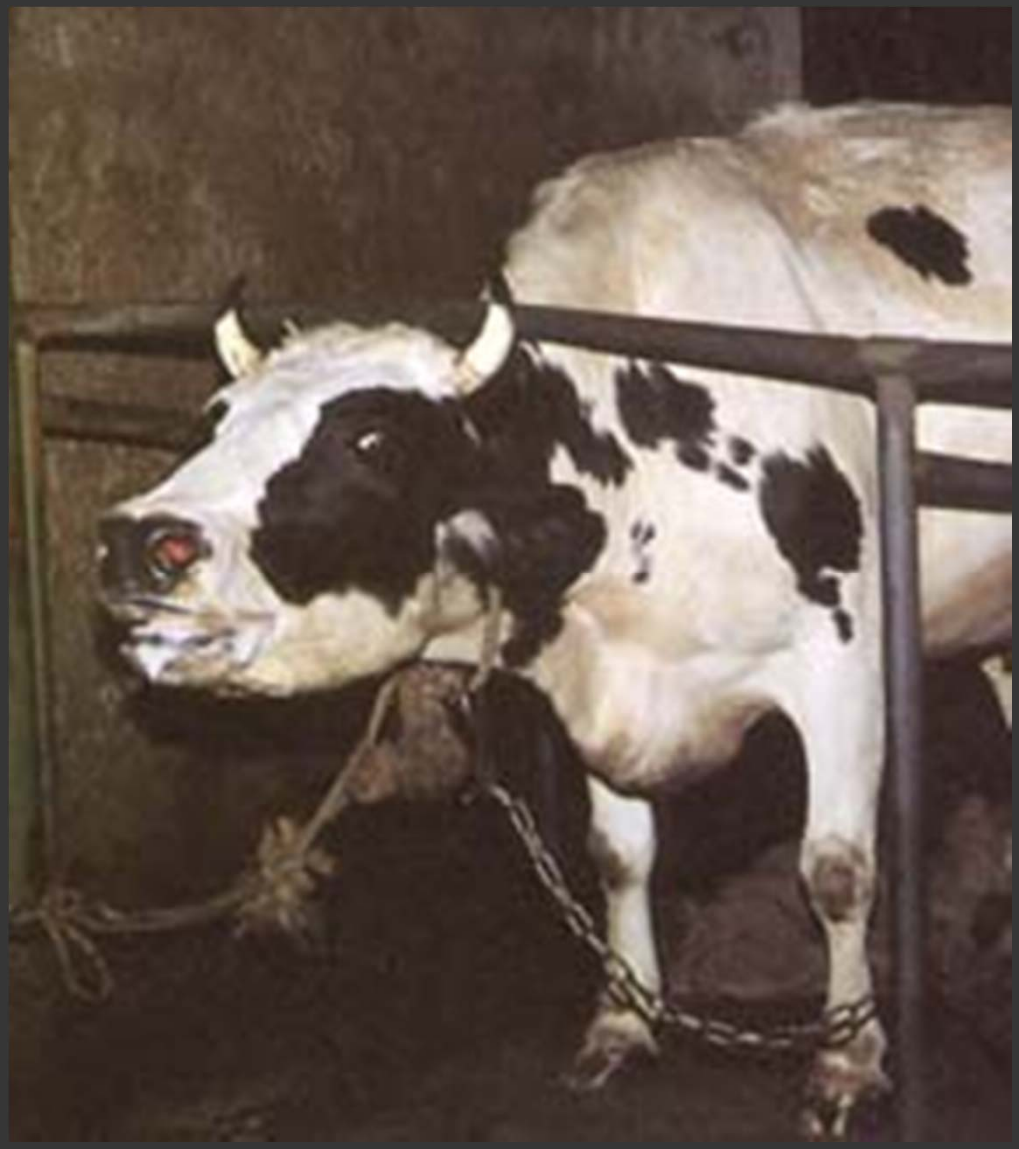
136

Franklin Loew 1939-2003

Polioencephalomalacia in cattle



Other problems:

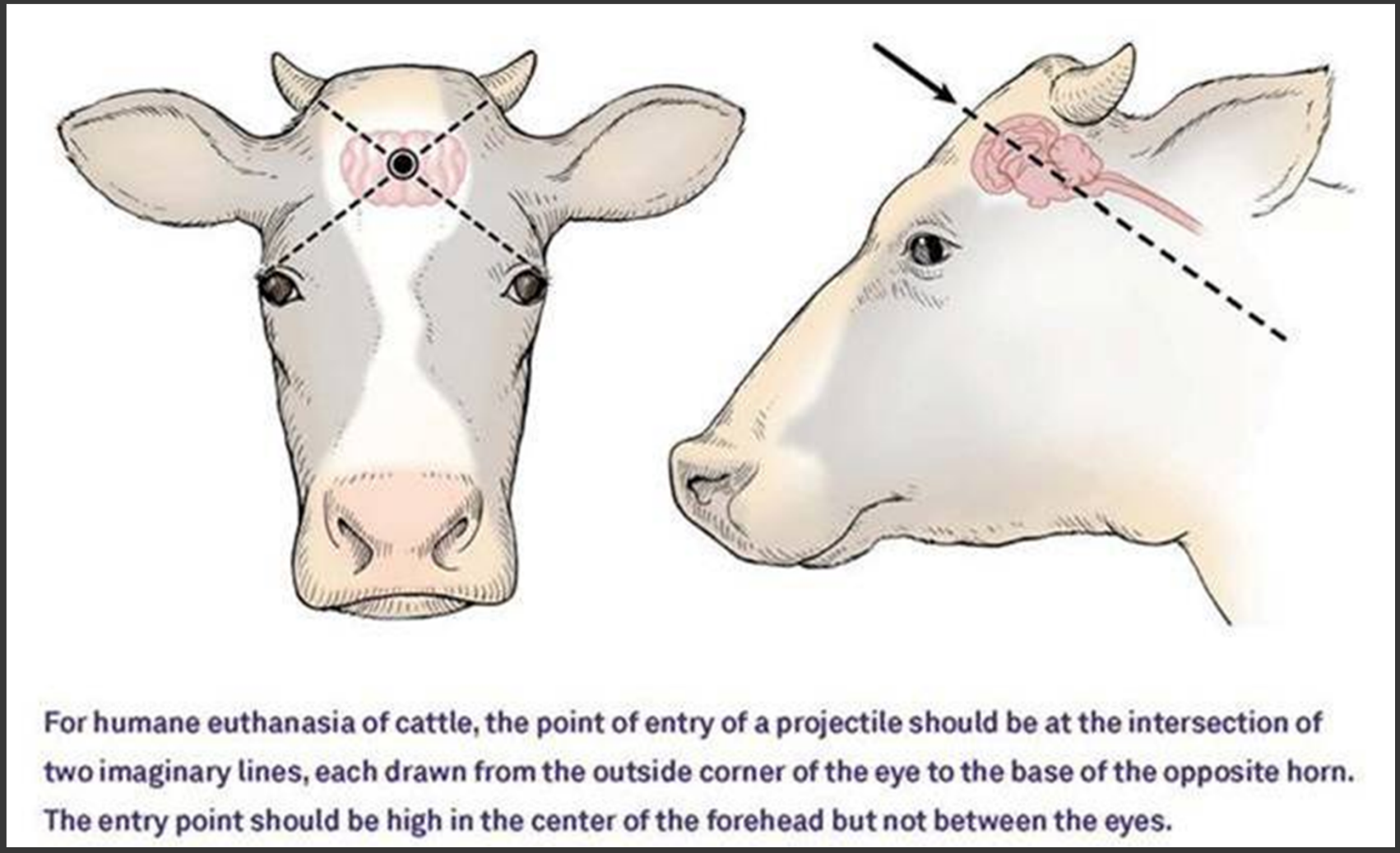
- rumen acidosis from high-grain diets for cattle
- behavioural abnormalities from low-fibre diets for pigs or horses
- poor feeder and drinker design

7. Diseases and parasites should be prevented and controlled as much as possible through good management practices.

Animals with serious health problems should be isolated and treated promptly or killed humanely if treatment is not feasible or recovery is unlikely.

Preventive veterinary medicine / Animal hygiene

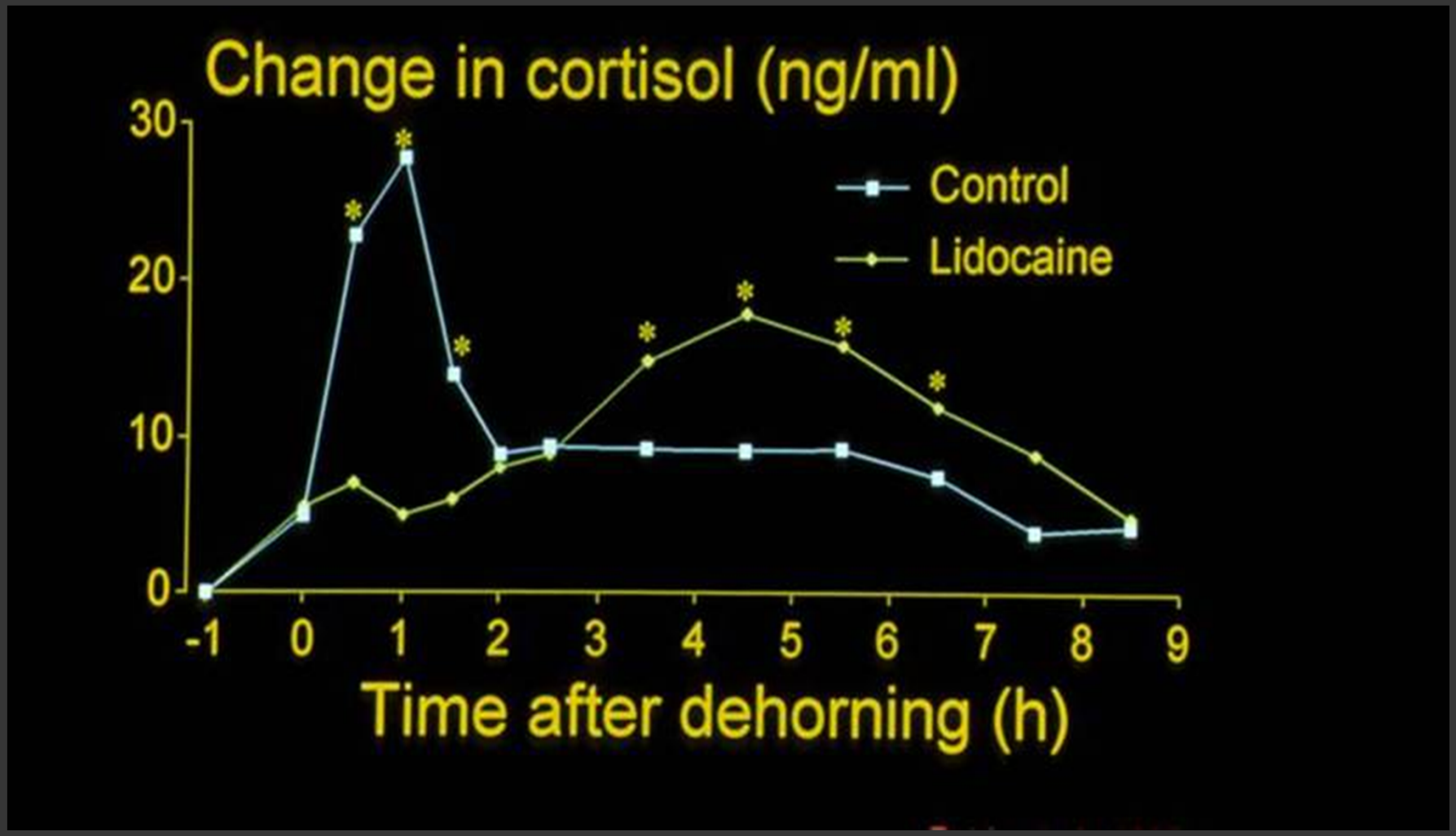
- individual treatment
- hygiene practices
- disease barriers
- regional and global programs



For humane euthanasia of cattle, the point of entry of a projectile should be at the intersection of two imaginary lines, each drawn from the outside corner of the eye to the base of the opposite horn. The entry point should be high in the center of the forehead but not between the eyes.

Illustration: Jan Shearer, Iowa State University

8. Where painful procedures cannot be avoided, the resulting pain should be managed to the extent that available methods allow.

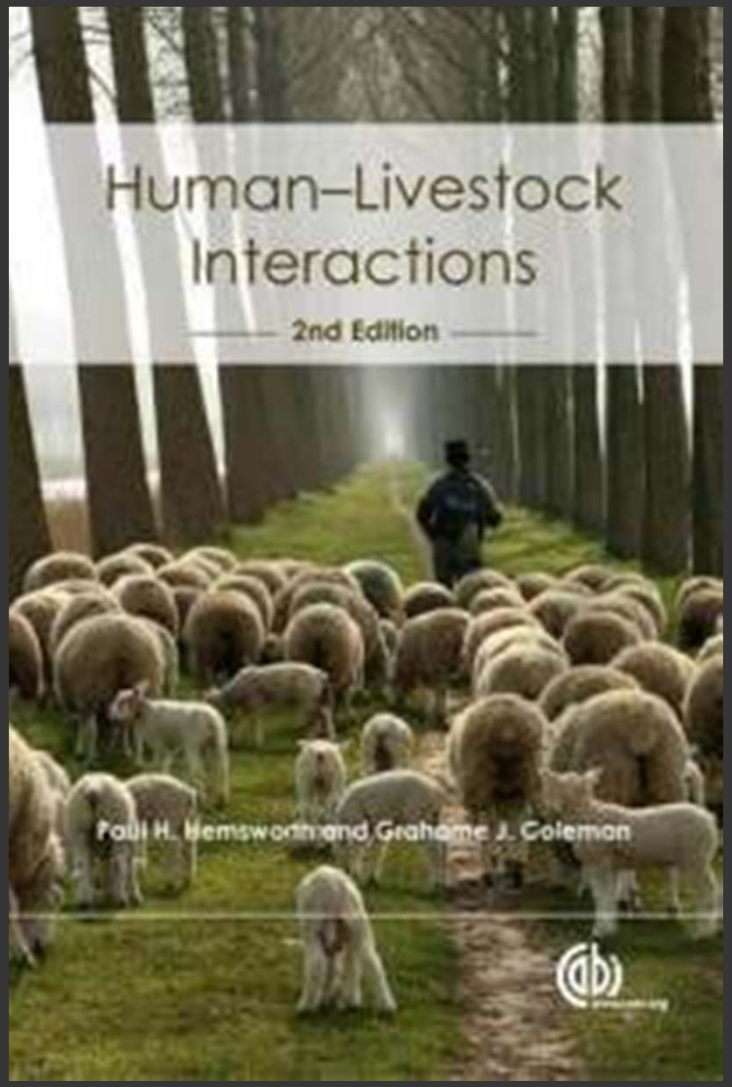


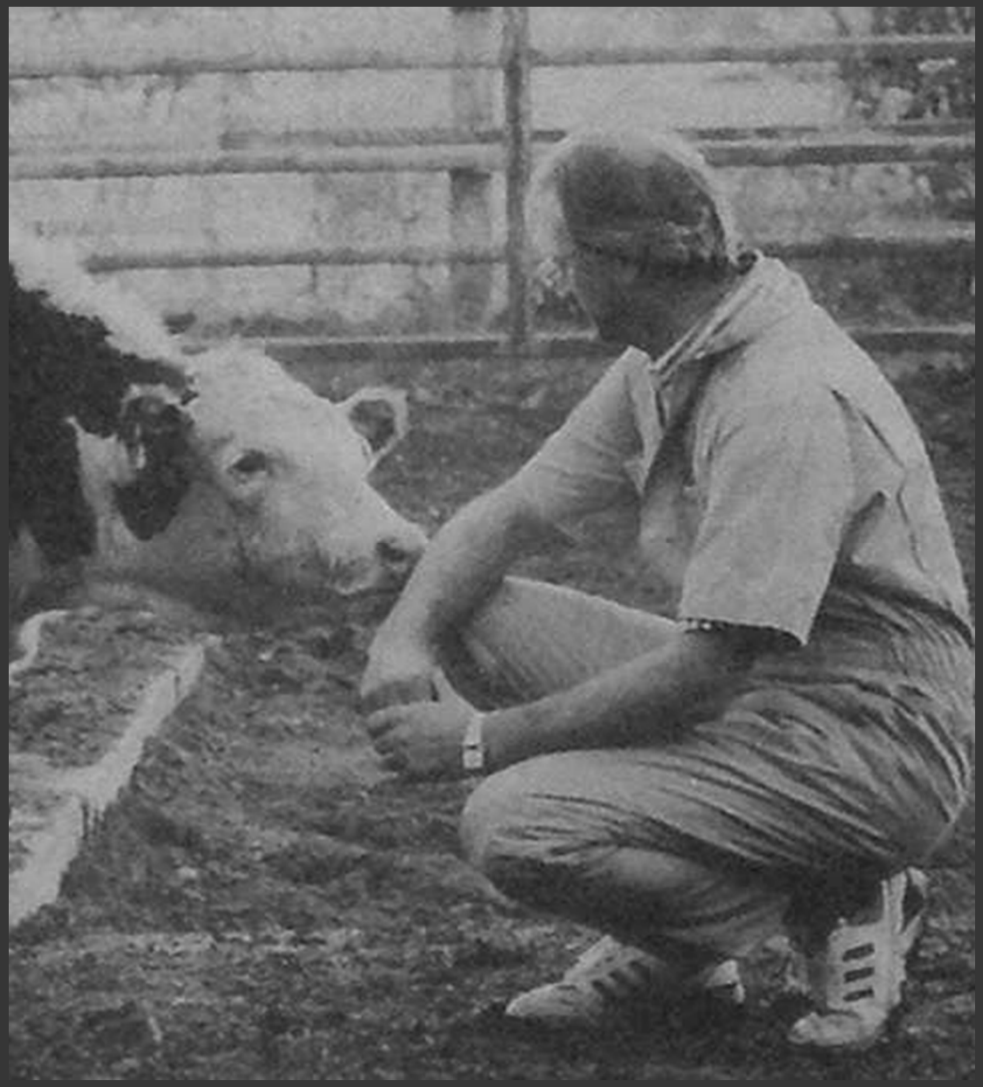
N.J. Petrie et al. 1996. N.Z. vet. J. 44: 9-14

Other research has led to:

- less painful alternatives
- elimination of certain procedures

9. The handling of animals should foster a positive relationship between humans and animals and should not cause injury, panic, lasting fear or avoidable stress.



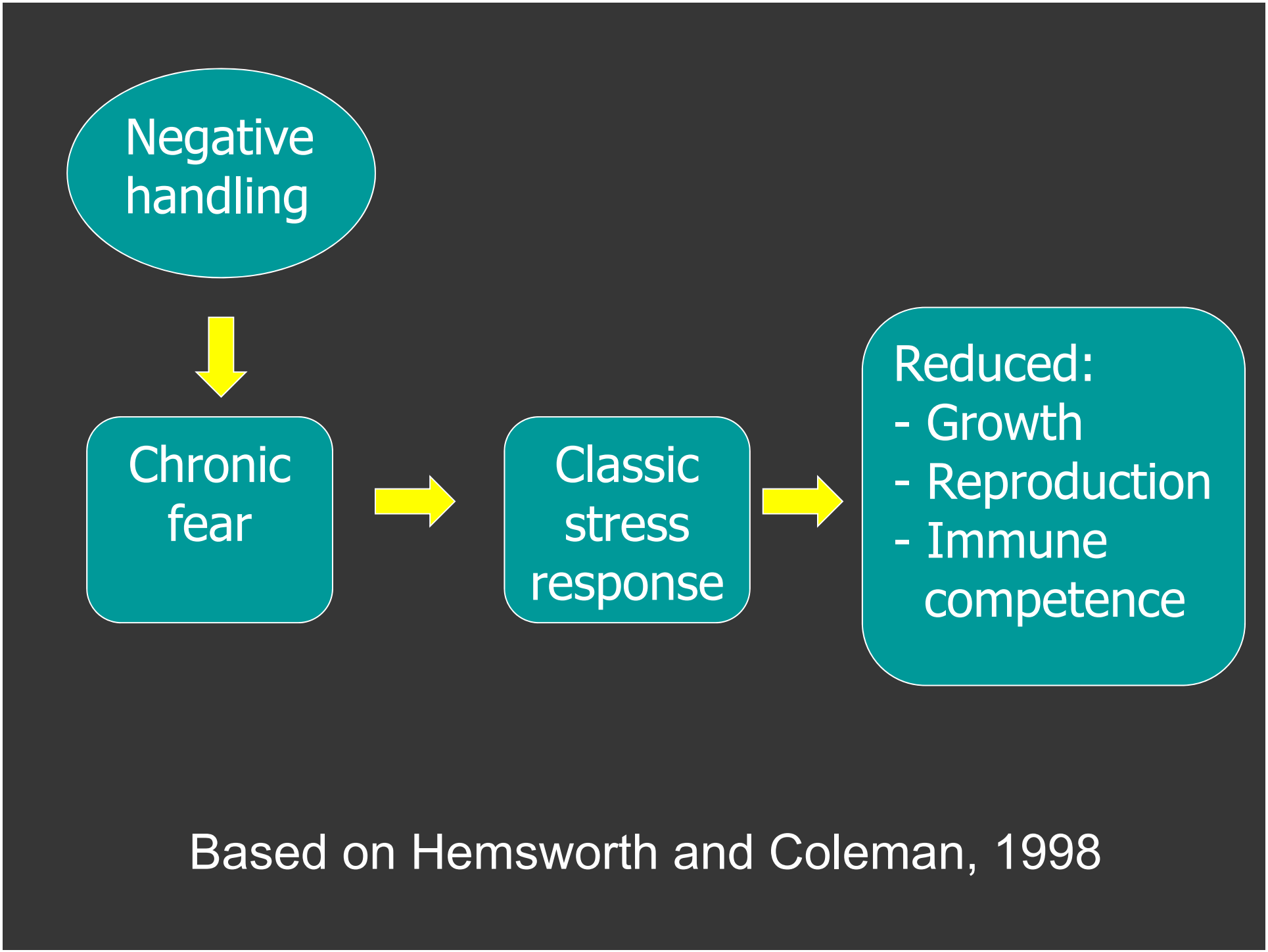


Paul Hemsworth

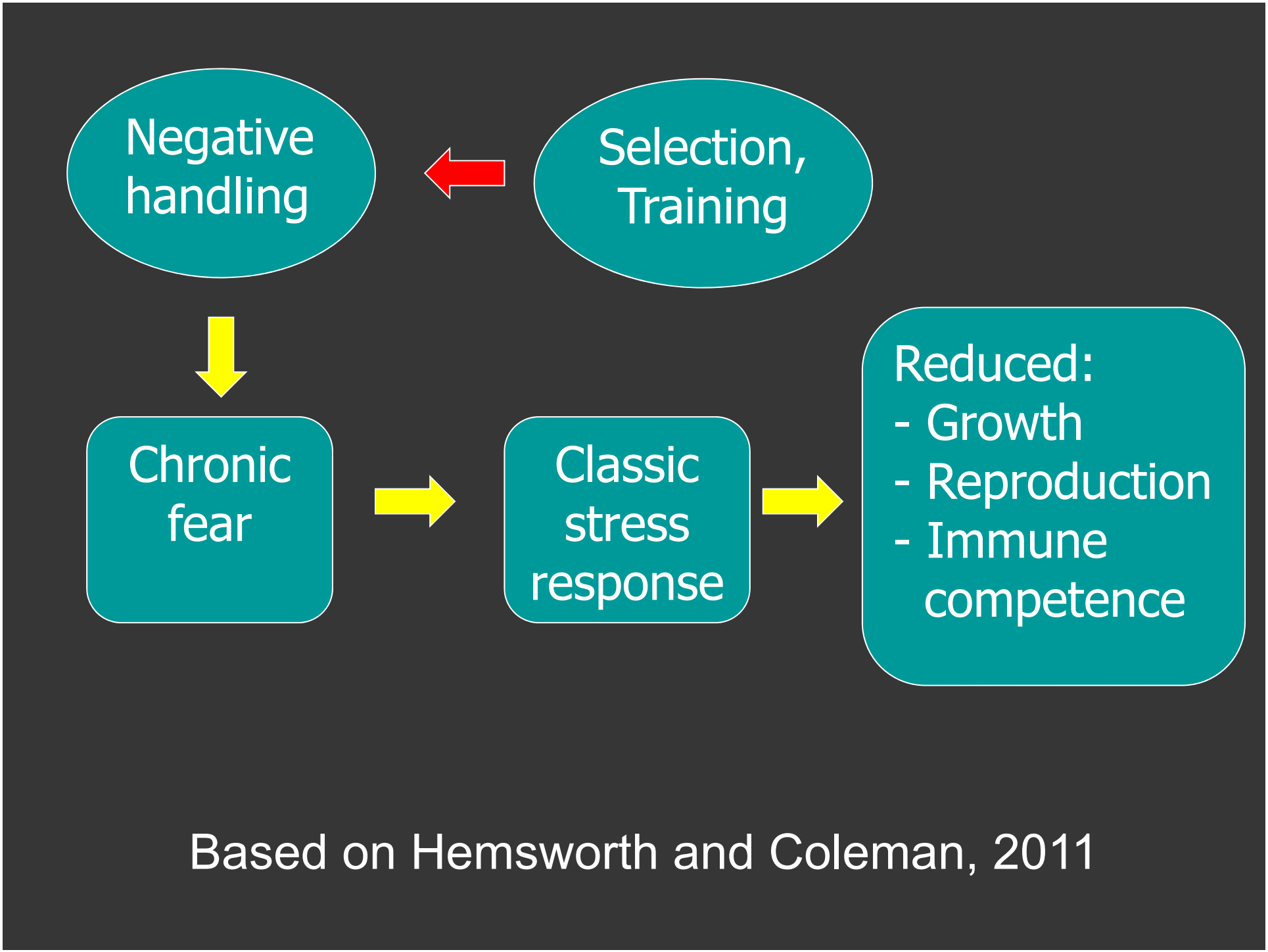
Negative handling of dairy cows: slaps, hits, pushes, tail-twists

Variable	Correlation	P
Avoidance of handler	+0.33	<0.01
Cortisol in milk	+0.34	<0.01
Yearly milk yield	-0.36	<0.01

Hemsworth et al. 2000. J. Anim. Sci. 78: 2821-2831



Based on Hemsworth and Coleman, 1998



Based on Hemsworth and Coleman, 2011

10. Owners and handlers should have sufficient skill and knowledge to ensure that animals are treated in accordance with these principles.

Selection and training of staff can:

- avoid the cascade of fear, stress and its effects on performance
- allow animals to be moved without injury
- eliminate most use of electric prods and other fear-producing equipment

Animal welfare, animal husbandry, veterinary science

Animal Husbandry

- Feeding
- Breeding
- Health care
- Handling
- Management
- Housing

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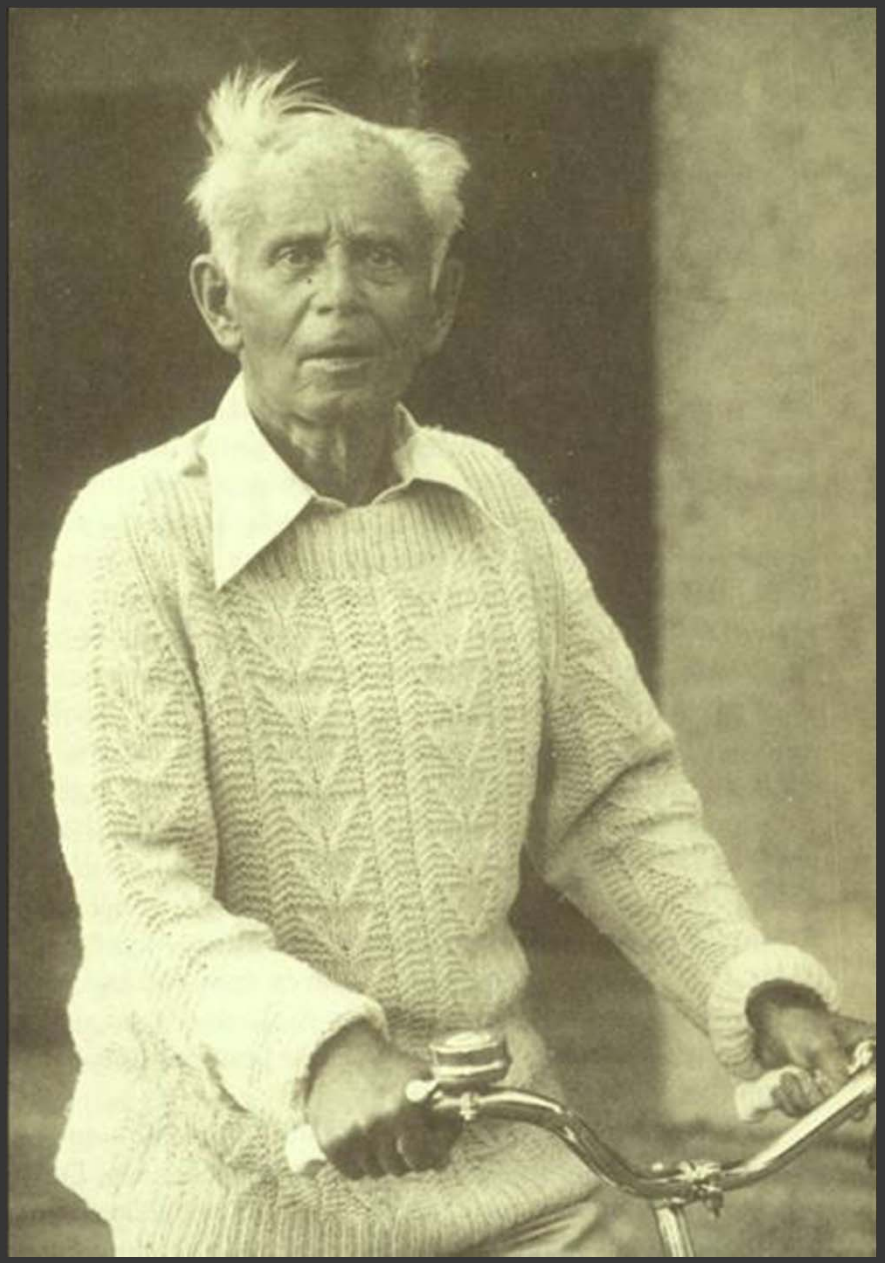
Animal/Vet. Science

- Nutrition
- Genetics/reproduction
- Vet. Science

Konrad Lorenz, 1903-1989

Animal behaviour



Hans Selye, 1907-1982

Stress Physiology

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Animal Welfare Science

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Animal Welfare Science