Improving welfare in farm animals

Examples of applications in dairy cows

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Welfare: The “Five Freedoms”

1. Freedom from hunger or thirst
2. Freedom from discomfort
3. Freedom from pain, injury or disease
4. Freedom to express (most) normal behavior
5. Freedom from fear and distress

- *Five Freedoms. UK Farm Animal Welfare Council, 1979*

Welfare in 2 questions

"Are the animals healthy?" → **VETERINARY MEDICINE**

"Do the animals have what they want?" → **APPLIED ETHOLOGY**

- *Using behaviour to assess animal welfare (MS Dawkins, 2004)*

What animals want

Difficult to decipher what animals want:
Each species has a different code of communication.

IDEAL SCENARIO

REALISTIC SCENARIO

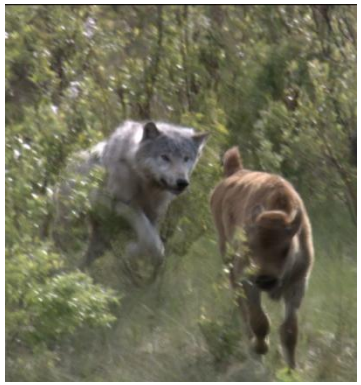
What animals want

"It's simple! Animals want what they have/do when they are allowed to live in nature."

WHAT WE IMAGINE

Freedom
Longevity
Peace and calm
Abundant natural feed
Pleasant environment

WHAT WE FORGET



Predators
Diseases
Parasitic infections
Lack of feed
Weather extremes

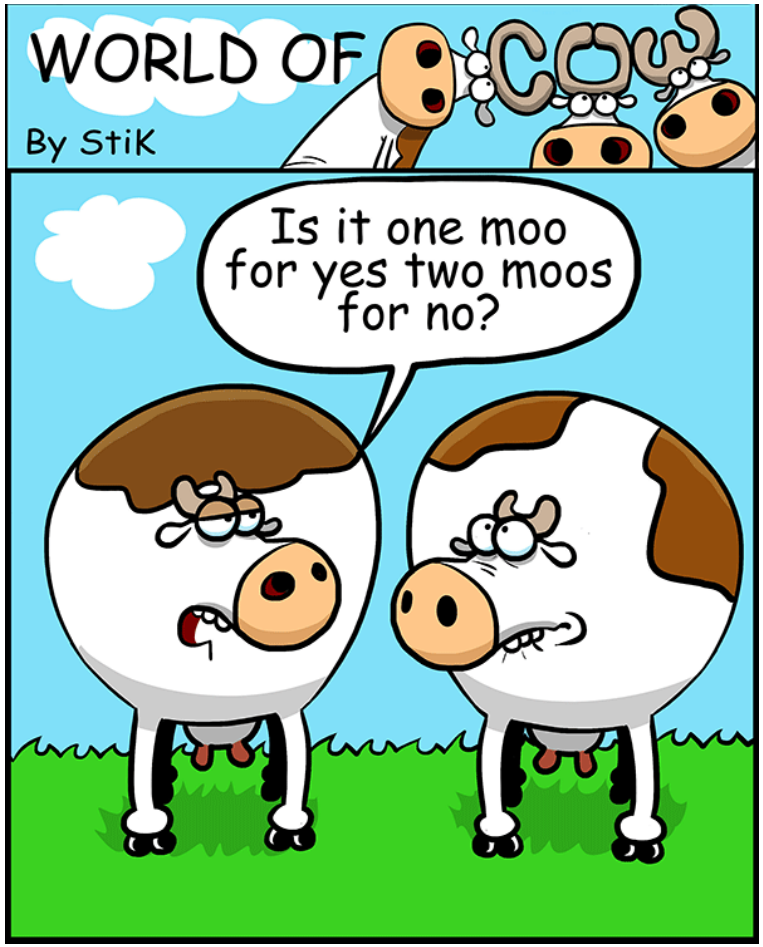
What animals want

"It's simple! Animals want what they have/do when they are allowed to live in nature."

We must remember that...

farm animals have undergone **thousands** of years of selective breeding and domestication, which makes it difficult to establish what their "natural" behavior really is.

Deciphering what animals want



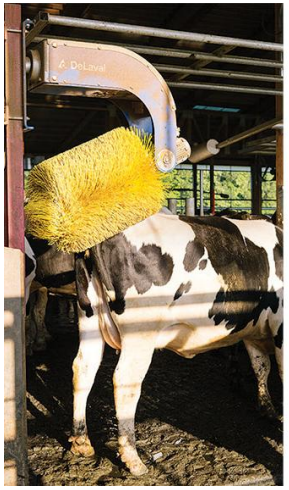
Several methods have been proposed, that usually combine behavioral observations, physiological parameters (e.g. corticosteroids) and information from the animal's health and productivity record.

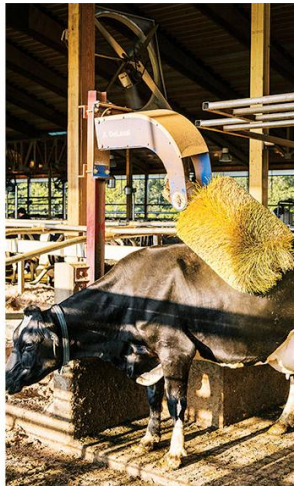
Three popular methods of study:

- Preference tests
- Motivation tests
- Cognitive bias tests

Positive welfare

- By discovering **what animals want**, not only can we decrease negative experiences in their lives, but also **increase positive experiences**.





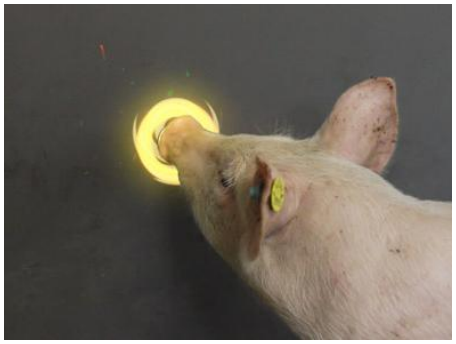
- Examples of positive welfare include the implementation of **environmental enrichment** in farm facilities as well as **positive handling** of the animals.

Environmental enrichment

Social

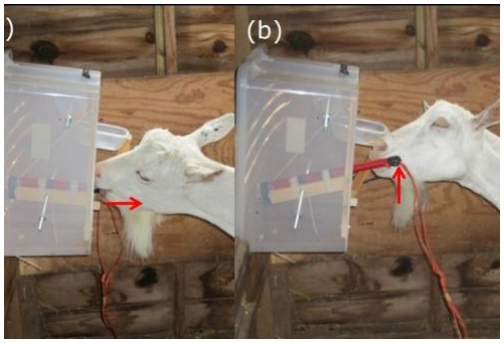
Nutritional

Sensory



Physical

Cognitive



- *Invited review: Environmental enrichment of dairy cows and calves in indoor housing (Mandel et al., 2016)*

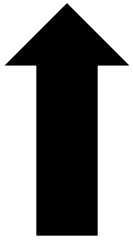
The importance of handling

Farm animals are particularly **fearful of**:

1. Sudden changes in their physical environment
2. Sudden changes in their social environment
3. **Humans** (despite thousands of years of domestication...)

Meanwhile, it is getting even harder for animals to habituate to humans as:

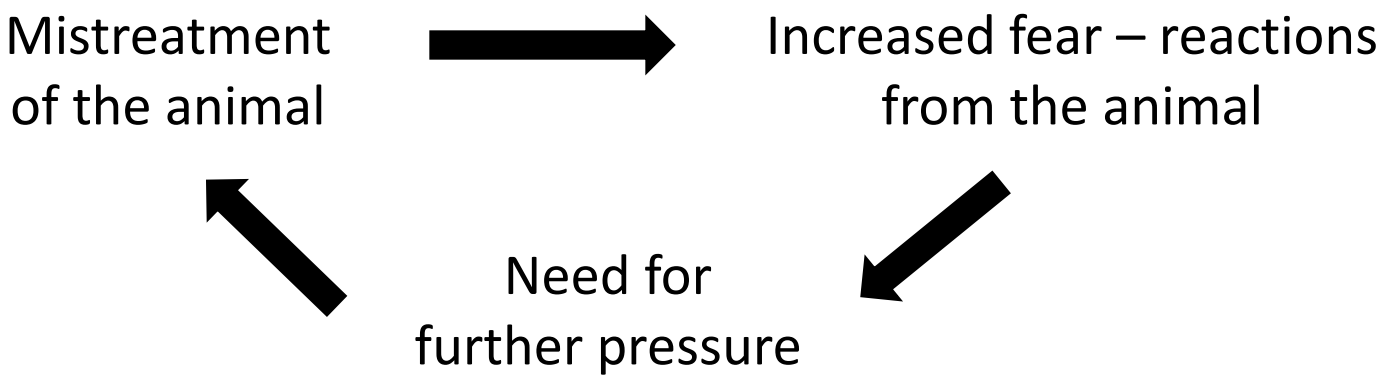
Small family farms that allow frequent contact with the animals are less and less common.



Large, automated farms that offer few chances for contact with the animals are increasing in number.

The importance of handling

- And it gets even harder...
  - Most contact with farm animals is **negative** (e.g. forceful restraint, transport, veterinary or invasive procedures).
  - The staff usually learns to treat farm animals like “machines”.



The importance of handling

- Mistreatment not only affects welfare, but it can also affect **productivity**.
- For instance, some studies in dairy cows and goats report a correlation of negative handling with:

- ✗ Milk withholding, reduced milk yield, changes in milk fat and proteins
- ✗ Poorer meat quality
- ✗ Increased hoof problems (dairy cows)
- ✗ Increased chance of injury or death

- *Assessing the human-animal relationship in farmed species: a critical review (Waiblinger et al., 2006)*

Positive handling

When an animal is handled:

- Calmly, patiently
- In combination with a reward
- Often, aiming in habituation
- With the long-term goal of creating a positive human-animal relationship

Positive handling: Why

- **Increased welfare:** the animal is assisted through stressful situations (e.g. isolation and restraint, artificial insemination, rectal palpation)
- **Cooperation and staff safety:** it is easier to work with the animal, reduced risk for the staff to be attacked and injured
- **Productivity:** e.g. positive handling in heifers was positively correlated with conception rates during artificial insemination (Hemsworth et al., 2000)
- **Effect on behavior:** frequent positive contact may be able to *partially* revert the effect of previous negative experiences on the animal's behavior (Waiblinger et al., 2006).

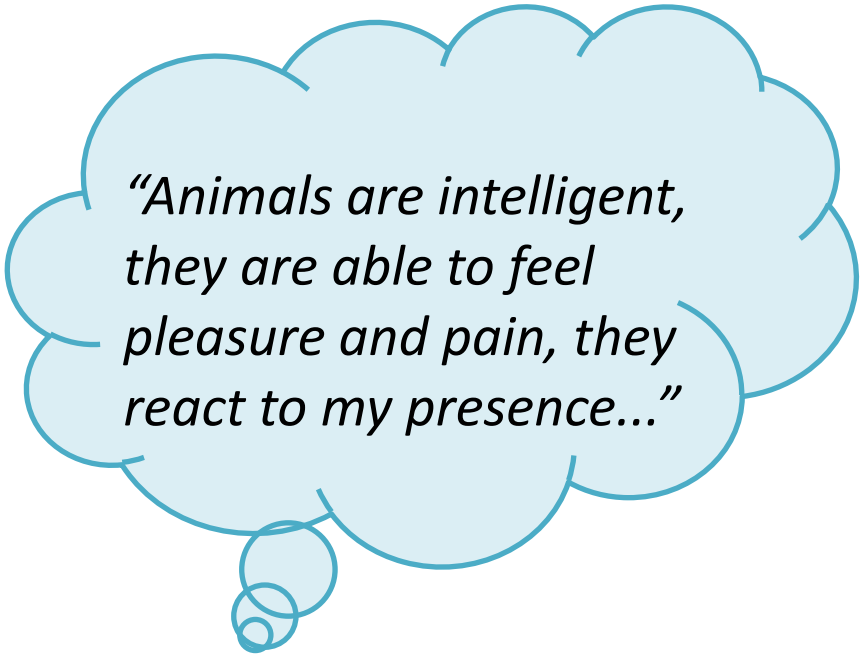
Positive handling: How

– By changing the attitude of farm owners/staff towards their animals

– Training programs on positive animal handling

– Genetic selection of cooperative animals

Owner/staff attitude towards their animals : **EXTREMELY IMPORTANT**.



→ greater value in contact with animals

→ patience during handling

→ job satisfaction and rewarding work tasks

Examples of welfare improvement

(dairy cows)

Disbudding/dehorning in calves

- Most often, only local anesthesia (lidocaine) is applied.
- Stress **before** (restraint), **during** (restraint, possible pain, exposure to unfamiliar odors), **after** the procedure (postoperative pain, fear).

✚ Xylazine
- ⬇ Stress before
- ~~Stress during and after disbudding~~

✚ NSAIDs
- ~~Pain after disbudding~~

Cross-suckling in young calves

- Calves that suckle the umbilical cord stump or the genitals of other pen mates - Mainly due to an unsatisfied motivation to suckle.
- Aside from the obvious welfare issue: risk for hernias, injuries, omphalitis.

✗ Symptomatic treatment

✓ Etiological treatment

Case study in a newborn calf

Staff record

- Early labor (of few days), resulting in the calf being born in the **wrong pen** (for dry cows nearing labor, instead of a specially designed labor pen).
- During daytime, the pen is cleaned by **automated manure scrapers**. The scrapers are **turned off during the night**.
- The calf was transferred as quickly as possible to a single calf box with straw bedding and was given colostrum with an esophageal tube, as well as milk meals using the same method for the next 2 days.

Case study in a newborn calf

The problem

- Despite continuous efforts from the staff to teach the animal, the calf refuses to suckle from the artificial teat.
- The calf seems apathetic (doesn't stand up, doesn't vocalize throughout the day, has an "empty look") – according to the staff's observations.
- Absence of obvious disease symptoms - according to the staff's observations.

First thoughts

- Concussion or myoskeletal injury during labor or from the scrapers.
- Unobserved diarrhea / omphalitis (less likely).
- Vitamin and mineral deficiencies: B-complex, E, Se.
- Other suggestions...?

Case study in a newborn calf

Clinical examination: findings

- Normal ◦C, hydration.
- Absence of symptoms from the digestive / cardiopulmonary / neuro – ophthalmological system, absence of omphalitis.
- **Markedly soiled coat**. After preliminary cleaning, an extensive soft tissue **injury** is revealed in the area of the right scapula, as well as some superficial head injuries near the forehead.

Case study in a newborn calf

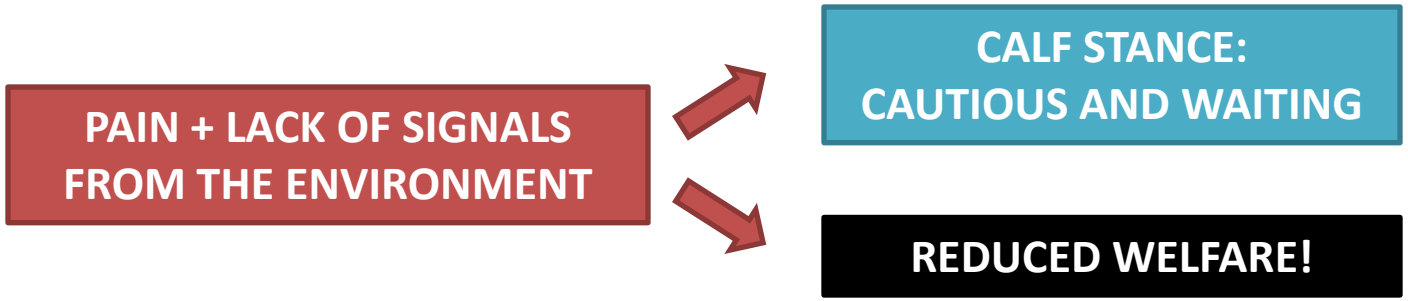
Answers to the problems

The calf refuses to suckle and is apathetic due to:

- a) pain (injuries)
- b) lack of behavioral signals from the dam (grooming, vocalizing, effort to lift the calf, olfactory and visual stimuli).

The calf is unwilling to stand and remains generally quiet due to:

- a) pain (injuries)
- b) the fact that, in nature, the dam keeps the calf “hidden” during the first days of life, and the newborn animal awaits signals from the dam in order to stand up, vocalize and explore.



Case study in a newborn calf

Treatment

Daily wound treatment (secondary intention healing), **NSAIDs**, antibiotic prophylaxis due to wound depth.

"Substitution" of maternal behavior (positive handling):

1. **Coat cleaning** (also for good hygiene) using **wet towels** and warm water, simulating grooming from the dam.
2. **Cleaning of the genitals and anus** to stimulate urination / defecation.
3. **Talking to the calf** with a calm voice during cleaning.
4. **Helping the calf stand** by lifting it with the arms, but also by giving the calf soft pushes with the legs and feet (substituting the dam's efforts to help the calf stand, using her head and limbs).

Case study in a newborn calf

Right after treatment

Frequent efforts to help the calf suckle from the artificial teat, speaking to the calf calmly, avoiding use of extensive force, using the same handling manner as during the behavioral treatment.

Results

- **Immediate response** to cleaning with towels: head raised, ears lifted, “lively” look, efforts to self-groom.
- Successful suckling within 6 hours.
- The calf stood up on its own, sought attention / contact, presented play behavior during the following days.

Routine work at the farm

Changing groups in cows:

- Cows have complex hierarchies. Intense competition, reduced allogrooming, feed intake, rest time and milk yield during the first days after regrouping (von Keyserlingk et al. 2008).
- Regrouping during the evening/night, together with 1-2 familiar animals, in smaller groups.

At the milking parlor:

- Rewarding with pellets, warning from the milking staff before placing the milking clusters (speech, touch).
- Fewer negative reactions (fewer kicks, reduced expulsion of clusters).

To sum up...

- Animal welfare: *"Are the animals healthy? Do the animals have what they want?"*
- It is difficult to know what animals exactly want, but it's not impossible – by studying their behavior.
- Goal: not only to reduce the negative experiences in the lives of farm animals, but also to enrich them with positive experiences.
- How? Using education, positive handling and by providing a stimulating living environment.

«If you look after your cow, she will look after you too».

Thank you for your attention!

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