THE MAIN MOTIVATIONAL FORCES OF ANIMALS

HUNGER

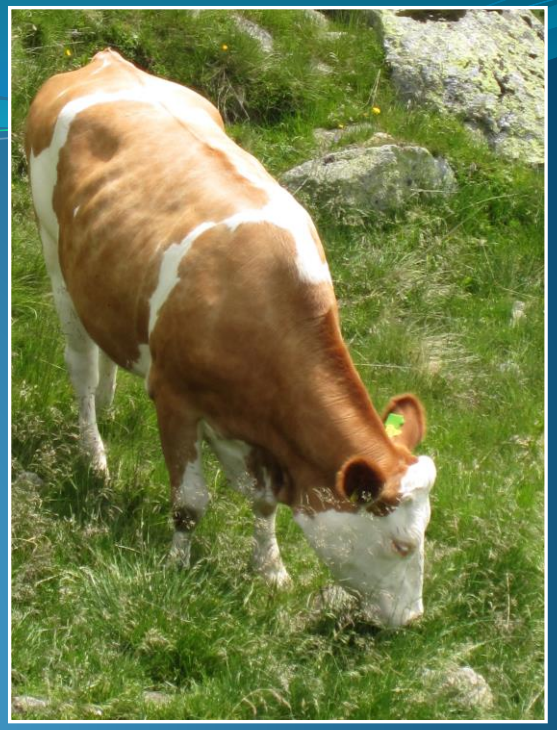
It is a primitive perception caused by a common combined action of signals from a variety of sensory nerves that capture information about the balance between the demand for nutrients by the body's tissues and the supply of nutrients.

APPETITE

It is a complex conscious perception caused by a range of stimuli coming from the internal and external environment. It includes internal stimuli of metabolic hunger that persist regardless of the presence or absence of food, external stimuli such as the appearance and smell of food, and social stimuli (competition, shared food intake).

Feed saturation

It is the motivational opposite of hunger, an instinct that makes the animal consciously to stop eating and start doing something else.



Satisfaction from eating

The difference in food intake between animals in their natural environment and in a stable. **Oral stereotypes** - compulsive prolonged performance of purposeless activities by mouth - these activities are stated as evidence of frustration in animals that receive food that satisfies their nutritional requirements but cannot overcome the motivation to perform all the behaviours that are naturally connected with food intake.This include not only eating and rumination but also hunting and foraging.

Thirst

It is a physiological need caused by nerve receptors perceiving increased osmotic pressure of the blood, which is usually a sign of dehydration of the body.

If the animal is susceptible, the unavailability of water is perhaps the **most potent source of suffering**, adding to it the urgent need to drink and the nausea caused by dehydration.

Water consumption is affected:

Daily water consumption indicators	
Calf 50 kg	4-7.5 l
Heifer 360 kg	38-60 l
Dairy cow	80-190 l

- animal age,
- gender,
- live weight,
- state of health,
- factors of the breeding environment (temperature, humidity, animal performance...)
- reproductive activity,
- composition of the diet,
- quality and parameters of the water supply , etc.

Basic welfare rules for nutrition and watering

- **the feed intake** must correspond to the physiological needs of the individual (it is necessary to take into account the age, physiological features of the animal, health, etc.),
- the feed ration is given to the animals at regular intervals and in **sufficient quantities**,

- feeds should be **free from any physical, chemical or biological deficiencies** that could adversely affect animal health (feed with soil, contaminated feed, residues of veterinary drugs, inappropriate temperature of feed milk, rotting feed due to activity of micro-organisms, contamination by faeces from wild birds, etc.),

- uneaten food residues should be removed regularly,
- materials that come into contact with feed or drinking water must be safe, easy to clean and disinfect, and should not cause injury to the animal,

- **the feeding area should be sufficiently spacious and, if this cannot be ensured, the frequency and volume of feeding should be increased to a level that will ensure that all animals of a given group can be fed without difficulty and cover their physiological needs,**

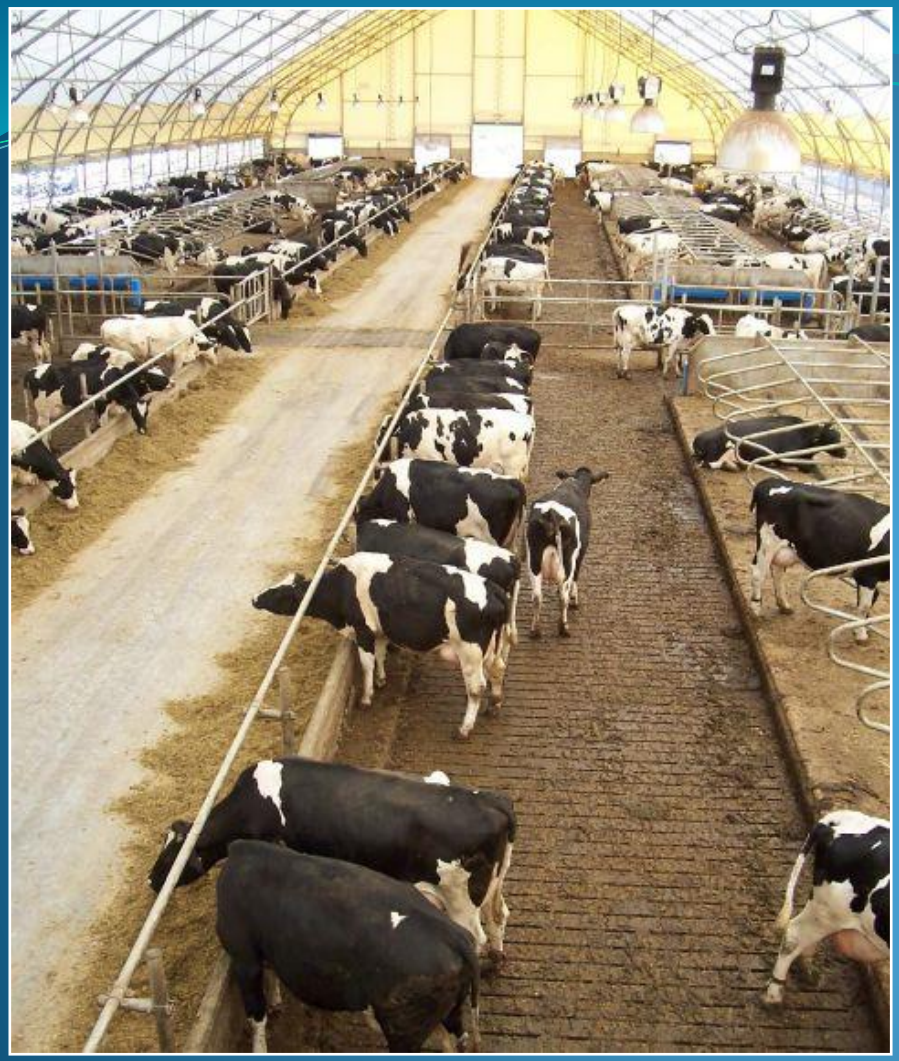
The level of the mobile surface must be identical to the level of the trough area. The level of the feeding table must be at least 7 cm above the cow standing level of the forelegs.The width of the feeding table has to be sufficient. Perfect lighting of the feeding table increases the feed intake.
It is better to choose a light-coloured floor covering the feeding table, preferably acid-resistant. The trough space must be free of barriers, defending cleaning and intake of feed. To reduce sunlight on the feed!

- **Feeding and watering facilities** must be designed to prevent lower quality of feed or water (appropriate type of waterers, pre-feeding step to prevent cows from feed contamination, etc.),

- **Pre-feeding step** forms a crossing between the feeding ground and the actual trough. Particularly in litter-free stables, its function is underestimated and is seen as an unnecessary area required for manual work. An experienced keeper in the stable will appreciate the fact that:
- It reduces the migration of animals at the trough.
- Directs the cows' position at the trough (standing vertically to the trough, not along the trough).
- Reduces feed contamination. Separates the trough from the manure.
- Positively shifts the cow's centre of gravity during feeding. The step must be 10 to 12 cm high, with the length of 40 to 50 cm to avoid movement of animals on it. The area is necessarily straight without slope, the surface of the step is not profiled, but with a rougher, non-slip surface.

- when using automatic systems (e.g. automatic feeding boxes for grain feed, milk feeding machines for calves, self-feeders for poultry and pigs, etc.), it is necessary to check them regularly, ensure their regular cleaning and disinfection, etc.,

- **with automatic feeding boxes** (AKB) it is also necessary to monitor dominant, often aggressive individuals that try to take maximum food at the expense of other individuals (animals are very inventive and especially the stronger ones, which can get a lot of feed from the machines by various tricks),



- **movement corridors** in feeding areas must be wide enough, as well as movement corridors, to allow weaker (hierarchically lower) animals to avoid more aggressive individuals.

Stereotypic behaviour

Many farmed animals are given daily food in a form that can be ingested in a few minutes. Nutritionally, the requirements are met, but this does not correspond to the normal behaviour of the animal in its natural environment. The environment is usually so monotonous for the animal that food is the only source of satisfaction. Some animals in this environment move towards stereotypic behaviour. Most stereotypes are linked to poor environments.

video

Stereotypic behaviour

Explanation:

1. The animal copes with its environment by stereotyping.
2. Stereotyping can be a visible sign of suffering.
3. It's a relatively harmless way of filling time.

Examples of stereotypic behaviour in animals

Type of behaviour	The species of animal
Movement stereotypes	
Neck-twisting	Horses, polar bear *video*
Pacing	carnivores
Running in a circle	mink, mouse, zoo-animals
Body swaying	primates including humans
Oral stereotypes	
Chewing boxes and cages	Pigs, cattle *video*
Bar nibbling/crib-biting	Horses
Tongue playing and sucking	Cattle, especially calves on a milk diet

Stereotypes are expressions:

- **The internal suffering of an animal rationally aware of its frustration or distress, or**
- **a successful coping strategy to deal with the result of e.g. boredom, or**
- **a mental disorder caused by prolonged deprivation combined with frustration and anxiety?**

Most experts believe that these are mechanisms designed to reduce unpleasant forms of mental activation e.g. the frustration felt by a tiger that has a genetically built-in need to run out and hunt.

Stereotyping is an adaptive mechanism that enhances an animal's sense of well-being in an unsatisfactory environment.

For welfarists it is always a sign that something is wrong!

Enriched environment (in general)

- REDUCE ANXIETY - the source of anxiety is the animal's feeling that it is not safe.

Depending on the species and experience, an animal may lack of security when:

- it cannot hide in a safe shelter,
- it lacks a sense of security from company (the comforting presence of other animals),
- it has not learned to distinguish between real and unreal danger (because it was denied the opportunity to explore its surroundings and gain experience when young).

- **REWARD FOR EFFORT**

  Animals have a need to explore and make their own contributions to improving their own quality of life - they are willing to put in the effort to explore their bedding, for example.

Aim of the enrichment

- Increases the variety of behaviour,
- reducing the frequency of abnormal behaviour,
- expanding the limit or number of normal behaviour patterns,
- increase positive use of the environment,
- increase the ability to cope, to pass difficult periods as easily and naturally as possible.

Types of enrichment in animals

- **social** – in contact (couple, group, transitional period, permanently)
  - noncontact (vizual, vocal)
- **working** - psychological (puzzles)
- - exercise, training
- **physical** – environment – size
  equipment – internal (bars, toys) *video*
  external (hanging objects)
- **sensory** – vizual (recordings, TV, pictures)
  sounds (music, vocalization)
  other stimuli(taste, smell, tactile stimuli)
- **food** – feeding (frequency, schedule)
  type, kind of food (new, variability, for chewing, gifts)

Negatives

- increased costs,
- increase in nursing work,
- increased risk environment,
- increase in behavioural variability in laboratory animals,
- there is insufficient scientific basis.

Evidence of the enrichment functioning

- **behavioral** - by a range of behavioral and physiological indicators of animal welfare. In addition to those listed above, behavioral indicators include the occurrence of abnormal behaviours
- **psychological** (lack of database on cortisol levels and concentrations in wild animals),
- **neurological** (improvement of cognitive and motor functions (mice, rats), increase in brain cell count.

Farm animals

- Enough research about the enrichment but little application in practice due to economics, intensive farming. The research is focused on the solution of these questions:

- ***In what space, range can food be found?***
- ***What is the average distance to reach food?***
- ***How many times a day does the animal take food?***
- ***What is the average time to receive food?***
- ***Does the animal feed in a group or solitary?***
- ***What sense does the animal use to find food?***
- ***In what way does it process the food?***

For these reasons, most of the types of the enrichments is focused on improving the equipment (design) of the environment – modified cages for laying hens, family groups in pig breeding.

enriched cages for laying hens

https://youtu.be/f4UC1vd0h1g

Enrichment safety rules

- Does the enrichment have any sharp ends?
- Can't the animal get caught in it with a limb or body part?
- What is the chance that the animal to break the thing?
- If it breaks, it will break into sharp parts or is there no danger?

- Can the animal break the device/thing?
- If so, are the parts of it safe?
- Can the item or part of it be swallowed, ingested?
- Is the device/thing made of non-toxic materials?
- Can an animal chew, bite parts of the equipment?
- Can the equipment be adequately cleaned or sterilised to prevent disease transmission?

- Can't the animal somehow get wrapped in the device?
- Can the animal use the device/thing as a weapon against other animals, keeper or visitors?
- Can the animal use the device to destroy its habitat?
- Can the animal use the device/thing to escape from its housing?
- Can the animal see the device?
- Is the device easy to fill and maintain?
- Are devices using electricity well earthed and isolated?
- Does the equipment not prevent access to caretakers or obstruct the view of the animal?
- Does the device require the handler to open the housing?
- Does the equipment have the simplest possible technological processing?

PERCEPTION OF PAIN AND SUFFERING OF ANIMALS

J. Webster – „The five freedoms provide us with a useful set of rules for defining and analysing well-being. However, most of the needs listed here can be attributed to all species of animals - but this does not answer the question of whether an animal suffers when a need is not met, or the extent of that suffering.“

Stressful situations are experienced by animals even in their natural environment, but suffering for an animal can occur when conditions given by humans do not allow it **to react as it would like or when it is subjected to excessive stress**.

Most people now agree that true well-being in life depends on more factors than just the avoidance of suffering.

We can start by answering these questions:

Are animal aware of the suffering?

How can we recognize?

Consciousness and animal suffering

Suffering is a subjective feeling, it describes how we feel.

The well-being of an animal species is not determined by what it does, but by how it feels. The derivation of the suffering from an animal's behaviour is difficult.

Observing an animal's natural behaviour can tell us a lot about its physiological needs and demands on its environment, but it does not show how it feels.

The scientists are asking:

Do animals have consciousness?
Is the animal aware of physical problems...hunger, thirst, pain, exhaustion?

René Descartes – the basic difference between man and other animals is the presence of mind, consciousness.

„Cogito ergo sum- non cogitant ergo non sunt.“

His view of animals as machines. He laid the foundation for treating animals as commodities whose value is determined by their utility.

In 1991, the book „Cognitive Ethology: the Minds of other Animals“ summarized the findings of leading zoologists and also reached a clear conclusion: most authors confirmed self-consciousness in some mammals and birds.

Zdeněk Veselovský – Czech zoologist stated that there is strong evidence that animals are capable of independent reasoning and thinking. Veselovský said that most attention has so far been paid only to primates. He shares the opinion that similar results will be achieved also in other species with perfect central nervous systems, such as dolphins, elephants and carnivores.

Feelings are attached to specific stimuli that both we and animals can put into context and act on to make us feel better.

Mood – a particular state of mind (e.g., anxiety) that is not necessarily associated with a particular stimulus, nor does it have to be the reason for a specific action. However, it is likely to change responses to certain sensations both emotionally and in terms of one's own behaviour.

Possible feelings in animals

In a compliant environment, most animals should be able to keep their feelings between the neutral zone and satisfaction and avoid distress. Suffering only sets in when the sensation is too intensive or lasts for a long time, or the animal has no opportunity to act to avoid it.

feelings *video*

emotional scale

suffering	neutral feeling	wellbeing
hunger	saturation	tastiness
thirst	saturation	
hot, cold	thermal comfort	thermal comfort
exhaustion	relax	physical comfort
pain	well-being	sensual pleasure
illness	health	vitality
fear	safety	

Possible moods in animal

moods	
negative	positive
anxiety	excitement
apathy	curiosity
impotence	libido
helplessness	control

Video

Measuring behavioural needs

If we assume that animals seek to avoid distress and achieve pleasant feelings, then we can study their motivation by placing them in situations that test their motivational priorities and the strength of their motivation.

- **Preference tests** → **Short-term** (e.g. food selection)
  ↓
  long-time tests (e.g. the choice between getting food and rest, between comfort and company.

(ST are not a guide to the force of motivation, changes in motivational preferences)

video

Motivation priorities

The long-time version of the preference test can be a useful tool for examining changes in motivational preferences.

Analyzing long-term motivation preferences is a good and largely natural way to examine the intensity of motivation.

Ian Duncan - measured the motivation of hens to get to the nest box to lay an egg so that they had to walk down a circular corridor to the box, but they didn't get any closer. Some birds walked more than 1.5 km, showing that the motivation to find a nest is strong. This shows that the birdhouse is seen as a necessity by the birds.

Methods to measure the importance animals attach to certain activities (conditions)

video

- Animals need to be aware of what they can achieve and how they can achieve it.
- It must not be distressed by the experimental conditions to the extent that it looses the ability to make decisions, e.g. the animal is trained to open a door to reach food. Food is exchanged for the company of another animal, the possibility of safety or sex, then the trained animal may not engage in pushing the door open at all.

<u>The reason is:</u>

The company of another animal is of less value than food.

Stress and suffering

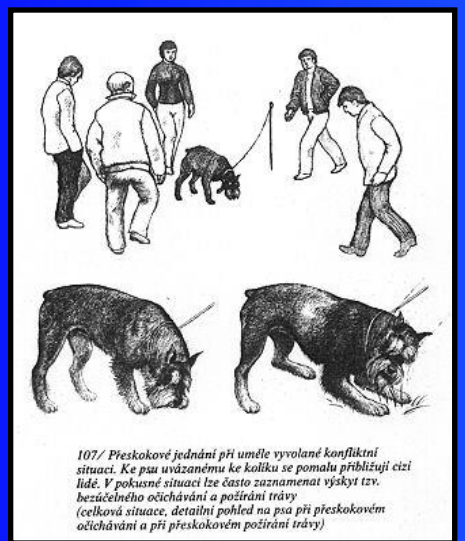
Many animals exhibit capacities of thought that are less complex than those of humans, but advanced enough to allow the animal to feel suffering and pleasure.

Suffering occurs when the degree or complexity of the stress exceeds the animal's ability to cope it, or the animal is prevented from acting constructively.

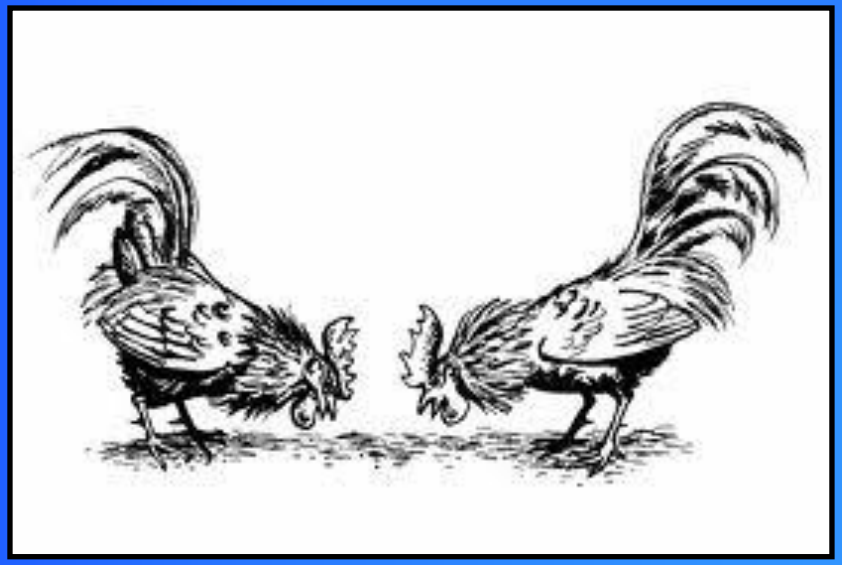
Behaviour patterns associated with frustration

Skipping behaviour – the animal is excited by an intensive stimulus (meeting between 2 males) and is frustrated by the forced escape, often engaging in alternative activity.

In an adequate environment, the animal will normally act in such a way that it is in control of how it feels-it will therefore try to achieve pleasant feelings and avoid distress. In many cases, when the animal cannot control the stress, behavioral patterns associated with such frustration occur.



107/ Přeskokové jednání při uměle vyvolané konfliktní situaci. Ke psu uvázanému ke kolíku se pomalu přibližují cizí lidé. V pokusné situaci lze často zaznamenat výskyt tzv. bezúčelného očichávání a požírání trávy (celková situace, detailní pohled na psa při přeskokovém očichávání a při přeskokovém požírání trávy)



Compensation behaviour– the animal is prevented from performing an activity designed to satisfy a need. E.g. an animal has been deprived of food for a long time, it will eat more when the food supply is restored.

Stereotypical behaviour – can be developed in monotonous environments, long-lasting obsessive chains of seemingly purposeless activity. It is interpreted as a coping mechanism for the animal to deal with chronic frustration caused by a monotonous life. *video*

Video - mouse

Video - tongue scrolling

Learned helplessness– loss of reactivity to stimuli in an animal that has been prevented for a long time from performing an activity to achieve something pleasurable (e.g. food) or to avoid pain (el. shock). It defines the state of animal mind that has given up - hopelessness.

Video apatie