

Essential behavioural needs of farmed animals

Behavioural needs refer to behaviours that an animal must carry out in order to maintain its normal development and/or physical and mental welfare. The necessity of a behaviour cannot be defined based solely on its end result; rather, engaging in the behaviour itself can be essential for the animal's welfare. If an animal is not able to satisfy its behavioural needs, it may become frustrated or stressed. The animal may also experience health problems or physiological changes. Unsatisfied behavioural needs may lead to changes in behaviour that are often harmful or pathological.

Behavioural needs are related to an animal's motivation to act a certain way. The animal's motivation is regulated by internal and external factors. Motivation drives the animal to behave in a way that keeps its body healthy and balanced. Some behavioural needs are such that the motivation for them exists only in certain situations based on external factors, such as the need to avoid a predator. Other behavioural needs are regulated by internal motivating factors, such as the need to eat or, among pigs, the need to root. The motivation for an animal to exercise its instinctive behaviour is often also affected by the environment. For example, pigs have a natural need to wallow for bodily regulation purposes regardless of the weather, but in higher temperatures, the need for thermoregulation means the motivation to wallow is stronger.

Behavioural needs and their strength can be studied through various experimental arrangements. Although the body of research on animal behaviour has increased significantly, not all necessary behavioural characteristics of animals have been identified as actual behavioural needs. Despite this, such behavioural characteristics may be significant for the animal's welfare, which means that the inability to exercise them may weaken animal welfare. In order to understand the behavioural characteristics integral to animal welfare, it is important to be familiar with the biology of the species in question.

In its meetings, the Farm Animal Welfare Council has consulted with industry experts and has discussed the essential behavioural needs of the following farmed animals: cattle, pigs, chickens, rainbow trout, mink, farmed arctic foxes, foxes, raccoon dogs, sheep and goats. The Farm Animal Welfare Council has prepared the accompanying table of essential behavioural needs of farmed animals based on expert consultations and discussions. In several cases, the information about animals' behavioural needs is based on general knowledge about the biology of the species. For example, only a small body of research exists on the behavioural needs of fish.

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The Welfare Council would like to emphasise that today's scientific understanding of animal welfare includes three other important aspects in addition to behaviour. The aspects of welfare are usually divided into four principles: good feeding, a good rearing environment, good health and appropriate behaviour. Behavioural needs cover part of the last principle, but they are also connected to the others.

1. Mobility

Fulfilling the need for mobility requires a barrier-free space in which to move around. A varied holding environment helps to promote animal mobility. To ensure that the animal can move around in its environment, the structures and materials in the environment, as well as the quality of the air (or water in the case of rainbow trout), must be suitable for the species in question. Some species, such as chickens, goats, mink, farmed arctic foxes and other foxes, require different levels. Young animals are especially active in terms of mobility (see play). For many species, mobility is related to feeding. However, mobility is important in and of itself, and animals move around for other reasons than to find food. The need for mobility builds up easily, for instance if cattle are kept tethered for just one day. Mobility is also connected to all of the animal's other behavioural needs.

Cattle	Pigs	Sheep and goats	Chickens	Mink, foxes, farmed arctic foxes and raccoon dogs	Rainbow trout
Move around with other members of the species in search of food, water and a place to sleep.	Move around in search of food, water, a place to sleep, the company of other members of the species, and a place to defecate and wallow. Sows have an increased need for mobility while building their nests.	Sheep move around with other members of the species in search of food, water and a place to sleep. Goats move around with other members of the species in search of a wide range of plant-based food. Goats climb.	Goats move around in search of food. Fly to perches, flap their wings, bathe themselves and scratch at the ground.	In the wild, they move around to acquire food, patrol their habitat and seek out new habitats. In winter, raccoon dogs move very little (see rest and sleep). Foxes engage in mole jumping and mink can swim and climb.	At the smolt stage and later, moves in a school, swimming and searching for food.

2. Feeding

To satisfy their feeding behaviour, animals must have sufficient food available, room to eat and the possibility to manipulate their food. A varied holding environment helps to promote the animal's feeding behaviour. Eating behaviour is regulated by the feeling of hunger. Farmed animals include ruminant herbivores (cattle, sheep and goats), omnivores (pigs, chickens, raccoon dogs, foxes and farmed arctic foxes) and predators (mink and rainbow trout). The feeding behaviour of herbivores and omnivores includes grazing, rooting and digging. The feeding behaviour of predators involves hunting, observing, stalking and catching prey. Young mammals need to suckle their mother's milk.

Cattle tear and chew roughage and chew their cud. They engage in feeding behaviour simultaneously with other cattle in the group.	The feeding behaviour of pigs is simultaneous with that of other pigs in the group. Pigs search for food by rooting and poking around in their environment.	Sheep chew roughage and chew their cud. Their feeding behaviour is simultaneous with other sheep in the group. Goats chew roughage and chew their cud. Their feeding behaviour is simultaneous with other goats in the group. Goats carefully select a wide range of vegetation.	Chickens seek out food according to a regular daily rhythm: they eat a wide range of food in the morning and evening. Chickens dig and peck with their beaks in search of food.	In the wild, adult mink are carnivores, while foxes, farmed arctic foxes and raccoon dogs are omnivores. The animals hunt and gather food. Mink also hunt for prey in the water. Foxes and farmed arctic foxes can also dig in search of food. Foxes, farmed arctic foxes and mink may also hide their prey.	Young rainbow trout are predators that feed on zooplankton and insects. They seek out food within a small territory. At the smolt stage and thereafter, their feeding area expands.
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3. Rest and sleep

To fulfil its need for rest and sleep, an animal must have enough space and a resting place and conditions that are appropriate for the species at its current developmental stage (with members of the species or alone, appropriate lighting, visual protection, a hole or nest, softness of the resting place, temperature and acidity of the water). Young animals have a greater need to rest and sleep than adults, and sick animals need more rest and sleep than healthy ones. The resting and sleeping rhythms of animals are species-specific.

<p>Cattle seek out and prefer soft, dry and spacious places to sleep. Cattle rest and sleep together with other members of their species. Rumination while lying down increases the need for cattle to lie down. Adult cattle rest between 11 and 13 hours each day.</p>	<p>Pigs choose safe and comfortable places to sleep. Under natural conditions, pigs make a nest where they rest and sleep (see thermoregulation). Pigs rest for about 12 hours per day together with other members of the species.</p>	<p>Sheep and goats rest and sleep together with other members of their species.</p>	<p>Adult chickens rest together with others on perches and sleep there at night. Chickens also rest during the day. Young birds rest and sleep on dry platforms, levels or perches.</p>	<p>Mink, foxes, farmed arctic foxes and raccoon dogs spend 50–80% of their time resting. Mink rest in nests, especially in cold weather. Foxes and farmed arctic foxes rest and sleep outside, preferably in a place where they can see well into the environment. In winter, raccoon dogs hibernate superficially in nests.</p>	<p>Rainbow trout rest and sleep, but there is very little information on the resting and sleeping behaviour of fish.</p>
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4. Social behaviour

To fulfil their social behavioural needs, animals must have sufficient space and other individuals of the same species, but it is also important to avoid re-grouping and provide sufficient resources (such as food, rest and places for the animals to observe their surrounding). Social farmed animal species often rest and eat simultaneously with the others in their group, i.e. their behaviour is synchronised. Sheep have a particularly strong need to follow and be close to other individuals in their herd. In many species, fellow members of the species are needed for bodily care, play and caring for offspring. Mammals and young chickens have a need to be with their mothers, and young animals have a need to be with others of the same age. Even social animals have an individual distance that they try to maintain. It is also important for animals to be able to avoid other members of the same species if necessary.

In natural conditions, cattle and pigs live in matriarchal herds formed by mothers and female offspring. Male offspring leave their mothers once they have reached maturity and live outside the breeding season in small, loose groups of males. Cattle and pig herds are very stable in natural conditions, and new members are rarely admitted. Behaviour towards unknown members of the species can be aggressive. Animals communicate with each other through vocalisations, odour signals, the positioning of parts of their bodies and physical contact. Many species form a social hierarchy. The social hierarchy creates a need to avoid superior animals. Maintaining the social hierarchy requires individuals to know and remember each other.

<p>Cattle eat and rest simultaneously with other members of the species. Maintaining a stable social group and hierarchy is typical of cattle. Higher-ranking individuals are avoided.</p>	<p>The company of fellow members of the species and the maintenance of a stable social hierarchy are typical of pigs. Higher-ranking individuals are avoided.</p>	<p>Sheep are conservative herd animals and are highly dependent on fellow members of their species. Sheep are followers and need the company of a stable social group with at least two members of the species. The oldest ewe is the leader of the herd. The company of fellow members of the species and the maintenance of a stable social hierarchy are typical of goats. Higher-ranking individuals are avoided. In herds of does and bucks, the oldest individual is the leader.</p>	<p>As social animals that live in flocks, chickens maintain a linear hierarchy or pecking order. Chickens avoid higher-ranking individuals in the flock.</p>	<p>As adults, mink are solitary, while foxes and farmed arctic foxes are socially flexible. Raccoon dogs are very social: they even form lifelong breeding pairs that have shared defecating and urinating places. All species maintain their territory with scent marks and by patrolling the territory.</p>	<p>Rainbow trout are solitary as juveniles, but as smolt and in adulthood, they live in schools. Rainbow trout act simultaneously as a school, seeking food and avoiding danger.</p>
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5. Bodily care

To meet the need for bodily care, animals require space, fellow members of their species, clean and high-quality litter, and tools (such as surfaces to rub themselves against). Mammals care for their bodies in a variety of ways, such as by licking, scratching, rubbing, rolling around and wallowing. Birds care for their plumage, for example by grooming, bathing, scratching and flapping their wings. Social species also care for each other's bodies. Being tethered may prevent cattle from engaging in their bodily care behaviour.

<p>Cattle rub, lick and scratch their bodies. Cattle lick each other, especially those parts of the body that they cannot easily reach themselves.</p>	<p>Pigs wallow in clean, clay-rich or muddy water. Pigs also rub their bodies against surfaces. Pigs avoid touching their faeces.</p>	<p>Sheep rub their bodies against surfaces. The wool of sheep bred for farming is different from that of wild species, which is why the wool of farmed sheep must be sheared at least twice a year. Goats do not like to wet their fur, which is why they seek shelter from the rain. Goats rub their bodies against surfaces.</p>	<p>Chickens care for their plumage daily together with other members of the species by grooming, lubrication, shaking and flapping their wings, as well as using cold sand, soil, sawdust or other litter. Chickens also groom each other's plumage with their beaks.</p>	<p>There is little research data available on the bodily care of mink, foxes, farmed arctic foxes and raccoon dogs. Grooming of fur has been observed in all species, and in the case of raccoon dogs, social grooming has also been observed.</p>	<p>Rainbow trout skin is sensitive to damage, so they try to avoid skin contact.</p>
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6. Thermoregulation

In order to exercise their thermoregulation behaviour, animals must have, among other things, species-appropriate living conditions, suitable temperature, moisture and lighting conditions, and appropriate acidity of water. Newborn animals have a greater need for heat than adults. Animals with bodies that bend lay down in a curled up position to save heat and also seek to be close to the bodies of other members of their species. Animals seek shelter from excessive sunshine and heat. Mammals and birds have an increased need for water during hot weather. Fish are poikilotherms, and water temperature has a major impact on their behaviour.

<p>In cold weather, cattle curl up and lie close to fellow members of their species. In warm weather, the cattle lie with their limbs outstretched and farther away from other members of their species.</p>	<p>Pigs control their body temperature by changing their behaviour. Pigs have a need to wallow (see bodily care). Pigs release heat by lying in a cool place with their limbs stretched out and farther away from fellow members of their species. In cold weather, pigs dig into their bedding (make a sleeping nest) in order to reduce heat loss.</p>	<p>Controlling the humidity of the sheep barn is essential for the thermoregulation of sheep. Sheep should also be sheared at least twice a year for thermoregulation purposes (see bodily care).</p>	<p>It is important for the thermoregulation of chicks that they are able to seek shelter under their mother's wings. Keeping their plumage in order helps chickens to regulate their body temperature (see bodily care). Resting next to each other on the perch reduces heat loss in chickens.</p>	<p>In the first few weeks of life, young mink, foxes, farmed arctic foxes and raccoon dogs cannot survive without the heat produced by their mother and the protection provided by the nest. Changing coats is an essential means of adapting to changing temperature conditions according to the seasons. Farmed arctic foxes and raccoon dogs in particular accumulate a large amount of subcutaneous fat during winter, which serves as additional insulation (and nutrient storage). In cold temperatures, animals sleep with their bodies curled up, while in warm temperatures, they stretch their bodies out. Small kits seek groups in cold weather conditions. Raccoon dogs also do this at a later age.</p>	<p>Sudden increases in the temperature of the water weaken the wellbeing of rainbow trout. Rainbow trout seek out their optimal temperature, 8–16 degrees Celsius, by moving to different depths in the water. The natural environment of rainbow trout is cool, clear and oxygen-rich water.</p>
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7. Observing and studying their surroundings

By studying their surroundings, animals not only seek out and find food and other resources they need, but also gain necessary information about their surroundings and learn new things. Studying their surroundings enables animals to adapt to changes in their living environment. In order to fulfil their need to study and observe their surroundings, animals require a diverse living environment with space, structures and material to study and observe. Depending on the species, animals use different senses in their studying and observation behaviour.

As prey animals, cattle react sensitively, albeit with curiosity, to new things. They observe their surroundings and the reactions of fellow members of their species.	Pigs study their environment by rooting, but avoid rooting through dirty materials. A lack of rooting material make pigs susceptible to tail biting.	As prey animals, sheep observe their surroundings and the reactions of fellow members of their species. Sheep stick to familiar routines. Goats actively studying their environment in search of varied vegetation. Goat learn new things easily.	Chickens study their environment with their beaks. Chickens monitor the reactions of other individuals in their flocks.	Mink, foxes, farmed arctic foxes and raccoon dogs study their surroundings in search of food and in connection with patrolling their territory. Their sense of smell plays a major role in this behaviour. Foxes rest in places where they can see well into the environment. Raccoon dogs are most comfortable in undergrowth, while mink spend most of their time in their nest.	Rainbow trout study and observe their surroundings in a school. If one specimen of the school detects danger and flees, the other specimens will take part in the flight.
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8. Play

To satisfy the need for play, animals must have enough room to engage in active play, fellow member of the species for social play, and appropriate play material. Play behaviour is of great importance to young animals of mammals and bird species. Through play, young animals practice the behaviours they need in adulthood, such as fleeing and other mobility skills, along with social behaviour. Young animals play a lot, but even adults sometimes engage in play. A diverse living environment promotes play.

Calves engage in active and social play with one another.	Piglets engage in social and active play with one another. Piglets also play with objects and materials.	Lambs engage particularly in active play with one another. Kids play together, especially climbing games and other active play.	There is very little research on the play behaviour of chickens , but in many bird species play behaviour has been observed.	Young mink, foxes, farmed arctic foxes and raccoon dogs engage in social, active play. Young foxes engage in mole jumping not only as kits but also at a later age. The animals use the enrichment materials available to them, both as young and at a later age.	There is no research data available on the play behaviour of rainbow trout .
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9. Reproduction and caring for offspring

To satisfy the need for reproductive behaviour and care for offspring, animals require sufficient space, species-appropriate conditions and the material necessary for reproductive functions and for the mother and her offspring. There is limited research on the significance of oestrus, lekking, spawning, mounting and mating behaviour for animals. Hormones regulate animals' behaviour related to reproduction, such as finding a mating partner, attracting a mate, mating, giving birth/laying eggs, incubation and caring for offspring. In females of some species, as the birth or egg-laying approaches, hormones cause a need to build a nest and seek separation from the group. Separation of the mother and the offspring from the group helps the mother and offspring to form a bond (imprinting). This contributes to the survival of the offspring, who depend on their mother for care and nutrition. Early separation of offspring from their parent may cause behavioural disturbances.

<p>When cows are in heat, their behaviour includes mounting other cows and standing in place to be mounted by others. During calving, a cow may isolate itself from the group and stay separate from the group for a few days after that. The calf imprints on the mother and a bond forms between them. Under natural conditions, a cow will nurse her calf for several months and wean the calf gradually.</p>	<p>Sows have a strong, hormonally motivated need to build a farrowing nest. In the wild, sow isolate themselves from the group to farrow in their nest, where they then care for the piglets for just over one week. Sows nurse their piglets for 13–17 weeks under natural conditions.</p>	<p>Sheep isolate themselves from the group when they give birth. The lamb(s) and the mother become imprinted, and the lamb follows the mother. Under natural conditions, ewes nurse their lambs for several months. Goats isolate themselves from the group when they give birth. The kid imprints on the mother and a bond forms between them. Under natural conditions, a doe will nurse her kid for several months.</p>	<p>Hens lay their eggs in a dark, quiet nest and then sit on the eggs to incubate them. Breeding has almost eliminated the brooding instinct of commercial hens. Under natural conditions, hens care for their chicks until they are between 4 and 5 months old.</p>	<p>In the wild, mink are promiscuous and raccoon dogs are monogamous. Foxes and farmed arctic foxes may reproduce in pairs or small packs (especially foxes) with one male and more females, but typically only one female produces offspring. The kits are born in an underground den where the mother cares for them. In general, animals seek a suitable hole or an old den that they may modify by digging. The male also participates in caring for kits in the den while the female is looking for food. The gradual weaning of kits begins in all species at about five weeks of age and lasts for a few weeks.</p>	<p>In natural conditions, rainbow trout migrate to spawn in flowing water. Rainbow trout guard/defend the site where spawning takes place.</p>
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