HEALTH AND WELFARE

# RUMINANT LIVESTOCK FARMING AND ANIMAL WELFARE


***« How do livestock farming practices and systems ensure animal welfare? »***

**1**

**Livestock farmers are the best experts on their animals. Ensuring their welfare and health is at the heart of their profession and essential for them.**

It is also a key factor in maintaining good production. Their training, experience, know-how and expertise enable them to understand their animals' needs completely, being able to ensure their welfare throughout their live. The quality of life of both the animals and the farmer is built around the concept of "One Welfare," which highlights the interdependence between animal welfare, human well-being and the quality of the environment in which they live.

**2**

**Animal health is an important part of animal welfare. Livestock farmers implement preventive measures**

to preserve animal health and therefore the welfare of their herds. They also carry out diagnoses, manage animals' pain, and, when necessary, use appropriate treatments and proper medications in case of animals' sickness, in collaboration with veterinarians.

**3**

**In ruminant livestock farming, animal welfare is preserved at all levels,** whether through the animals' feeding and watering to best meet their needs, or through the design and layout of buildings to promote the expression of natural behaviors specific to each species.

**4**

**Farmers and stakeholders in each sector aim to limit stress and promote positive emotions in animals** by implementing appropriate farming practices and developing a positive relationship with their animals.

INSTITUT DE L'ELEVAGE idele

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# RUMINANT LIVESTOCK FARMING AND ANIMAL WELFARE

## WHAT IS IT ABOUT?

Concerns about animal welfare have become increasingly prominent in the public sphere in recent years. Ensuring the welfare of their animals has always been a priority for farmers, who are convinced that offering satisfying living conditions to animals is essential for ethical reasons and to reach good zootechnical performance, and above all because they are genuinely attached to the animals they care for every day. In response to widespread lack of knowledge about livestock farming practices, farmers and professionals in the livestock sector take steps to better communicate about their practices and the way they ensure that animal welfare is respected on their farms.

Animal welfare is an old concern, rooted as much in ethics as in biology. In the 1960s particularly, animal welfare began to be considered from the perspective of animal health. In the early 1990s, the "Five Freedoms" that should be guaranteed to all animals were formalized by the Farm Animal Welfare Council in the United Kingdom and became the founding principle of the European Convention for the Protection of Animals Kept for Farming Purposes by the Council of Europe, then of various regulations adopted by the European Union.

The five components of animal welfare are:

- No hunger, no thirst
- No discomfort
- No pain, no injury, no disease
- The opportunity to express natural behavior specific to each species
- No fear, no stress

This ethical approach is based on numerous scientific studies which helped to better understand animal sensitivities and consciousness throughout the 20th century.

According to current scientific understanding, "animal welfare is the mental and physical state linked to the satisfaction of physiological and behavioral needs, as well as expectations. This state varies depending on the animal's perception of its situation" (Anses, 2018).

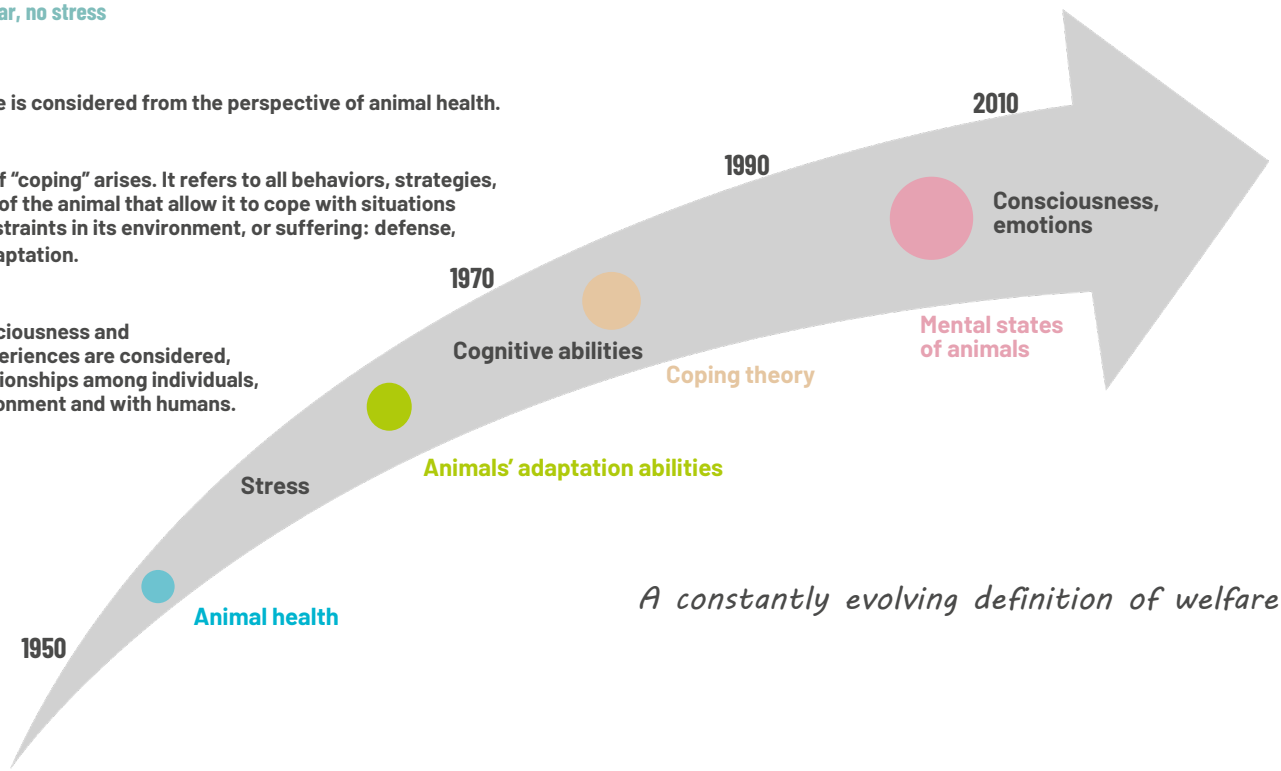
The evolution of ruminant farming conditions, observed since the 1960s through the efforts of farmers, sector stakeholders and regulation, has resulted both from societal demand for better animal welfare and from the development of scientific and ethological knowledge, within a framework of continuous improvement.

Nowadays, the main issue is to enable ruminant farmers to build sustainable livestock systems e.g. economically and hygienically viable - with livable working conditions that attract new generations, while meeting the fundamental needs of animals and society's ethical expectations and preserving the environment.

**1960s:**
**Animal welfare is considered from the perspective of animal health.**

**1970s-1980s:**
**The concept of "coping" arises. It refers to all behaviors, strategies, and reactions of the animal that allow it to cope with situations of stress, constraints in its environment, or suffering: defense, avoidance, adaptation.**

**2010s:**
**Animals' consciousness and emotional experiences are considered, including relationships among individuals, with the environment and with humans.**

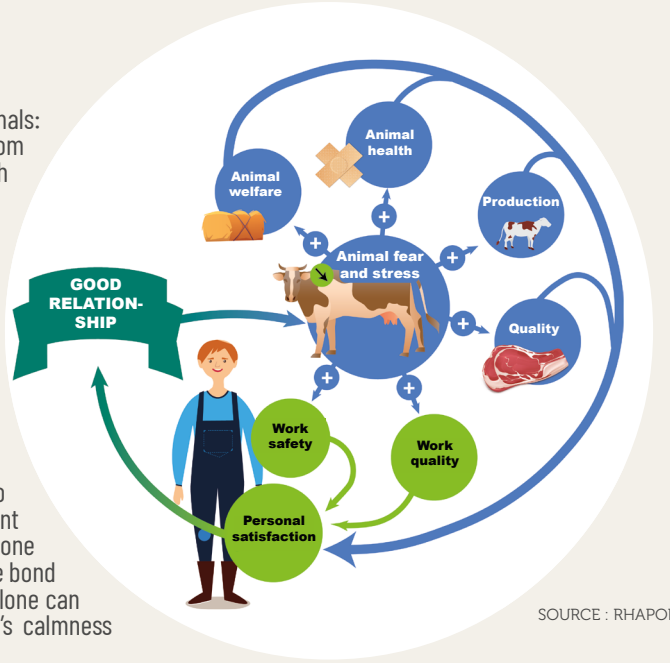



CHRONOLOGICAL TIMELINE OF THE EVOLUTION OF THE DEFINITION OF ANIMAL WELFARE (ACCORDING TO THE FRENCH LIVESTOCK INSTITUTE)

# 1 Working with animals

## Animal welfare: a concern for both citizens and ruminant farmers

Citizens express expectations regarding the living conditions of farm animals: access to the outdoors and pasture, natural light, comfortable litter, freedom of movement and low animal density. Farmers' own aspirations align with these concerns. It is important to remember that the relationship between farmers and their animals is a key component of their profession. This is often one of the main reasons why they chose this career - most of the time by passion for breeding and animals. Ensuring animal welfare is therefore both an ethical obligation and an economic necessity for the sustainability of livestock farming. This leads to considering the quality of life of both animals and farmers under the concept of "One Welfare." This concept highlights the interdependence between the welfare of animals and the well-being of humans, as well as the quality of the environment in which they all live (Acta, 2023).
Moreover, animal welfare also depends on a high-quality relationship existing between the farmer and his animals, who consider the farmer to be part of their social group. For example, lambs can develop attachment bonds with their breeder. In a same way, the release of oxytocin - hormone common to all mammals - is stimulated by positive interactions. Once the bond is established between farmer and animal, the presence of the farmer alone can trigger the release of this hormone again, contributing to the animal's calmness (INRAe, 2018).




SOURCE : RHAPORC

## Livestock farmers are the best experts on their animals

Understanding certain animal behaviors and identifying their needs is not always an easy task for humans. Some observations can be biased, influenced by personal interpretations or anthropomorphism, or simply difficult to get interpreted.
Thanks to their training, experience and know-how, no doubt farmers remain the best experts when it comes to their animals. Observing animals is a central part of their profession. Farmers are the ones most able to interpret their animals' emotions, as they are the closest and most frequent observers. Being in daily contact with their animals allows them to interpret behaviors and identify needs to ensure their welfare throughout their live.

## Precision livestock farming: an opportunity to improve ruminant welfare

Without replacing the farmer and the social relationships he builds with his animals, digital tools - which become increasingly common - allow for continuous monitoring of animals from birth to the end of their live. They also help prevent health risks and behavioral disorders.

These tools can quickly detect behavioral changes that might go unnoticed by the human eye. For instance, early signs of lameness or declining health indicated by reduced activity can be identified by collars, mats or position analyzing systems within buildings. These early detections also provide the breeder with more time to care for their animals.

## KEY FIGURES

For **97%** of ruminant farmers, animal welfare is checked several times a day when animals are housed indoors. It is monitored at least once a day by 80% of farmers when animals are on pasture. (Idele, 2021b).

**LEARN MORE...** ...about livestock farming,

**CHECK OUT THE SHEET ➡**
« Ruminant farming and livestock farming ».

# RUMINANT LIVESTOCK FARMING AND ANIMAL WELFARE

## 2 Prevention measures

**Preventive measures implemented by farmers help protect animal health**

Animal health is one of the main parts of animal welfare. In all livestock farms, there is a constant risk of disease introduction and transmission. Indeed, this risk comes from external actors (feed delivery drivers, veterinarians, inseminators, traders, etc.), visitors, newly introduced animals, pests (rodents, insects), wildlife, equipment and vehicles entering the farm, all of which can carry pathogenic agents.

To address this, farmers implement sanitary prevention measures (biosecurity) to limit the introduction of pathogens, their spread within the farm and their transmission to other farms and the environment.

Maintaining good animal health therefore involves preventive measures, diagnostics and pain management, including the use of appropriate treatments in cases of illness.

The " Remove, Substitute, Relieve " rule applies in livestock farming: it recommends identifying and removing sources of pain, replacing painful practices when possible, improving necessary practices, and finally, when pain cannot be avoided, implementing measures to relieve it.

This way of acting benefits both animal welfare and farmers themselves, while also contributing to environmental protection by reducing the use of medicinal treatments.

### KEY FIGURES

In livestock buildings, water used comes from the public water system in **45%** of cases, and from private sources in **40%** such as wells, boreholes, sources, etc.). On pasture, private sources are predominantly used. (Idele, 2021b)

Depending on the sector, a sanitary visit is carried out on farms **once a year** (for most of them) or every **2 years**. In addition to these visits, farmers may consult their veterinarian as needed.


LEARN MORE... ...about prevention measures,

CHECK OUT THE SHEET ➡

« Ruminant farming and animal health ».

# 3 Meeting the animals' needs

**The contribution of feeding to animal health and welfare**
The aim of feeding is to provide all the nutrients necessary to best meet the animals' overall needs. As far as ruminants are concerned, this also involves considering their specific digestive characteristics, which enable them to consume forage, especially grass. Whether fresh (grazed) or conserved (e.g. hay, silage), forage provides cellulose fibers essential for the microbiota and the health of ruminants. It stimulates chewing activity, which promotes rumination and salivation, thus reducing the risk of acidosis. In France, farmers generally include a large proportion of grass (fresh or conserved) in the diet of their herds.
Access to pasture or an activity yard also plays a key role in ruminant welfare by allowing animals to express more natural behaviors (Baumont *et al.*, 2023).

**Ruminants tolerate, depending on species, a wide range of temperatures**
The acceptable temperature range for adult cattle is from 5°C to 30°C, with a 5°C margin, which gives a tolerance range from 0°C to 35°C (Animal Transport Guide, 2017a). Goats tolerate temperatures between 2°C and 15°C, but can easily adapt to lower temperatures, down to –10°C (Idele, 2021a). Sheep tolerate temperatures from –8°C to 23°C and can easily adapt to winter temperatures, even below –10°C, although depending on the animal's fleece (Animal Transport Guide, 2017b). Therefore, sheep grazing in winter can easily withstand average winter temperatures in France.
However, it's worth knowing that tolerable temperatures depend on humidity, wind speed and animals' habits. Thus, the more abrupt the temperature changes, the harder it is for animals to adapt. Farmers maintain animal welfare by adapting the management of their herds based on weather conditions.

**Animal welfare, a central consideration in building and housing design**
It is important to remember that the belief that ruminants must always be outdoors for optimal welfare is not entirely accurate. When climatic conditions are harsh (cold, humidity or especially heat), animal welfare can be better ensured within properly designed buildings. Furthermore, although most herds have access to pasture, some farmers choose to keep their animals indoors while still ensuring satisfying living conditions.
Such a choice may be influenced by parasitic or health risks, fragile soils, or the absence of nearby plots that allow pasture access. In all cases, the farmer remains attentive to the comfort of his animals. Adapting indoor conditions is crucial to preserving animal welfare.
The layout and design of living spaces are made to ensure that all animals can eat, ruminate, drink, move freely through different areas, rest and do so without any risk of stress or injury.

The goal is also to allow animals to engage in social interactions and express species-specific behaviors. Buildings are also designed to support positive human-animal interactions (e.g. milking, feeding, observation, care) and to provide thermal and physical comfort (shelter from cold and heat, natural lighting, proper air ventilation). Air quality is managed (ventilation) to be as close as possible to outdoor conditions. Lastly, the building design facilitates smooth management of access to outdoor areas (Acta, 2023).

## KEY FIGURES

In France, the average proportion of grass in the diet is:
**43%** for dairy cattle,
**78%** for beef cattle,
**74%** for dairy sheep,
**81%** for meat sheep,
and **60%** for goats.
(Cordier *et al.*, 2020, Resalim 2022)

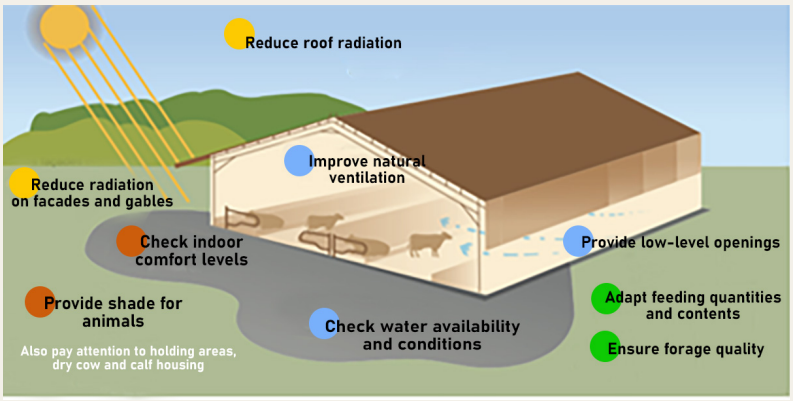
In dairy cattle farming, **¾** of farmers have an isolation area for sick or injured animals.
(Idele, 2021b)

# RUMINANT LIVESTOCK FARMING AND ANIMAL WELFARE

## 3 Meeting the animals' needs

**Adapting buildings to hot and cold conditions: a key focus for livestock sectors to ensure animal welfare**

During long periods of winter cold or summer heat, extreme temperatures can compromise animal welfare. In summer, outdoor temperatures in pastures can be rather too high, and cows, for example, often prefer to stay indoors during the day when given the choice. However, inside buildings, ruminants can also be exposed to heat stress, which may negatively impact their welfare. Heat waves linked to climate change make these events always more frequent and intense. In recent years, the French Livestock Institute and sectors have implemented measures to fight thermal stress in animal housing.




AN ACTION PLAN TO REDUCE THE IMPACT OF EXTREME HEAT ON ANIMALS (DAIRY COWS) (PROJECT BÂTILAIT MIEUX (CNIEL, IDELE, 2020)

## 4 Behaviors' expression

**Animal welfare enhanced through enriched living conditions provided by farmers**

To promote positive experiences for their animals, farmers implement various strategies. These may relate to the physical environment, such as installing raised platforms for goats or manipulable objects that stimulate exploration and play behaviors, etc.

Besides, in ruminant livestock farming, animals are housed in small social groups that encourage interaction between individuals. Generally, collective housing is also adapted to the size and age of the animals.

Finally, farmers build close relationships with their animals, especially for reasons related to their own safety. These positive relationships are also beneficial to the animals, as they reduce fear and stress in the presence of humans and contribute to a calmer and safer working environment for both farmers and staff in contact with the animals.

# ACTIONS AND TOOLS IMPLEMENTED IN SECTORS*

## RMT One Welfare

**The One Welfare RMT project (https://idele.fr/rmt-one-welfare/) is based on the concept of One Welfare, which defines the interdependence between animal welfare, the well-being of people interacting with animals and the link with environment. It is a multidisciplinary exchange network involving biotechnical sciences, human and social sciences.** Its aim is to develop operational principles and know-how for a One Welfare approach in livestock and animal care systems, and to assess the relevance and prospects of this approach for major livestock species.

## RMT BATICE

**BATICE stands for "Buildings at the heart of the challenges". The RMT BATICE (https://idele.fr/rmt-batice/) is a cross-sector and multi-stakeholders exchange network focused on livestock buildings.**

Main purposes are to :

- Serve as a wide and dynamic platform for discussion and exchange on the topic of livestock buildings;
- Address emerging and priority issues through intersectoral added value collaboration to accelerate the development of appropriate solutions;
- Better consider social aspects, both from the farmer's perspective and from society's expectations regarding buildings' conception;
- Boost innovation for sustainable livestock housing;
- Improve support for project leaders;
- Promote integration of building-related contents in teaching and training programs;
- Facilitate access to information about livestock buildings.

The RMT also provides resources to help integrate animal welfare into the construction and layout of livestock buildings, as part of a One Welfare approach.

## BoviWell

**BoviWell is an initiative designed to assess animal welfare on beef and dairy cattle farms, based on the 5 Freedoms principle. The goal is then to work with farmers to define progress plans where necessary.** It's part of the social responsibility strategies of the dairy and beef sectors (France Terre de Lait and Pacte Sociétal), and highlights farmers' actions and expertise. BoviWell created a digital tool for livestock advisors. The aim is to allow them to assess cattle welfare through on-farm observation, using indicators focused as much as possible on the animal. The advisor observes a sample of cows and assigns a score for each criterion. In 2023, 4,164 beef cattle farmers and 18,531 dairy farmers had a valid BoviWell evaluation.

## APPROBEV

**Approbev is a program led by the French Livestock Institute, co-developed with the beef sector and its professionals. It is designed to assess and objectify the welfare of beef calves, based on the 5 Freedoms principle.** Using a set of indicators — many of which are animal-based — technicians assess risk control and identify potential areas for improvement both on-farm and across the beef sector. To date, 70 technicians have been trained in this approach.

## CMOUBIENE

As part of a co-construction approach with field actors and chain stakeholders, the CMOUBIENE project aims to provide the sheep (dairy and meat) and goat sectors with a digital tool (Excel for sheep; a mobile app for goats) to assess and manage small ruminant welfare on farms.

# ACTIONS AND TOOLS IMPLEMENTED IN SECTORS*

## BeBoP

The BeBoP project supports the deployment of a reassurance system within a sector concerning the welfare of animals raised for meat production. Its aim is to develop practical measures aligned with the welfare indicators adopted by the sector for young male cattle during fattening.

## Bâti'Lait Mieux

The Bâti'Lait Mieux Program (2021–2023), funded by CNIEL, aims to improve the design of livestock buildings in France. The program has built a network of experts in dairy housing over time, raised awareness among farmers and their partners about the importance of project planning for building design and construction, of supporting building advisors in developing their skills, of providing technical data, and of promoting the transfer of knowledge to field professionals.

## ClimatBat

The ClimatBat project (https://climatbat.chambres-agriculture.fr/) seeks to better leverage available resources and expertise concerning livestock housing adaptation and management under climate change. By sharing materials from the national network of Chambers of agriculture and their partners, this project helps farmers and advisors better understand and manage heat stress events.

## BATCOOL

The BATCOOL project aims to identify various means to fight heat stress in small ruminant farming and support farmers and technicians. A survey was carried out in southern France to identify farms using effective strategies against heat stress. 56 commercial farms using innovative systems were selected and technically assessed over two consecutive summers, as far as heat is concerned. In the same time, 6 experimental farms were monitored daily throughout the summer period. This project will support the sheep and goat sectors by providing specific benchmarks for using housing as a tool to fight heat stress in small ruminants.

## RUMIGEN

The consequences of climate change are already visible. In this context, adapting livestock and animal populations is essential.

The goal of RUMIGEN is to offer appropriate tools for livestock genetic selection that meet societal expectations. The tools developed aim to support balanced selection focused on both productivity and sustainability, integrating new concepts such as heat tolerance. RUMIGEN also addresses genetic diversity, with a focus on genomic selection taking the diversity of all different breeds into consideration – especially small-population and local breeds.

Running for 5 years, RUMIGEN brings together 18 partners, including 13 universities and research institutes in Europe. The three partners of UMT eBIS (French Livestock Institute, INRAe and Eliance) are part of this program.


## Brochure to improve goat welfare

This brochure is intended for goat farmers and advisors, providing guidance on how to improve goat welfare through housing design. Based on a survey of French goat farmers, its aim is to offer an initial overview of housing improvements that enhance welfare in goat farming (https://caprins.anicap.org/actualites/ameliorer-le-bien-etre-des-chevres-l-amenagement-des-batiments).

*The works presented here are a selection of existing, completed or ongoing projects related to animal welfare.

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