User Guide - UK

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Nofence AS

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1. What is good animal welfare?

The concept of animal welfare is concerned with the individual animal, the type of situation the animal is in, and how the animal experiences its situation. When animals have good welfare, they thrive. Well-being draws on interactions between health, environment, animal care, and the characteristics of the animal itself.

An often-used explanation of what good animal welfare is, can be found in the ‘Five Freedoms’ laid out by the Brambell Committee (1965):
Freedom from Hunger and Thirst: by ready access to fresh water and a diet to maintain full health and vigour.
Freedom from Discomfort: by providing an appropriate environment including shelter and a comfortable resting area in all situations.
Freedom from Pain, Injury, and Disease: by working towards prevention or rapid diagnosis and treatment of sick animals.
Freedom from Fear and Distress: by ensuring that the animal has conditions and treatment that avoid mental suffering.
Freedom to Express Normal Behaviour: by providing sufficient space, proper facilities, and company of the animal’s own kind.

So on one hand, we must make ethical assessments, while on the other, we must use facts from research.

The subject of ethics addresses subjective values in relation to animal welfare. We can ask ourselves ‘What would our society consider to be a sufficient quality of life for animals?’ Another question is ‘How can we understand the concept of “quality of life” for animals specifically?’ How are animals affected by their surroundings and how do they experience their situation? We often try to describe the condition of an animal based on its mastery of the environment in which it lives. The level of welfare is described as the balance between positive and negative experiences. Based on such an understanding, we use the following definition of animal welfare:

“Animal welfare is the subjective experience of the individual of its psychological and physical condition

as a result of its attempts to master its environment.”

Within biology, ‘mastery’ is defined as the mechanisms used by an individual in order to maintain control. An animal displaying normal behaviour for its kind, thus shows signs of good physical and mental health.

Nofence Grazing Technology has been developed with a focus on animal well-being. Therefore, it is vital that you are knowledgeable about your animals and take the time to learn how the technology works. Key points for achieving good animal welfare by using Nofence are:

- All adult animals in the herd should wear a collar.
- Become well-acquainted with our recommendations.
- Create Nofence boundaries that are easy for the animals to understand and follow our recommendations for the design of the Nofence pasture.
- Follow up on all electric pulses. You should take the time to analyse why the animals are receiving electric pulses and take action. Actively use our online portal my.nofence.no to analyse grazing movements. Are there challenging restrictions, temptations, places outside the boundary where they enjoy dwelling, or are they just heading towards people? Perhaps a small adjustment of the boundary will suffice? Should the app notify you of multiple electric pulses, you should check that the equipment is fitted properly and is hanging correctly. If you suspect that the collar’s power supply is defective, you should take the equipment off the animal before testing its functionality.
- Checking that the equipment is properly fitted to the animal and that it is hanging correctly.
- Pay close attention to any chafing. Should the coat of the animal wear away completely, the collar must be removed to avoid wounds.

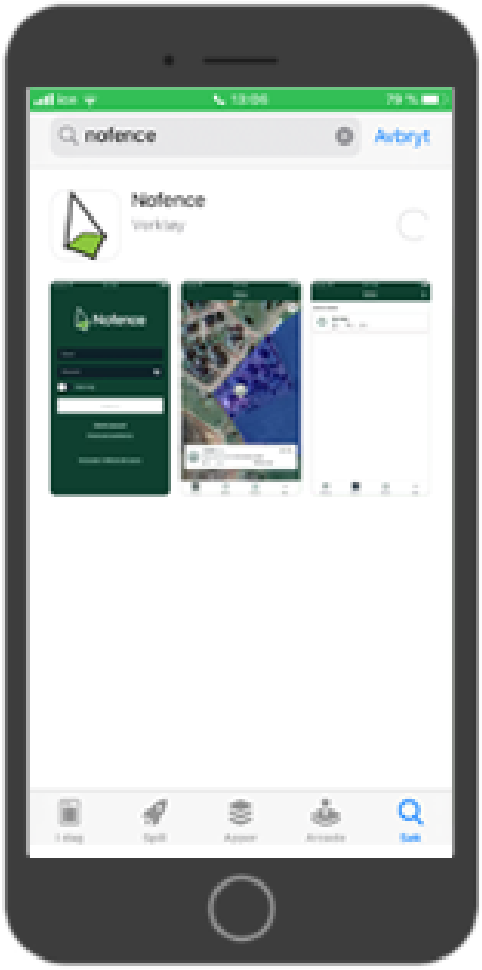
! Nofence grazing technology provides virtual fencing solutions with animal tracking. This should not replace mandatory human care and supervision of the animals.

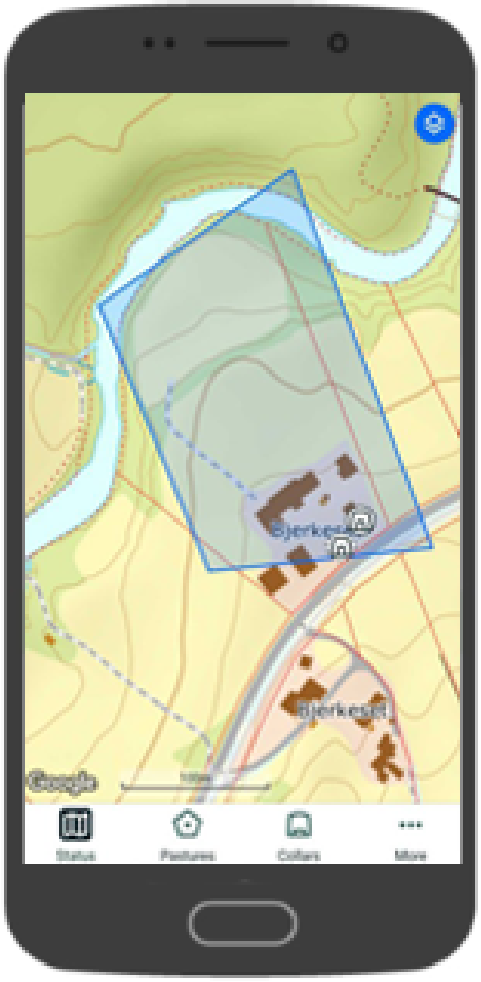
2. How the technology works

2.1. The basics

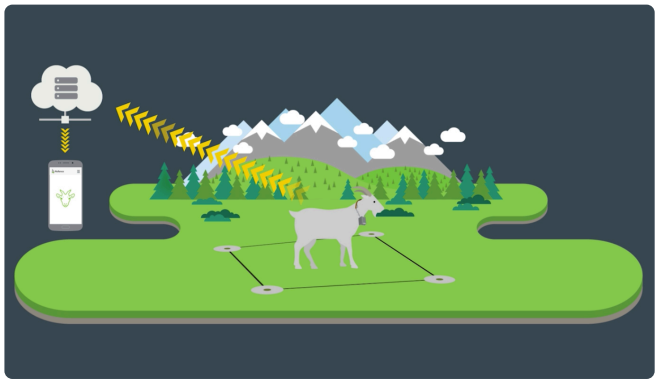
Our grazing technology consists of an app and a collar that communicate over the mobile network. In addition, we have a web portal my.nofence.no.
Our technology makes it possible to monitor animals in their grazing area. The collar reports to the app every 15 minutes, and the default settings sends immediate notifications to your phone in the event of an electric pulse or escape.

Download the Nofence app via AppStore or Play Store. Use the same username and password for my.nofence.no. Remember to allow the app to send you push notifications.

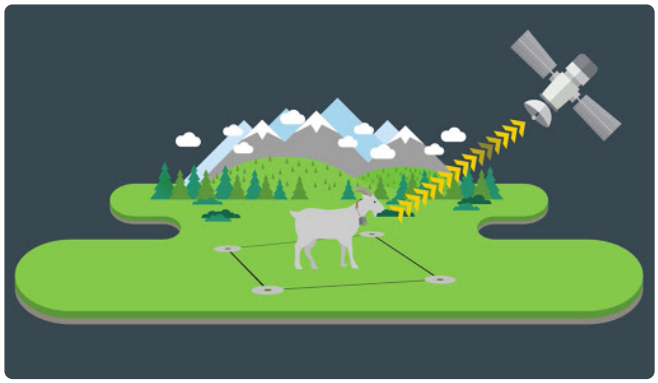




The collar will communicate with the app via the mobile network (2G). It is therefore important that there is good mobile coverage in the Nofence pasture.
The collar will send status reports to the app every 15 minutes. In addition you can ask for positions in between the reports. Incidents such as electric pulses or escapes will be sent to you as a push notification.



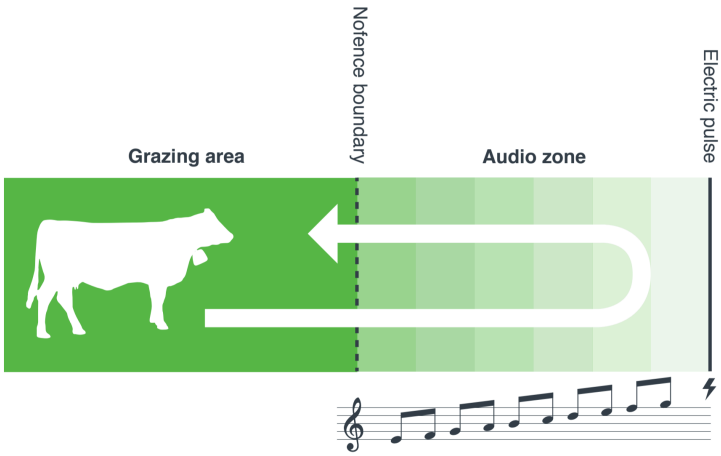
The Nofence collar gets its positioning from available satellites. Good positioning accuracy is required for the fencing function to work. Audio warnings at the Nofence boundary will start if the accuracy is equal to, or better than 3,5 metres. It is therefore important to create grazing boundaries in areas where the most accurate positioning can be achieved. Ideally, this will be an open space.



https://www.youtube.com/embed/qC-FVhhgHSI?rel=0

2.2. The animals interacting with the system

When the animal crosses the Nofence boundary, the collar starts playing an audio warning. The signal is a scale of tones, which starts at a low pitch and rises gradually as long as the animal is outside the Nofence boundary. If the whole scale has been played, an electric pulse is delivered. During training the animal will turn when receiving an electric pulse to seek the safety of the herd. The animal then learns to recognize the audio warning and turns around to avoid the electric pulse.



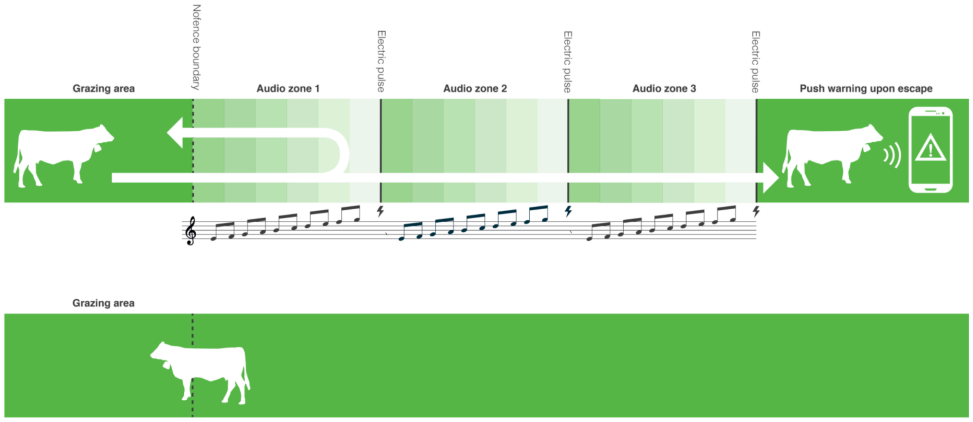
The illustration shows normal behavior when the animal moves out of the Nofence pasture: it responds to the audio warning, turns, and goes back into the Nofence pasture.

The electric pulse will only be emitted if the collar has played all the tones of the audio warning. This is because the system must be predictable and controllable for the animal. It takes a minimum of 5

seconds and maximum of 20 seconds to play the full tone scale. The scope of the warning field depends on the speed of the animal as it leaves the Nofence pasture.

To turn the audio warning off and avoid the electric pulse, the animal must turn around and go back to the Nofence pasture.

If an animal continues to move away from the Nofence pasture, it will meet a maximum of three audio zones. If it chooses to cross all three of these, the system's fencing function will be switched off automatically. This means that the audio warning and electric pulse will be deactivated. The animal caretaker will be notified with a push notification from the Nofence app. The collar will continue to report its position even if the animal lingers outside the Nofence pasture, so that you'll always know where it is. When the animal comes back into the Nofence pasture, the fencing function will be automatically reactivated.



! Nofence grazing technology provides virtual fencing solutions with animal tracking. This should not replace mandatory human care and supervision of the animals.

* Sheep, goats and cattle are herd animals. Nofence recommends taking the animals' natural instincts into account when using our technology. It is the safety of the herd that makes the animal turn around and return to its flock when the audio warning starts playing. As a result, we recommend keeping a minimum of four individuals in your Nofence herd.

2.3. Fitting collars

Watch this video to see how the collar is fitted to goats, sheep and cattle:

https://www.youtube.com/embed/_ybDjZq7reQ?rel=0

This video shows how to join the chain and the neck strap together:

https://www.youtube.com/embed/YxnC5P2VpRI?rel=0

Wearing a collar must be as comfortable as possible for the animal.

- For cattle, the space between the animal's neck and the collar should be the size of a clenched fist.
- For sheep and goats, we recommend a slack of approximately 1.5 in / 4 cm. This equals a two finger tall gap between the animal's neck and the neck strap.

A good fit is imperativ as both a too loosely fitted collar and a too tightly fitted one may be unpleasant to the animal. Observe the collar when the animal is grazing and when it's moving about. Adjust if necessary.

Young animals should have reached a suitable size and maturity before being introduced to Nofence. They should be strong enough to wear a collar, mature enough to understand how the system works, and big enough for the chain to be in contact with the animal's neck.

2.4. Training animals

For your animals' sake it is essential that the learning process is well-organised and thought-through. When the animal caretaker has prepared well for the training, the animals have a more efficient learning process, with as few electric pulses as possible. Spend time observing your animals as they undergo the training.

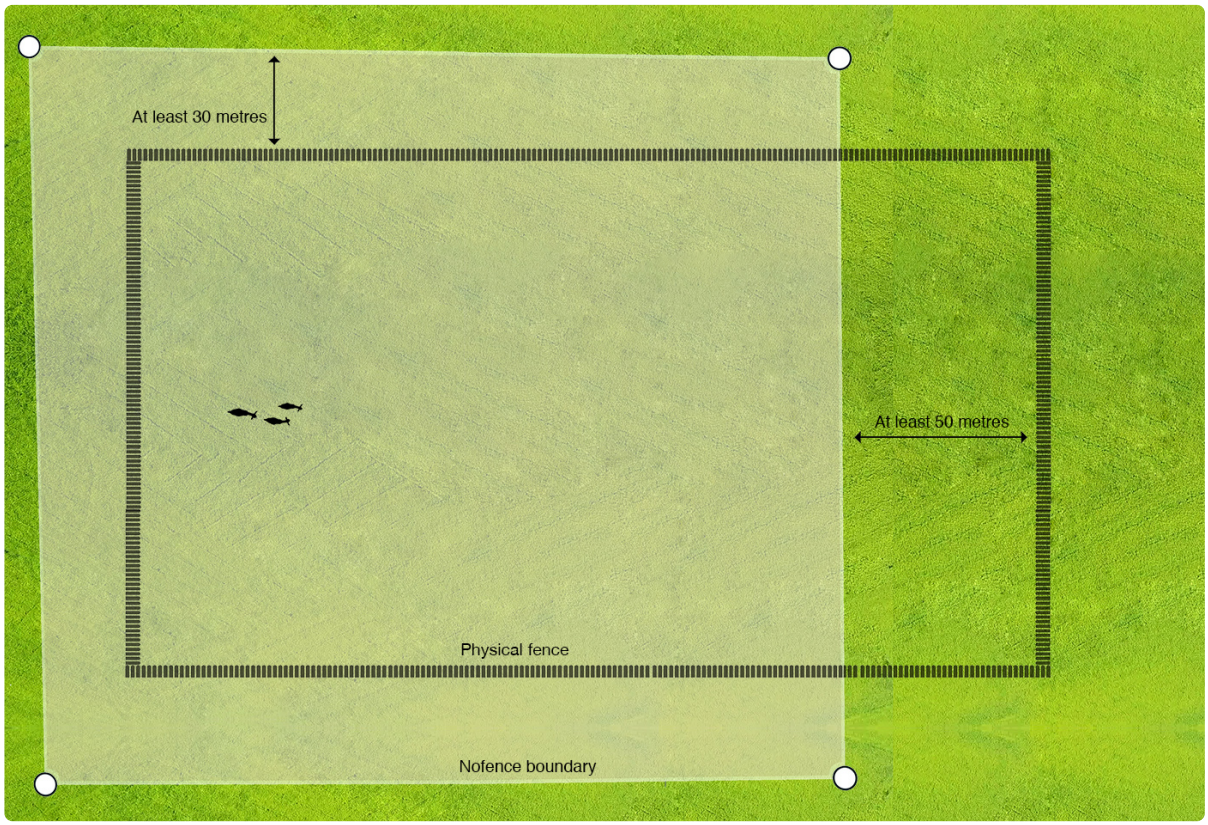
https://www.youtube.com/embed/yIQtoWId0vs?rel=0

Before you start the learning process:

- Learning must take place in a location with satisfactory mobile and GPS coverage. If you have any doubts, you should conduct a test by walking around with a collar in your hand.
- The animals must have a sense of security in the area where the learning takes place. Let them spend time getting acquainted with the area the before the training starts.
- Stay with the animals as the training commences. Observe their reactions.
- All adult animals must wear a collar to safeguard animal welfare. In herds where some animals wear collars and others not, the animals wearing collars will ignore both audio warnings and electric pulses in order to follow the herd.
- The training pastures should be small enough for the animals to encounter the Nofence boundary during the training, but large enough for the animals to run about.
- Training pastures that are too big will result in few encounters with the audio warning and the training will take longer.
- We recommend creating the training pasture somewhere you can monitor the animals' progress. By observing the animals during the training period, you learn how they respond to the system.

Example of a training pasture

The training pasture is fully fenced in with a physical fence. The physical fence is shown as black fence posts, while the Nofence boundary is illustrated by a red dotted line between blue corner posts.



The Nofence boundary cuts off a part of the existing pasture area. We recommend cutting off a part of the pasture that the animals will seek out for grazing as they have to cross the boundary to learn how the system works. There should be plenty of space outside the Nofence boundary (at least164 ft / 50 metres).

Pasture design

The most important aspect of the learning process is that the animals learn that they can turn the audio warning off by turning and going back into the Nofence pasture. Therefore, it is important that the boundaries are set in a manner that makes them logical to the animals. Create a simple pasture with simple boundaries. Avoid creating sharp angles or narrow corridors, or placing the boundary in complex terrain, on steep slopes or in areas with a lot of tall vegetation. A stable and logical boundary makes for a more efficient learning process.