



Lely's free cow traffic

MORE MILK,
HEALTHIER COWS
AND A HAPPY
FARMER – WITH FREE
COW TRAFFIC



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— innovators in agriculture —



Freedom = Happiness

More milk, healthier cows and a happy farmer – with free cow traffic in the Lely robot

Locking cows up in a holding pen to milk them seems such an obvious thing to do. But while this might be normal in conventional milking, it doesn't work with automatic milking. With Lely's free cow traffic, the cows feel happier, produce more milk and stay healthier. In addition, free cow traffic is more pleasant for the farmer. Farmers who change over to free cow traffic are making a choice for the five freedoms for their cows, and by doing so will get the most out of their herd. Lely discovered some time before the turn of the century that farmers who use free cow traffic are more successful with robotic milking. More milk per cow and more milk per robot – with less work and with the possibility of working more sociable hours. Many farmers who used to use forced systems have changed over to free cow traffic in order to benefit from the advantages of robotic milking.

The five freedoms for cows:

1. freedom from hunger and thirst
2. freedom from physical and thermal discomfort
3. freedom from pain, injury and disease
4. freedom from fear and chronic stress
5. freedom to display their natural behaviour

What is voluntary cow traffic?

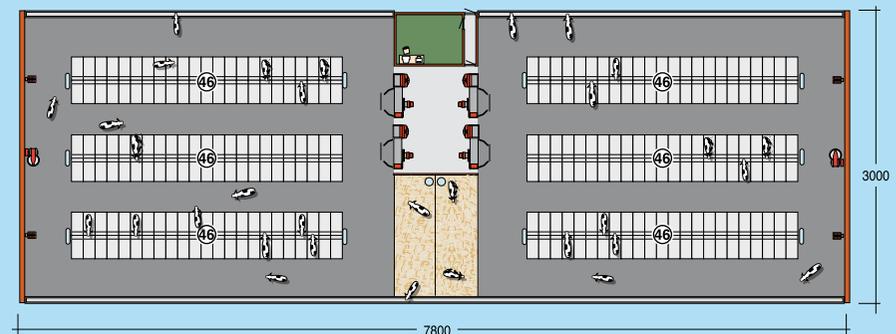
The cows can eat, drink, rest and be milked when they want. There are no fences or separation gates. The cows can live freely, without restrictions or constraints. During milking, the cows are rewarded with concentrate, with the result that they are happy to be milked. Although there is a holding pen – which is in many cases temporary – it only has space for a small number of cows.

What is forced/guided cow traffic?

Cows are forced to approach the robot by selection gates or one-way fences leading from or to the stalls or feed fence. With this system, the cows are denied one of their basic needs (lying down or eating) and have to follow a compulsory route to the robot. On the way to the robot, they must walk through various narrow passages. This system is known by various names, depending on the direction and form of the system, for example forced, guided, and feed-first.

Cow traffic system	Cubicles first forced	Feed first forced	Free cow traffic
Number of cows	65	65	60
Milk/cow/day	30	30	33
Milk/robot/day	1,950	1,950	1,980
Work input per day	3.60	3.70	2.02
Mastitis percentage per year	13%	14%	6%
Milk production of cows < 150 days lactation	36	37	41

Practical results of various forms of cow traffic (source: Lely, 2007).



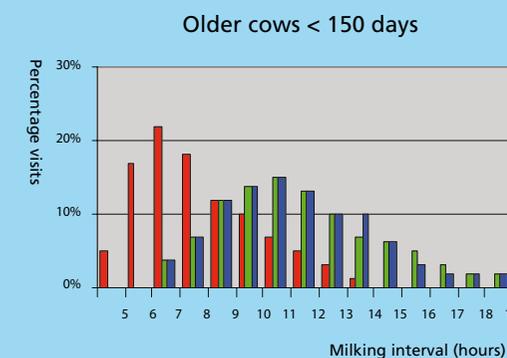
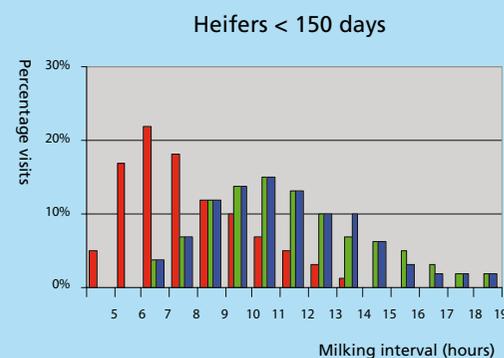
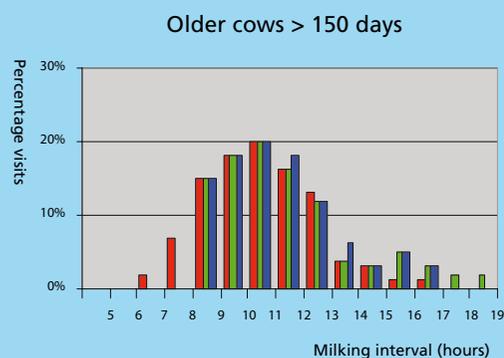
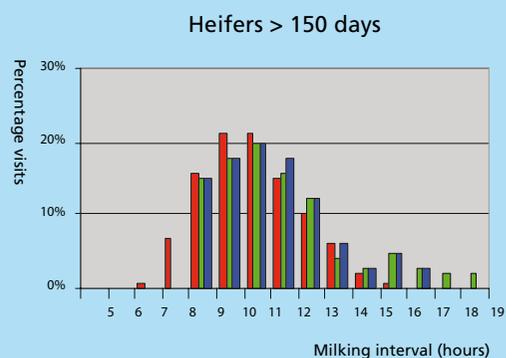
Lely's free cow traffic saves work

Voluntary cow traffic really does save work.

1. The heifers require less training. Research has shown that, on average, heifers need ten days to become accustomed to a forced system. The time needed is longer when there are more one-way fences and selection gates. With voluntary cow traffic, the familiarisation period is three days.
2. With voluntary cow traffic, the fresh cows are milked three to four times a day and are thus less likely to contract mastitis. For a stock of 120 cows, this would mean a saving of time spent on mastitis treatment of one hour a day.
3. The third labour-saving advantage is that the cows only need to be rounded up for milking twice a day. It is primarily the cows late in lactation that need to be fetched. With forced cow traffic, farmers have to round up the cows three to four times a day, and it is mainly the fresh cows that need to be fetched. This involves a lot of effort, since this group in particular requires considerable attention.

Good for early lactating animals

Many farmers think that, with free cow traffic, cows late in lactation will not go to a robot. That is indeed the case for a very small number of cows. However, forced cow traffic disadvantages the most important group, namely the vulnerable, freshly calved cows and heifers. It feels threatening for them to be locked up in the holding pen, unable to escape if a higher ranking animal approaches. In addition, after being fetched for milking, they will get to the feeding fence only two to three times a day, via a selection gate. That is a bad start of the lactation for these cows.



- free cow traffic
- cubicle-first forced/guided cow traffic
- feed-first forced/guided cow traffic

Difference in robot visits in free cow traffic and various forms of forced cow traffic. Fresh cows and heifers have shorter robot visit intervals. This means more frequent milking and thus more milk and less mastitis (source: Lely, 2001).



Jan Bloemert, manager of the Waiboerhoeve Experimental Farm in the Netherlands, comments:

“With a temporary holding pen, you are thinking more from the cow’s perspective.”



The temporary holding pen at Waiboerhoeve offers many advantages: less fetching of cows, more visits per robot, and healthier animals. “We should have done this much sooner.”

For four years, the Waiboerhoeve Experimental Farm worked with a permanent holding pen at the milking robots. “We fetched the cows three times a day, put them in the holding pen and then did other work,” says Jan Bloemert. “However, we found that the low-ranking animals were scared in the holding pen.” As an experiment, Bloemert opened the holding pen. “The number of visits increased, and the robot’s capacity was better utilised,” Bloemert explains. “The number of cows that we needed to fetch decreased significantly, and we are now considering reducing the number of times we fetch them from three to two.” The arrangement does, incidentally, also have a disadvantage. “Putting the temporary holding pen back again does involve extra work. You need to bear that in mind.”

Bloemert has found that working with a temporary holding pen matches the cow’s rhythm better. “You’ve got to learn to think from the cow’s perspective and not from the perspective of a conventional milking system or what you find convenient as a farmer. We should have done this much sooner.” What is noticeable is that the cows are doing better now they are being left more to themselves. “They are doing better, they are producing more milk, and they are healthier. I am confident that animals find their own rhythms.”



Happy cows and happy farmers

10 reasons to opt for Lely's free cow traffic:

1. More milk per cow
2. Less work
3. Improved animal well-being
4. Better for low-ranking animals
5. Less mastitis
6. Better fat to protein ratio
7. Higher feeding efficiency
8. More milk per robot
9. Better social life for the farmer
10. Lower costs, higher yield

With voluntary cow traffic, the cows can follow their own biorhythms. This is essential for healthy lactation, in particular for cows at the start of lactation and for heifers. They will feel less harassed and threatened than in a system in which they may have to wait for hours in a holding pen without being able to lie down. This waiting time has a negative effect on the animals' well-being and thus on their health and milk production. The result is that vulnerable cows will be unwilling to visit the robot, while that is precisely what they need to do. In a word: Once you start forcing a cow to visit the robot, you have to keep doing so. Voluntary cow traffic also makes the farmers themselves happier. It is a very simple system that needs attention only twice a day at the most, at times convenient to the farmer.

Voluntary cow traffic with a holding pen?

In a voluntary system, the cows can find their own milking rhythms.

Nevertheless, there will always be a small number of cows that need to be fetched: cows that do not come voluntarily (lame or sick animals), and heifers that still need to be trained. It is convenient to set up a small holding pen for these animals. It can be a temporary holding pen that is removed again after milking. This is often done on larger farms (with more than three robots). At farms with fewer robots, permanent holding pens are sometimes used. Access is ensured by way of one-way fences, and after the cows have been brought in the farmer does not need to remove them again. However, for farms with fewer than three robots, temporary holding pens are recommended, since the number of visits to the robot will increase (see table) and the farmers will need to fetch fewer cows. Permanent holding pens have been found to be an obstacle for low-ranking animals, causing them to visit the robot less frequently. A holding pen should have space for maximum 10% of the cows. There should be fresh drinking water in the holding pen, but no cubicles. It is important that the farmer checks that the cows are not kept in the holding pen for too long.

Table 1: Results for fresh cows (0-100 days lactation) at the Waiboerhoeve farm (5 robots in operation)

Fresh cows	Permanent holding pen	Temporary holding pen
Milk production per cow	36	43
Milkings	2.6	3.0
Refusals	1.2	1.9
Max. milking frequency setting	3.6	4.0
Visit efficiency* (%)	72	75

* Visit efficiency is the number of milkings divided by the milking frequency setting multiplied by 100%

Kallio Farm

in Finland switches over to voluntary cow traffic:

“Number of cows eating, drinking or lying down has doubled.”



At the farm of the Kallio family in Finland, the daily milk production per cow increased by 5 litres or 28% after the changeover from forced to voluntary cow traffic. "In addition, the cell number decreased by 35%, the contents increased, and the cows are happier."

When the Kallio family first started using a robot they employed forced cow traffic. They were working all day taking the cows to the robot. At 8 a.m., at midday, and at around 5 p.m. Every time they had to fetch 13 cows. "The last cow would sometimes be in the holding pen for two hours." The switch to voluntary cow traffic meant more milk, less work, and improved animal well-being. "82% of the cows eat, drink or lie down in the cubicle. With forced cow traffic, the figure was 44%." It is also noticeable that, with free cow traffic, the cows eat smaller portions of feed and spend more time chewing the cud. As a result, the rumen pH is more constant and cows are healthier. The basic ration is enough to produce 31.5 kilogrammes of milk, which is calculated for an average production of 38 litres. They followed the advice that a basic ration be calculated for the average milk production, giving 7 kg. The cows receive the rest of the concentrate during their voluntary visits to the robot.



60 years of unstoppable agricultural progress

At the beginning of the previous century, Cornelis and Arij Van der Lely were already busy, as children with their Meccano kit, giving expression to their ideas for making physical labour in the agricultural sector easier. With the invention of the tedder, Lely made its mark as an agricultural company in 1948. Developments took shape in rapid succession. Around 1958, Lely started the development and production of the unique fertiliser spreader. In 1965, Lely marketed the uniquely shaped Lely Lotus hook tines. Lely's real breakthrough came with the development of the Lelyterra rotor head harrow in 1968. This development also signalled the company's internationalisation. In 1983, mower technology received an enormous boost thanks to the introduction of the modular cutter bar. The milking robot introduced in 1992 is undoubtedly the 20th century's most important invention for dairy farmers.

Under the inspirational management of the second Van der Lely generation, too, the company is constantly looking for methods that can improve dairy farmers' lives both financially and socially. In addition to the introduction of rakes and tedders with maximum working widths, the development of increasingly robotised barn equipment fits in with this aim. And ... this 60th anniversary bodes well for the years to come.



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