# Lely Vector


*Automatic feeding is ready for you*

www.lely.com

“I can now spend more time on other activities at the farm.”

**Fabio Cantù**
**Zevio, Italy**

“I have been using the Vector for over a year and save up to three hours a day on feeding the bulls. The Vector loads and doses the ration more accurately and feeds more often. The bulls are calmer and grow better now that the feed is fresher and tastier. We also save a lot on fuel costs. Before the purchase, I had my doubts about the reliability, but the system worked perfectly from the very first day.”

## *Your feeding strategy has a significant impact on your results*

More frequent feeding and feed pushing really pays off. It stimulates frequent consumption of feed throughout the day and night, which results in a higher feed intake for the herd. This has a positive effect on animal health, fertility, production and your finances.

The intake of a large quantity of rapidly fermentable feed can cause an extreme drop in pH levels, resulting in less digestion of roughage. This will cause the forage to be passed through the rumen too quickly, a condition known as sub-clinical rumen acidosis, which will damage the rumen wall.

The ideal situation is for cows to eat 10 to 14 smaller portions every 24 hours to maintain proper and stable pH levels, so that fodder is used optimally. More frequent feeding and pushing feed stimulates cows to visit the feed fence more often to fill up the rumen again.

Offering smaller portions reduces the possibility of selecting feed, which also has a positive effect on pH stability in the rumen. In addition, it means more frequent consumption of fresh and tasty feed at the feed fence.

Automating this repetitive work puts the possibility of regularly feeding and pushing feed within your reach, making your daily routine more flexible, the feeding process more efficient and your business more successful.

***Smart feeding works***


*"Competition at the feeding fence has changed completely because the cows know that fresh feed is available 24 hours a day."*

Claas Tiedemann, Germany



**2 gallons**

**The total variation in milk production that can be explained by other factors, such as calculated ration and genetics.**

*(Source: Dohme, 2008)*

Research among 47 herds shows that milk production varies by up to 3.4 gallons of milk per cow per day. 56% of this variation is caused by factors such as frequency of feeding, feed pushing, number of feed places, etc.



# You and your cows both benefit from more frequent feeding

## Always fresh feed at the feed fence

The milk production of cows is related to how healthy they are, and being able to eat 10 to 14 times a day is a basic requirement for good health. That is why frequent feeding is so important. In addition, supplying feed more frequently means it is always fresh and tasty, reducing selection and increasing feed intake.

## Optimal feed intake

If there is always fresh feed at the feed fence, a cow can decide for herself when she wants to eat. Every animal also receives fresh feed, including cows lower in rank which might otherwise eat faster and less due to possible aggression at the feed fence. Frequent ingestion of fresh feed is good for the rumen. It makes a cow more active and it increases milk production.

## Feeding at the right time

More frequent feeding is not about regular feeding at fixed times. It is about providing feed at the right time based at the established eating rate, so that there is never too much or too little feed at the feed fence.

The eating rate can vary because of unusual eating habits or grazing, for example. Cows that graze outside eat less at the feed fence. Adjusting the time of feeding results in less rest feed and loss of taste.

## Good for rumen health

Frequent feeding leads to a stable pH level in the rumen and good rumen health. A cow gets more than half of its energy requirements from fatty acids left over from fermented carbohydrates. If the pH level in the rumen is low, these micro-organisms become ineffective. Multiple, smaller meals per day keep pH levels stable, which means cows use the feed they eat more efficiently.

## Good for healthy hooves

Frequent feeding also has a positive effect on claw health. Since feed is easily within reach for all cows, they no longer need to reach for their feed. This lowers the pressure on their front claws and necks. When there is a limited feed supply, subordinate cows are often chased away, causing them to make sharp turns which also put extra pressure on their claws.

## More frequent visits to the milking robot

Feeding more frequently stimulates the activity of cows. If a milking robot is used, cows will visit it more often.

**+ 92%**
**Lifetime Production**
**Extra lifetime production when a cow calves at 23 months instead of 27 months.**

*(Source: Van Amburgh, 2000)*

# *Each group receives their own ration*

Feeding according to needs benefits all types of cattle, both dairy and beef. In addition, each animal has its own feed requirements depending on its stage in life.

## Youngstock

The faster a calf grows to the ideal weight, the faster she is ready for insemination and milk production. By providing calves with fresh feed adapted to their needs more often, roughage ingestion increases and these young animals quickly develop into strong cows. Practice has shown that calves fed with fresh feed adapted to their needs several times a day can be inseminated four to six weeks earlier than calves that are fed conventionally.

## Beef cattle

The benefits of frequently feeding calves also apply to those reared for beef. Compared to conventional feeding, calves reared for meat also gain weight faster if they are fed more frequently. As a result, the production of meat rises considerably, and costs for rearing and fattening calves decrease.

## Lactating cows

Once a calf has grown into a lactating cow, its energy needs change and ingesting dry matter becomes particularly important for milk production. More frequent feeding means cows always have feed at the feed fence, which keeps the feed tasty. Smaller portions at the feed fence prevent oxidation, heating and cows selecting feed. Tasty, fresh feed increases roughage ingestion and provides the energy required for high milk production.



## Dry cows

Feeding dry cows is one of the most important parts of a feeding strategy as nutrition during this stage is vital for the next lactation phase. The capacity to ingest dry matter in the transition period determines the ingestion of dry matter at the beginning of the next lactation, which directly influences cow health and milk production. Feeding more often keeps dry matter ingestion constant and maximizes ingestion capacity.

# *The milk and feed experts in your region*

The Lely Center in your area is your local partner in farm automation. Over the years, Lely has built a comprehensive network of specialists, combining their experience in automation with local knowledge. Their main goal is to help you receive all the benefits that your Lely equipment has to offer.

## Peace of mind

Peace of mind is most important throughout day-to-day activities. This means being able to rely on employees, machinery and a steady partner in service and support. It's good to know that behind your Lely Vector is a product you can trust.

## Certified service technicians

You'll have full access to Lely's certified technicians through your local Lely Center. They ensure a perfect installation, set the desired routes and provide the right service for a long and trouble-free life span.

## Regional knowledge and experience

You can also rely on knowledge, help and support from the Farm Management advisors of your local Lely Center. They ensure that your Vector plays its role in optimizing productivity and profitability of your farm.

## Livestock is in our blood

Many of our employees have farming backgrounds, so they understand the issues faced by livestock farms. They also undergo training and tests to make sure they are reliable experts who can support both new and existing customers. Thanks to their extensive experience with other systems in the area, local service technicians and consultants have all the facts at their fingertips.

## Most experience in automating dairy farming

We are the market leader when it comes to automating dairy farming. We also have extensive experience with automatic feeding and feed pushing. In 2008, we introduced the Lely Juno automatic feed pusher and, in 2018, the 500th Lely Vector automatic feeding system was sold. We have used all the knowledge acquired on automatic feeding over the years to perfect the Lely Vector.

# *Automatic feeding is ready for you*

The Lely Vector takes a next step in automatic feeding and an evolution that has everything we have learned since it was introduced in 2012. We have looked at cattle and listened to our customers. We kept proven principles but improved a large parts of the system. The combination of the proven principles of automatic feeding and our focus on animal health, reliability and cost-efficiency has resulted in an automatic feeding system that is ready for you.


### More durable

The Lely Vector MFR is even more durable because other materials have been used for essential parts. For example, the bin and auger are made entirely of stainless steel.

### Service-friendly

The design has been made more service-friendly in many aspects. The drive and electrical components have been made more accessible, resulting in a system that is faster and easier to maintain.

### Safer

The bumper is galvanized, and the design of the bumper has been completely renewed for extra safety and less risk of damage.

### Animal-friendly

A better distribution of the knives and a constant rotational speed of the auger creates a more consistently mixed and a more balanced ration. A magnet has also been added to the MFR, which removes metal particles from the feed.

# Better feeding, thanks to automation

More frequent feeding is good for cow health, fertility and milk production, and it also improves feed efficiency because the cows get more out of their feed. Automatic feeding with the Lely Vector feeding system goes one step further and offers a number of benefits.

### Low operating costs

Compared to conventional feeding systems, the Lely Vector is very efficient when it comes to energy costs. You save on fuel costs, because you will no longer need the tractor used to control the feed wagon. Customers save up to 1,452 gallons of diesel per year.

### Flexible to use

The Lely Vector is developed for all kinds of feed and barn designs, and if you have cattle in various barns on your yard, the automatic feeding system can drive between them independently. The Lely T4C software of the Vector allows you to easily adapt rations and groups.

**Save 1,452 gallons/ 5,496 liters**
*Compared to feeding with a tractor.*

**Save 416 hours per year on average**
*Compared to once-a-day feeding with multiple times feed pushing.*

### Save time

Every day you save valuable time because you no longer have to do the feeding yourself. Right from the moment when the Lely Vector takes over, your daily schedule becomes more flexible. On average, our dairy customers save about eight hours per week. Beef farmers save even more time. You can use this time on other important matters that need your attention, whether it's on your farm or in your private life.

### Precision feeding

Automatic feeding offers you assurance that every group of animals will receive the right amount of the right feed. The specific needs of each group can be addressed by entering the composition of the ration per group in the management software. This increases the feed intake, which means you get more out of your animals. You also improve the feed efficiency compared with conventional feeding.

### Feeding in controlled doses

The Lely Vector is also ideal when controlled dosing is essential. It is possible to limit the opening of the dosing door during installation for a more precise dosing. This is especially an added value when feeding veal calves or beef cattle, which receive a ration with short feed types. You can also adjust the amount of feed per pen so that the Vector feeds beef cattle exactly according to their requirements.

# How the Lely Vector feeding system works

The feed grabber composes the ration handling blocks, bales or loose products. The robot can also be supplied by other systems such as tower silos and dispensers.

The mixing time and the counter knives can be set per ration to ensure homogeneous mixing of the feed.

After mixing, the mixing and feeding robot moves independently to the barn where the ration is dosed accurately to the right animal group.

Controlling the machine can be done easily with an app on your phone while monitoring and fine-tuning the results can be done with the Lely T4C management program.


# Proven flexibility

The Lely Vector offers unprecedented flexibility. Any feeding strategy can be implemented, whether feeding is preferred several times a day, required in varying rations or differs for groups of cows. An effective feeding strategy will improve cow health and production.

## How the feed kitchen works

The feed kitchen is the room where the feed is stored, selected, picked up and loaded into the mixing and feeding robot. The crane assembly, with feed grabber installed in the feed kitchen, moves back and forth above the feed, and picks it up as required. In the feed kitchen, the various types of feed can be easily separated and supplemented. There is also space for a mineral dispenser or additives, if these have to be added to the ration.

Depending on weather conditions and the size of the feed kitchen, you can store up to three days of feed. The feed kitchen has enough space for any desired feed strategy and can be extended as a farm grows.

Lely Technical Service Support consultants give advice on how to convert existing areas in livestock farms into feed kitchens.

3

**3 days**

**The average amount of days between filling the feed kitchen.**

## Lely BC silage cutter

The Lely BC silage cutter is a proven solution for filling the feed kitchen. The cutting capacity of the silage cutter is high and, thanks to the packing depth, the Lely BC can easily place feed in the feed kitchen.

The silage cutter's blades maximize the cutting capacity of both dry feed and solid silage and can cut both round and square blocks. The Lely BC can adapt itself to requirements at any moment, regardless of how compact the feed might be.

*"The Lely BC 180 XL cuts large blocks, improving feed quality. The feed kitchen needs to be filled less often, saving time and money."*

## Tower silos

The Lely Vector is an extremely versatile system. The mixing and feeding robot can be filled with either a feed grabber or a tower silo, putting automatic feeding within reach for all types of livestock farming in any circumstances.

# Precision grabber

A crane assembly with feed grabber is installed in the feed kitchen before the Lely Vector is used. It automatically moves to the right block of silage or feed needed to weigh and mix the right ration. The feed grabber scans the height of the feed with a laser to grab from the highest point. Self-learning management software helps the grabber determine the depth the feed grabber needs grab to pick up the desired weight.

## Perfectly mixed

Because the feed grabber grabs a different type of feed with every movement, the ingredients are already substantially mixed in the mixing and feeding robot. This reduces the time and energy needed to mix thoroughly. The mixing time and the counter blade can be set per ration to ensure homogeneous mixing of the feed.

## Feed augers for short feed

Beef cattle are generally fed short feed, so the Vector can be equipped with a short feed auger with a second dosing arm. This ensures the even distribution of feed per foot, which is essential for preparing beef cattle rations.

**98%**

**The achievable accuracy of loading feed with the Vector system**

# *Based on intake*

The system knows when and where feed is needed.

## Transporting the feed to the right location

After mixing, the mixing and feeding robot moves independently to the barn where the rations are distributed in controlled doses. In the barn, the feeding robot follows the feed fence or wall. Outside the barn, the system finds its way by following metal strips on the floor. Regardless of the weather, the Vector drives independently from place to place to supply every cow with fresh feed.

## Opening and closing doors

The climate is important for all types of livestock farms, whether it concerns dairy cattle, beef cattle or veal calves. To keep the climate in the barn optimal, the Vector can open various electric doors via Bluetooth or louvered doors and flaps via a push set.

## Feed pushing, measuring and feeding

During feed pushing, the Vector measures the amount of feed in front of the feed fence with a feed height sensor. If the average feed height drops below a pre-set level, the Vector loads the required ration and brings that to the location where fresh feed is needed. Feeding based on feed heights instead of feeding times prevents excessive or insufficient feed in front of the feed fence.

## Easy control

The Lely Vector can be controlled with the 'Lely Control' app via a Bluetooth connection. This means that you can operate the Lely Vector from one or more smartphones. Controlling the rations can be done via this user-friendly application.

# More insight in feeding

Automatic feeding with the Lely Vector gives you more insight in the efficiency of your feeding strategy. The Lely Time-for-Cows (T4C) management system indicates average feed intake on cow and group level.

## Making the right decisions

Lely T4C is the world's first complete business management system for milking and feeding and can be connected to many Lely products. It provides farmers with total insight into their farms. Lely Control and Lely T4C also provide data about device settings, herd monitoring and analyses. They help you make the right decisions based on the right data.

## Feeding strategy

Lely T4C provides strategic settings and long-term analyses summarized in clear reports, which help you to assess the efficiency and management of your feeding system. This is useful when discussing and planning the feeding strategy with employees or consultants.

## Daily use

Together with Lely Control, T4C offers you day-to-day control of your feed management, specifying and making rations, filling the feed kitchen or changing the routes of the mixing and feeding robot. Key Performance Indicators (KPIs) provide real-time insight into the ingestion of dry matter and different feed quantities for the various groups in the herd, allowing you to adjust your feeding strategy to prevailing conditions every day.

## Feed efficiency

The management software can also create feed efficiency reports. These reports give a clear picture of the relationship between provided ration and production. By averaging the costs per feed type in the system, you can optimize your ration based on margin rather than kilos.

## An appropriate ration for each group

It is easy to set T4C to make sure each group of animals gets a suitable ration. That means it is simple to move cows from group to group without changing basic settings for the ration, and a simple action is all that is needed to select the right ration for the right group in your farm.

## Feeding tables for beef cattle

The development of beef cattle is aimed at growth. The daily ration has to be adjusted accordingly. With the Lely Vector, entering a feeding plan per group of beef cattle is simple. If a group of animals switches to a different ration, the Lely Vector adjusts the ration and gives the animals the right feed in the right dose.

# The right steps at the right time

Switching from conventional feeding to automatic feeding with the Lely Vector is a big step, as it means putting this repetitive daily work in the hands of a robot and the software controlling it. That isn't a decision to be taken lightly, something we totally understand at Lely. To help you, we have developed a standard step-by-step plan to support you in the start-up phase.

Based on our experience with farm automation, Lely Farm Management Support has developed guidelines and protocols which will provide a tailored, manageable learning curve. In this phase, we will give you the right information at the right time. All the relevant topics are looked at and you also have the option of following a training course. This all makes the transition to automatic feeding smooth and limits stress on all sides.

During a period of six months, you and your Farm Management consultant follow the predetermined steps and actions recommended before, during and after actual start-up. In this period, we will get together six times to discuss various topics like your routines, the T4C management system and feeding.

After each visit, you will receive a digital report and associated fact cards. This allows you to review the action points and information at your own pace.

## Management

We begin by introducing Farm Management Support. What can we expect from each other over the next six months? What are your goals? We discuss topics such as animal health, feeding and routines on your farm, in combination with automatic feeding.

## T4C and preparation

We explain to you how the T4C management system works and go, in chronological order, through the start-up day to discuss the preparations needed.

## Final check

The start-up time and date have now been determined. Together, we check whether all preparations have been made and answer any questions. Then we are ready to go.

## Start-up day

We perform a final check together, go through the feeding robot's routines and start feeding.

## Managing the Lely Vector

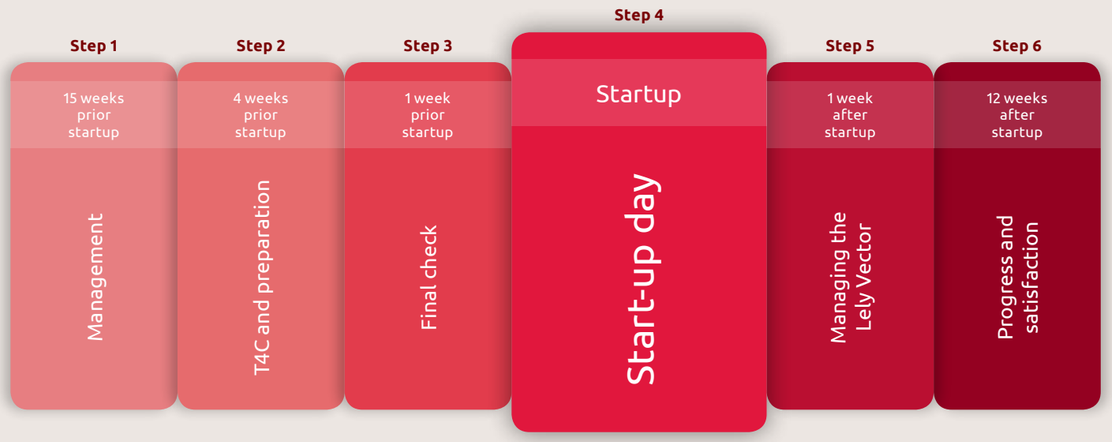
The cows become accustomed to the Vector quickly. Together, we fine-tune the T4C management program and review all the routines.

## Progress and satisfaction

We look around the farm, check T4C and discuss the current situation. In addition, we go through your routines and all the tools available. We ask you if you are happy, if we have we achieved our goals and if you have any questions.

## Optimization

The next step follows the conclusion of the start-up period, when we will contact you to discuss optimizing your farm together, with the level of service support of your choice.



"My bulls grow better since I started to feed them more frequently."

Fabio Cantù, Italy

## *Smart feeding works with the Lely Vector*

Frequent feeding and feed pushing throughout the day and night stimulates the dry matter intake of the herd. This optimizes rumen health, feed efficiency and productivity. By automating this recurring work, you make your life easier, your production more efficient and your business more successful. Learn more about smart feeding at **www.lely.com/feeding**

***Bright farming is yours by choice***

## *Start smart feeding with your local Lely Center*

www.lely.com