Preparing your business for the future

Agriculture faces enormous challenges over the coming decades. Agricultural entrepreneurs have to keep pace with rapid population growth and the need to deliver food at progressively more competitive prices. This will all need to be achieved in a sustainable way, on a continuously reducing carbon footprint.

The farming community is characterized by entrepreneurs who are fully aware that they will leave their business to future generations. At Lely this is no different. We continue to develop our knowledge and products for the future, so that you can successfully cope with new challenges.

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The Lely way of farming
one man, two million

An increase in labour productivity is desired to ensure a healthy dairy business in the future as well. Achieving more litres of milk per worker in an animal-friendly way; that is our challenge. We definitely think it is possible to milk two million litres per year by only one man. On conventional dairy farms where milking is done twice a day now, production increases of 10 to 15% are easily realised by means of our milking robot.

The most reliable employee imaginable
Investing in a Lely Astronaut robotic milking system will offer you the most reliable employee you can imagine. This robot employee is there to milk for you 24/7 for years to come. It is flexible and fully trained to prepare the cow for milking, to attach the teat cups, to reattach in the event that this is required, to detach after milking and to carry out post-treatment.

Entirely different to robotizing a parlour
Thanks to the Lely Astronaut robotic milking system, many factors can be monitored on an individual cow basis; factors that cannot be provided in a conventionally milked herd. Successful robotic milking is a new style of farm management whereby the decisions are transferred from the farmer to the cow. It is all about early signals. You can treat your cows individually again... and that results in improved cow health, shorter calving intervals and reduction of feed costs, just to mention a few.

“You should always set yourself the challenge of improving your farm management and your performance. We have already been milking with milking robots for about twelve years, but we are still keen to make improvements.”

Mrs Guibert, France
Sustainability aspects play an increasingly important role in dairy farming. Animal health and animal well-being are becoming more and more important. The consumer demands an animal-friendly method of production from the agricultural industry. The cow should have a nice, healthy and longer life combined with an increased lifetime milk production. The challenge for the dairy industry is to achieve these demands in a profitable way.

Unlimited access to the basic needs
Lely believes that cows should have free access to milking. For cows to be able to visit the robot and feed fence regularly, it is important that they can rest sufficiently and relieve the pressure on their feet and legs. So, if we restrict one or more of these basic needs, this will affect cow behaviour and subsequently milk production. Therefore, the Lely way of sustainable farming is to offer the cow unlimited access to these basic needs without any restrictions. Like all our products, the Lely Astronaut is designed from this point of view.

“The main objective is to run a sustainable farm and the robot helps me to achieve this by increasing cow longevity and multiple calvings while maintaining a daily production of at least 3,800 kg with an average of 36 kg/cow.”

Yoshitsugu Mori, Japan

Build around the cow
The Lely Astronaut robotic milking system is designed to improve animal health and well-being. For instance, the cow has the easiest entrance into the robot and is not forced into a certain position in the cow box. Teat treatment and attachment of the teat cups are done very hygienically to improve udder health. Extensive data is also gathered, which will help the farmer to prevent diseases and improve the animal health status of the whole herd.
Free cow traffic

In free cow traffic, the cow decides when she eats, gets milked or lies down, thereby improving the well-being of the cow. By taking care of our cows and putting extra effort into cow comfort, we are able to extend lifetime milk production. Sufficient space in the barn will also give the cow the opportunity to show her natural behaviour and thereby lead to better well-being of the cow.

Correct feed management

The feed provided to cows affects not only feed/milk efficiency but also general cow health, reproduction and metabolic disturbances. Alongside that it influences visit behavior to the robot. The Lely Vector automatic feeding system ensures 24/7 fresh, flexible feeding according the cow’s needs. The system offers perfect synergy in combination with the Astronaut milking system.

Grazing and robotic milking

Grazing cows in a pasture is a picture that is greatly appreciated by cows, farmers and consumers. The advantage of grazing with an automated system is that the concentrates fed in the robot are not the only motivating factor. Fresh grass twice or possibly three times in a 24-hour period results in balanced and regular visits coupled with a minimum level of concentrates if required.
We are committed to making robotic milking a success on your farm as well.

More than twenty years ago we introduced the very first milking robot worldwide: the Lely Astronaut. Although over since then we have improved the system in numerous ways, the Astronaut we offer you today is still based on the same proven ideas. The Lely Astronaut improves your quality of life while safeguarding optimum animal welfare and your return on investment. You will also benefit from a unique set of management instruments for monitoring milk quality and the feed/milk conversion ratio for the individual cow or the complete herd.

The Lely Astronaut A4 robotic milking system

The cow is key

Highest milk quality

More control

THE THREE MAIN REASONS WHY
Robotic milking is different from conventional milking in many ways. One of the main differences is that cows can be milked more in line with their natural behaviour. To maximize the benefit of this we look for opportunities for creating an environment where the cow can be milked under optimal conditions with as few obstacles as possible.

**The COW is key**

We have explicitly refrained from automating the actions of milking itself; instead we have built a concept around the cow to make sure that cows like to be milked within a low-threshold system. Our truly unique robot arm concept as well as the I-flow concept for easy entrance and exit from the box, are some clear examples of this strategy.

**Optimal conditions with as few obstacles as possible**

Robotic milking is different from conventional milking in many ways. One of the main differences is that cows can be milked more in line with their natural behaviour. To maximize the benefit of this we look for opportunities for creating an environment where the cow can be milked under optimal conditions with as few obstacles as possible.

**Best visiting behaviour**

The main revolutionary feature of the Lely Astronaut A4 cow box is the walkthrough design called the I-flow concept. Thanks to this the cow walks straight in and out of the unit without making turns. This makes it easier for the cow which shortens the learning curve, increases the throughput and as a result of that the capacity of the robot.

“**There was one cow we always needed to bring to the robot. But now – with the more open entrance of the Astronaut A4 robot – even this cow regularly visits voluntarily. She even comes too often!”**

Lyndon Williams, Wales UK

To gain a clear picture, Lely performed a benchmark analysis on several thousand I-flow robots and thousands of earlier robots without the I-flow concept. The most striking conclusion is that the box time has been reduced by almost 4% per cow visit. A shorter processing time has a direct effect on the capacity of the milking robot.

On a farm with 120 cows this represents an extra production capacity of 150 kg per day.
The Lely Astronaut robot arm – close to the action

The Lely Astronaut arm is a well-proven unique concept; the arm remains underneath the cow and controls the entire milking process. With almost all sensors housed in the arm, measurement is done close to the udder and is therefore most accurate.

Fast attachment and no unnecessary movements
Attachment speed and accuracy is a crucial factor for the capacity of the robot. Our teat detection system (TDS) features three-level scanning technology which ensures quick and accurate detection of the teats. It also eliminates unnecessary arm movements, is much gentler for the cow and allows the fastest possible attachment for all types of udders.

Durable construction
The robustness and pneumatic control of the arm ensure that even if the cow should stand on it, nothing is damaged.

TEN BENEFITS OF THE LELEY ASTRONAUT ROBOT ARM
2. Teat cups safely parked in the arm.
3. More effective cleaning and stimulating.
4. Fastest teat detection.
5. Tailor-made milking through dynamic pulsation.
6. Relaxed milking due to fewer arm movements.
7. Accurate milk quality measurements close to the action.
8. Never a cup on the floor.
10. Robust construction and durable materials.
Innovations that truly paid off

Flexibility in the set-up of your barn
The central unit is an essential part of the modular set-up of the Lely Astronaut A4 robotic milking system. It features a central vacuum and cleaning system for up to two cow units. The central unit is self-contained and a configuration with two boxes can span a distance of up to thirty metres.

Freedom and swift teat detection
Good visit behaviour proves that cows like to visit the Lely Astronaut milking robot. One of the key success factors is the space the cow has while being milked. The three-sides-open box does not need to hold the cow in any way. A 3D camera monitors the movement of the cow which results in the perfect arm position for ensuring fast detection, attachment and reattachment.

Tailor-made milking
With information coming from the Lely MQC milk quality control system, the Lely 4Effect Pulsator offers dynamic pulsation at quarter level. This ensures a truly individual treatment of the cow and, as such, tailor-made milking.

I-flow for easy entrance and exit
Thanks to the I-flow concept the cow walks straight in and out of the unit without making turns. This makes it easier for the cow which shortens the learning curve and increases the throughput.

Research has proved that the unique counter-rotating brushes – together with the precise arm movements – guarantee up to 40% more effective cleaning and stimulation as compared to conventional situations.

“In the end we chose Lely because of the simplicity of the robot arm, for example the strings on the teat cups preventing the cups falling on the floor.”

Jens Jensen, Denmark
Together we care for milk

Whether it is about sensors, the innovative and unique gentle way that we treat milk in the system, or the way we clean the udder, we are continually looking for the best way to achieve the highest quality of milk. Our unique Lely Milk Quality Control system (MQC) allows you to supply only first-class milk.

A unique set of milk quality measurement tools

Lely MQC (Milk Quality Control) is located inside the arm of the robot just beside the udder. During milking, the milk is continuously monitored per quarter. This provides you with vital information on mastitis, fat and protein and lactose for managing milk quality and cow health, allowing you to respond quickly and achieve optimal milk quality.

Brushes clean the best

The brushes will actually remove dirt and manure, even if it sticks. It is the only cleaning system that cleans the area around the teats where teatcups can touch, as well as the bottom of the udder close to the teat. The whole system is thoroughly disinfected after cleaning each cow, preventing cross-contamination.

Efficient mastitis monitoring per milking

Preventing mastitis can save you a lot of income through reduced milk-production, medical and labour costs. The optional MQC-C somatic cell count measurement is of great importance in monitoring udder health. The integrated system monitors the SCC per milking per cow in a highly efficient manner. Alarming deviations will be noticed and reported to you. This gives you constant control of the udder health of all cows in the herd at the lowest cost.

STEAM CLEANING OF TEAT CUPS BETWEEN ALL MILKINGS

The Lelywash cleaning system of the robot performs different cleaning types during the day. The optional Lely Pura steam cleaning system directly cleans the teat cups with heated steam, followed by a short rinse with plain water.

"If you come to take my MQC-C out, you will have to take the whole robot, because I can't work without it anymore!"

Wyn Evans, Wales UK
More control, more freedom

Control your dairy farm with Lely T4C
Whether in the barn, in the office, in the field or at home, the Lely T4C (Time for Cows) management system gives you full control over your dairy farm. It knows exactly what is going on in the barn and serves as a library, operating system, herdsman, personal assistant and trainer all at the same time. Sounds complex? On the contrary, this management system is actually very easy to use!

Lely T4C is dedicated to your success
With over twenty years of experience, we were able to develop the only dedicated farm management system for robotic milking: Lely T4C. The system collects and records all the data provided by the Lely Astronaut robots through their many sensors. It analyses and presents only clear and useful information to help you make strategic and operational decisions more easily and quickly.

T4C connects and controls Lely equipment
The Lely T4C management system connects all Lely equipment that gathers or uses information. This works really easily. If you combine, for example, robotic milking with grazing, the Lely Grazeway selection box first checks if a cow is allowed to leave the barn. When the cow has been milked recently T4C will give permission to open the gate to the pasture.

Linking information is the future
Sharing information between Lely equipment gives new insights for improving your farm operation. By combining the milk yield with the amount of roughage distributed by the Lely Vector automatic feeding system, T4C tells you constantly what feed efficiency you achieve.

A dynamic approach is the next step
The next step in farm management is a dynamic cow approach. This is no longer about cows producing the most milk but rather about yielding the best economic results. The optional DLM module links milk production to milk and feed prices. The module automatically calculates the optimum amount of concentrates and the optimum interval between milkings per cow. Constant monitoring will improve the cost-benefit ratio.

Share to improve; check the benchmark!
If you really want to see opportunities for improvement, you can share your own results with other Astronaut users. Of course, T4C already gives already a good overview of your own results, but seeing how your colleagues are doing will give you insights into different aspects of your farm’s performance.
**LELY T4C – MODERN FARM MANAGEMENT**
**THE EASY WAY**

**Connected equipment**
- Lely Astronaut automatic milking system
- Lely Vector automatic feeding system
- Lely Cosmix feeder
- Lely Grazeway selection box
- Lely Calm automated calf feeder

**T4C communication devices**
- T4C office PC
- T4C robot control panel
- T4C InHerd Phone/Table

**Analysed information**
- Cow health
- Milk production
- Milk quality
- Cow activity

**Benchmark**
Lely T4C benchmark makes it possible to compare farm management information with colleague farms all over the world.

**Lely Qwes health and reproduction monitoring**
A unique collar mounted cow identification and activity sensor to determine health problems and heat at the earliest stage.

**Information from the Lely Astronaut**
- Milk colour (per quarter)
- Fat/protein indication of the milk
- Lactose indication of the milk
- Conductivity of the milk (per quarter)
- Milk temperature
- Somatic cell count category per cow
- Cow weight
- Milk production
- Feed intake
- Rest feed
- Milking time/milking speed
- (Max.) milking speed
- Number of milkings
- Number refusals

**Information from the Lely Qwes**
- Rumination minutes of the cow
- Cow activity

**Information from the Lely Cosmix**
- Feed intake
- Rest feed

**Information from the Lely Vector**
- Roughage fed per group
- Feed efficiency

**Information for the Lely Grazeway**
- Based on time since last milking cow will be directed to specific areas
- Based on customer needs and farm setup cow will be directed to specific areas

**Information from the Lely Calm**
- Milk intake
- Weight
From the office to the herd

We believe that farmers should spend most of their time with their herd, taking good care of their cows. Farm management is not an office job; therefore Lely T4C provides two interfaces based on the same system. The PC version offers the comfort of a perfect overview on a big screen for making strategic decisions. The mobile InHerd version presents your strategic information as operational, all your need-to-know data, and provides you with the tools you need to check, act and improve. Everywhere, anytime.

Available Lely T4C InHerd tools

- **FarmSetup**: Create and edit user accounts and shifts for your farm.
- **Today**: Check which tasks need to be done today.
- **HowTo**: Check how a task should be done.
- **SystemToday**: Check which preventive maintenance your Lely equipment needs today.
- **Cow**: Check information about individual cows and set the right actions.
- **FarmNotes**: Communicate fast and efficient with other InHerd users on your farm.
- **Signals**: Know when a robot stopped milking.
- **FarmBeats**: Check the performance of your herd and milking robots.

Check, act, improve... done!

Lely T4C InHerd is a combination of tools for your mobile device. InHerd enables you to check where your attention is most needed: management by exception. It helps you to act accurately by coaching you to do the right thing, at the right time and in the right place. It helps you to improve your results by providing you with more insight into your performance. This results in a more efficient workflow and more peace of mind.

A more efficient workflow

For farmers, ‘full time’ does not mean from nine to five. That is why Lely T4C does not bother them with irrelevant information. Thanks to our long history in robotic milking we learned which, how and when information is needed. Lely T4C output evolved from nice-to-know to need-to-know information. This way you know exactly what you need to do, and consequently have more time for things that are nice-to-do. Enjoy!

“Thanks to Lely T4C InHerd I changed my daily routines which made my way of working much more efficient.”

Geeske van de Streek, The Netherlands
Our barn designs offer perfectly balanced dairy production systems

For more than two decades, Lely has been involved with robotic milking and robotic dairy farm management and has gained extensive experience in barn layout. A barn geared towards robotic milking and daily management facilitates the comfort of both farmer and cows. New construction offers the possibility of adapting the barn entirely according to the needs of management and livestock. Lely will provide support in optimizing barn layout during the process of planning and building.

“One of the reasons for the high production on the farm is discipline and routine, which are key factors of successful farm management.”

Alberto Beunza, Spain

WORK SMARTER!
It is well known that on average 20% of the herd demands 80% of the available labour. Therefore it is good to know that it is possible to manage the herd with no more than ten touches per cow per lactation. A smart barn layout and an eye for routing, separation and treatment is essential for achieving this. By creating a logical workflow around the Astronaut milking robot, it offers you more than just milking.

Our workflows, specially developed for robotic milking, will offer you and your employees the necessary tools. A smart barn layout and well-thought-out routines and disciplines can make a big difference to labour efficiency.
From initial interest to successful robotic milking

A successful dairy farm will need to focus on important factors like feed management, herd management, breeding management and people. Questions to be answered could be, for example: What is the best routing in the barn? How to harvest and store crops? What skills do management and employees need?

The timeline on this page shows the ideal flow of events for a successful start-up.

“It is essential that specialists are available during the transition period to assure you that things are going smoothly and to assist you straight away whenever aid is required. Lely made excellent arrangements in this respect.”

Tobias Wagner, Germany
Coming from a farm, we know what it is like to wake up early in the morning. We know what it is to spend hours in the barn, day in, day out, ensuring optimal treatment of your herd. We understand how you work, and why. We are committed to making robotic milking a success on your farm as well!

Dairy farming is something we live for

Beyond bolts and software
Our expert consultants with hands-on experience stand for optimisation of the performance of your herd, making sure you get the optimal benefit out of our products and services. Our passion for innovation does not stop at the technical features of our products, but continues far beyond that point to cover all practical and management aspects on your dairy farm.

Lely Center concept – dedicated and educated
The Lely Group has developed the Lely Center concept in order to secure the availability of professional sales and service for Lely products in local areas worldwide. We ensure that all our service engineers remain up to date on the newest techniques; each year they are trained and tested on their actual knowledge as set out by our Lely Academy. Of course they are at your service 24/7.

“The product is only as good as the people who stand behind it. They’re going to help you, and the Lely guys do it. People asked if it was a hard decision on which brand of robot to put in. For us it wasn’t, because we saw the passion that Lely has for robots.”

Steve and Lori Dockendorf, USA
We offer you the **lowest** cost of ownership

We are aware of the fact that a Lely Astronaut milking robot initially is quite an investment; however, please do not just look at the investment. It is not just the initial investment that counts, but all costs in the years to come!

**Proven durability**
Through the use of first-class materials and by limiting the number of moving parts we guarantee a long lifetime and a significant trade-in value. Based on the first twenty years of Lely Astronaut robots in the field, it can be concluded that in financial terms the robots should be depreciated over a fifteen-year period.

**Designed to be reliable**
Obviously, through continuous improvements in design and components Lely technology is designed for year-round reliability. Some key components in the robot, such as the vacuum pump and the laser, come with a five-year guarantee. The robot frame comes with a ten-year guarantee.

**The lowest service costs**
The Astronaut robotic milking system only requires a maximum of four maintenance calls per year. The modular design of the system ensures an easier way of servicing. Unique in the dairy sector: service contracts come on a per-milking basis, and you also have the option of taking out a fully fledged service contract, really all-included!

**Less use of water**
Because there is no need for floor cleaning as milk cups cannot drop on the floor and udders are brushed instead of using water, the Lely Astronaut is very efficient in its use of water.

**Fewer movements, less energy**
Key in saving energy are the significantly fewer movements for connection and removal of teat cups. This makes the Astronaut arm concept the most sustainable. Next to that, Lely saves a lot of energy by using one pneumatic system for milking robots as well as related equipment in the barn, such as selection gates.

"With the Lely Astronaut the efficiency of production costs such as water, soap, electricity and feed is excellent."

Jean-Philippe Côté, Canada
Lely Astronaut A4

Lely Finance – reliable, secure and flexible

Our knowledgeable industry specialists are ready to provide you with the finance products and services you need to meet your business goals and keep you competitive. Lely Finance offers you the ability to acquire the most innovative dairy equipment using a finance solution tailored to your dairy business.

Flexible financing
Lely Finance offers a wide range of financing and leasing programmes designed to meet your operational needs and cash flow. You are able to arrange financing at the point of sale based on reliable and secure advice from our finance specialists.

Financial lease
If you want to own your Lely equipment, but are looking for a way to spread the investment over a longer period of time, choose a financial lease. At the end of the contract, you will have full ownership of the dairy equipment.

Operational lease
If you are looking for significant cash-flow savings, if you are not interested in ownership of your Lely equipment and want to obtain the latest technology, choose an operational lease. When the contract ends, you can choose either to renew the contract and upgrade to the latest model available, extend the existing contract or buy the equipment you have had in use.

Key benefits
• Low monthly payments.
• Tax advantages.
• Off-balance-sheet financing.
• Always the choice for the latest technology.
• 100% financing.
• Conservation of capital.
• Fixed payments.
• Preserves credit.
• Flexibility.
• Purchase and renewal options.

“With this financial leasing arrangement I know exactly what my monthly repayments will be for the next ten years. Interest costs are fixed and I have no worries about price fluctuations.”

Sander Bouma, The Netherlands
A selection of our improvements for modern dairy farming

1. Lely Vector automatic feeding system.
2. Lely Juno automatic feed pusher.
3. Lely Cosmix feeder station.
4. Lely Discovery barn cleaner.
5. Lely L4C – Light for Cows.
6. Lely Treatment Box.
7. Lely Grazeway selection box.
8. Lely Calm automated calf feeder.
9. Lely Commodus cubicle.
10. Lely Walkway automatic foot-bath.
11. Lely Luna cow brush.
12. Lely Harvesting equipment.
At Lely, we know all dairy farms are different. Your farm is unique, just like you and your goals. But although modern dairy farming can be a complex business, at the end of the day, there needs to be milk in the tank.

Please take some time to think about your situation. Imagine how your farm would operate at its best. The Lely Astronaut can now be configured to your own needs to reach your goals.

What’s important for you and your farm?

Add precision to reproduction

Know your cows

Secure udder health

Increase your milk yield

Operate on feed efficiency

Support your grazing strategy

To be in control of your farm, you rely on reproduction. Get an extra set of eyes to get your cows pregnant. Add accuracy to reproduction and you will be able to see the cows in heat and inseminate them at the right moment. It will boost your conception rate and will save you lots of time.

Taking care of your most valuable possession: your cows. Healthy cows save costs, time and drive milk production. Get more control on cow health and make the right decisions with advanced sensors and easy to use information. This will secure your revenues.

Good quality milk comes from a healthy udder. Get clear insights about udder health and understand when to take action. Have bacteria eliminated and cross contamination avoided before each milking. Get a grip on your udder health and reduce your costs.

Getting the most out of your production capacity implicates optimal interaction between udder capacity, available data and hardware. And being backed up by dedicated professional farm management support. Increase your robot capacity with an extra 10-15%, optimize your herd’s production and get more milk in the tank.

Feed is one of the main expenses on a dairy farm. Therefore, feed each cow to its actual needs and operate on feed efficiency. Get the possibility to feed more advanced rations even in combination with liquid feed.

Grazing is the most natural way the cows get fed. Grazing positively impacts cow welfare and health. Get healthy happy cows out in the field while having full control of your milk production. Grazing is increasingly a social expectancy as society expects to see cows in the field.

How important is reproduction for you?

How important is cow health for you?

How important is udder control for you?

How important is more milk for you?

How important is feeding for you?

How important is grazing for you?
Passionate about farming

Lely has a long and deep history of recognizing the needs of modern farmers. Our products are developed with the cow as the starting point. We strive to let her excel and as such, we supply products to farmers and contractors ranging from forage harvesting, to feeding, housing, caring, milking and energy sourcing. In addition we boast specific knowledge and experience in helping farmers to get the best out of their equipment. As such our in-depth knowledge of the complete farm cycle – from grass to glass – is unrivalled in the agricultural business.

We are committed to a sustainable, profitable and enjoyable future in farming.