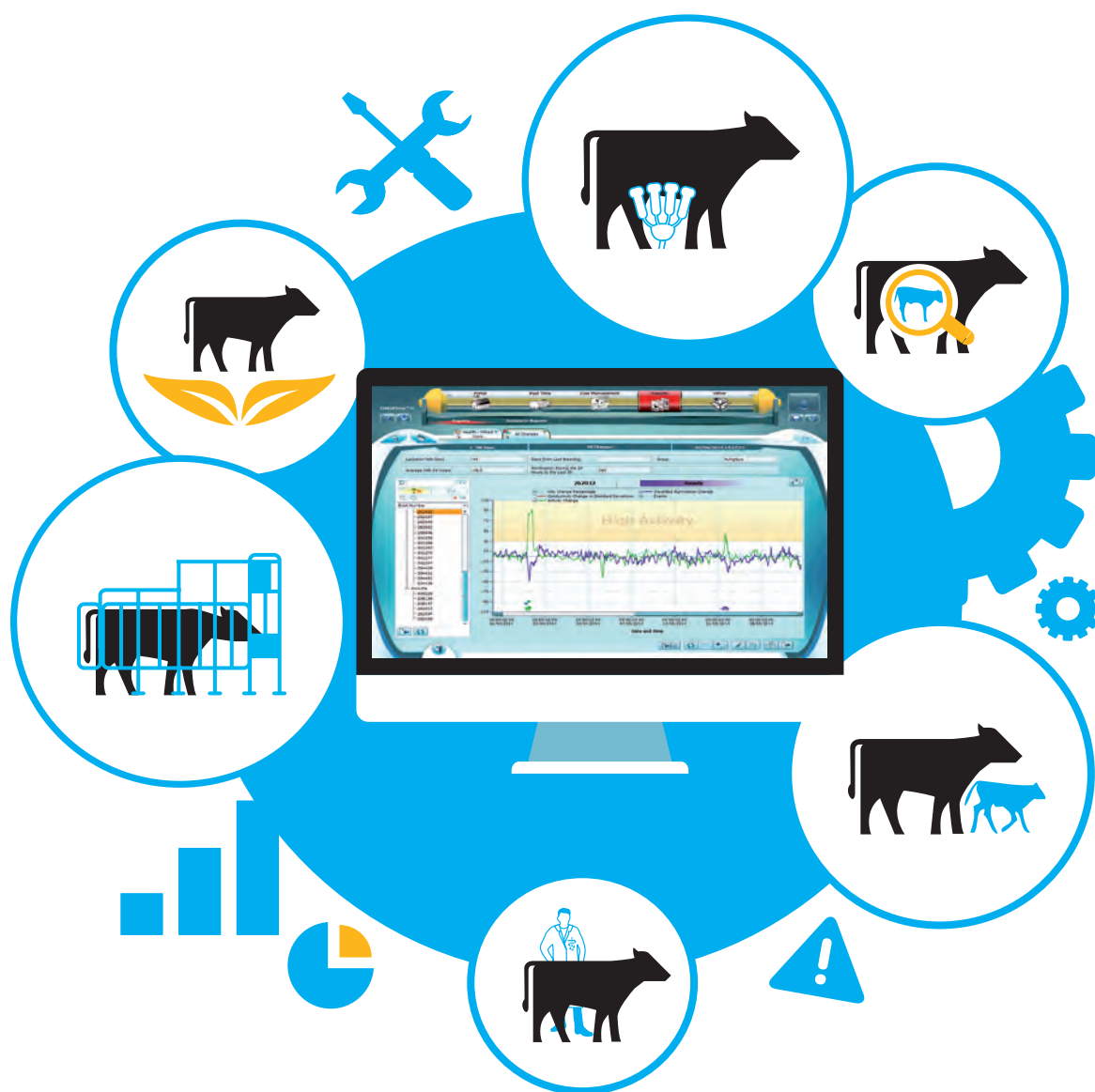


TOTAL CONTROL IN REAL-TIME

DATAFLOW™ II

BUSINESS EFFICIENCY, MAXIMUM PERFORMANCE



MILKLINE®



**EASY TO USE,
INTUITIVE AND ELEGANT INTERFACE**



**PROVIDES UPDATED INFORMATION
IN REAL-TIME**



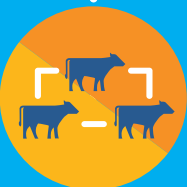
**PROCESSES AND VISUALIZES GRAPHS, TABLES
AND CUSTOMIZED ANALYSES ACCORDING TO YOUR
FARMING NEEDS**



**SENDS ALERTS IMMEDIATELY
AFTER AN EVENT OCCURS**



**COMPATIBLE WITH SOME OF THE MAIN FARMING
BUSINESS APPLICATIONS**



**FITS TO A HERD IN GROWTH AND TO ANY
CHANGES WITHIN THE FARM**



**EASY TO INSTALL, DOES NOT REQUIRE
SPECIAL MAINTENANCE**



**DATAFLOW™ II'S USER INTERFACE IS AVAILABLE
IN THE MAIN, INTERNATIONAL LANGUAGES**

DATAFLOW™ II

IS THE MOST COMPREHENSIVE
AND INTUITIVE HERD MANAGEMENT
SYSTEM CURRENTLY AVAILABLE
ON THE MARKET

DataFlow™ II is a successful tool for business management, with a clear interface.

It has been designed with an appealing layout that makes it easy to use and which provides real time monitoring and control over the milking process and the reproductive, health and nutritional status of each individual cow.

DataFlow™ II is meant to provide farmers with all the necessary data for enabling the best decision-making process (summary tables, graphs, indexes, historical data of every cow, etc.). All the information is collected from sensors placed on the collars attached to the animals. The data is then automatically transferred from each device to DataFlow™ II through a dedicated network. The system also controls other components such as milking points, feed station, scale and the sorting gate.

DataFlow™ II aims to improve the user's experience, as well as making the system – one that is already valued by millions of farmers – even more simple, pleasant and customizable, yet also immediately familiar. This is why DataFlow™ II is unique – it brings all of the above elements together.



ELEGANT AND INTUITIVE INTERFACE

Login to software DataFlow™ II and you will already know how to use it.

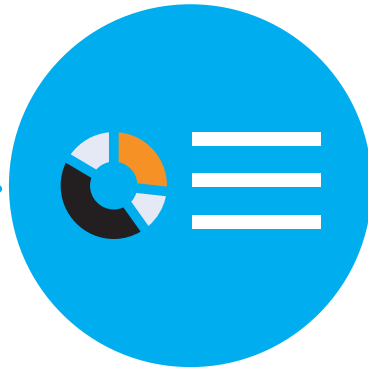
DataFlow™ II has been designed for easy use. The software home page, with its appealing layout, invites the user to discover more about the software's different functions one at a time. The software enables the user to instantly review the milking parlour, check if milking is being carried out correctly and evaluate individual and whole herd DataFlow™ II. In this way, the natural and intuitive approach to the software design is highlighted.



ALWAYS UPDATED

DataFlow™ II provides the right information at the right time.

The user can access milking performance, productivity level, as well as the reproductive, health and nutritional status of each individual cow at any time. DataFlow™ II accurately collects and analyses the data pertaining to each individual animal of the herd, 24 hours a day, seven days a week.



CUSTOMIZABLE

DataFlow™ II offers a wide scope of information for satisfying many different needs.

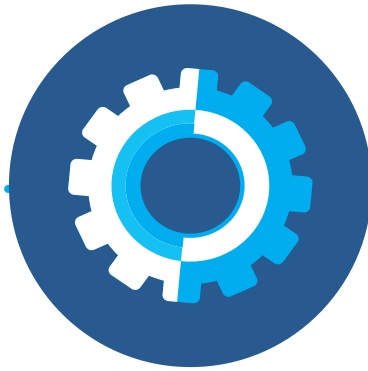
Animals in heat and that are ready to be inseminated, as well as each individual cow's health status index can be added on the software's home page. Favourite sections, graphs and tables can be selected, processed and analysed, along with all the important information as it relates to the user's particular management needs.



ALWAYS A WATCHFUL EYE

With DataFlow™ II, you can rest assured that your herd will be under control anytime, anywhere.

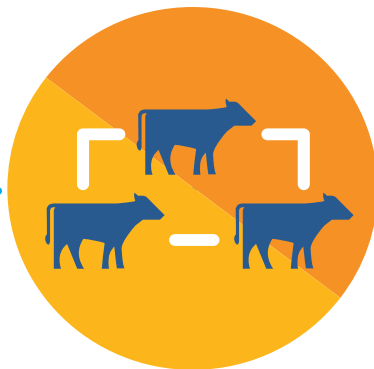
In addition to having a real-time update, DataFlow™ II provides alerts of an event that the user has entered into a report as relevant: a glance at the system and you will know if a cow is in heat, if it is ready to be inseminated or needs medical treatment. The user will receive these notices either through the flashing on the home page or directly via e-mail.



COMPATIBILITY

The DataFlow™ II system is compatible with third-party software solutions.

It is possible to connect DataFlow™ II to some of the main farming business applications; key business indicators will be entered only once and the technology at the core of DataFlow™ II will draw directly from these indicators. With DataFlow™ II, you can reduce the time and labour dedicated to business data entry, thereby reducing the likelihood of entering incorrect data and thus, improving business efficiency.



SCALABILITY

If your herd grows, DataFlow™ II will grow with it.

The DataFlow™ II system adapts to a farm that grows and therefore requires more control and monitoring of an increasing number of parameters. Thanks to its scalability, you can choose the modules that best suit your business needs without running the risk of oversizing or under-sizing the company's management system.



EASY TO INSTALL AND LONG-LASTING

Installing and maintaining DataFlow™ II is easy.

DataFlow™ II is extremely easy to install. Simply apply the sensor animal, start the software and the system will automatically install using a simple wizard. In addition, thanks to its cutting-edge technology, DataFlow™ II does not require any special maintenance.



MULTILINGUAL

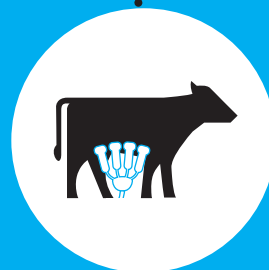
With DataFlow™ II there are no language barriers.

DataFlow™ II's user interface is available in the main, international languages (for example Arabic, Chinese, Croatian, Dutch, English, French, German, Hebrew, Indian, Italian, Japanese, Polish, Portuguese, Romanian, Russian, Slovakian, Spanish, Turkish) and the user can easily move from one language to another in real-time during navigation.

WITH DATAFLOW™ II YOU CAN KEEP ALL DATA RELATED TO THE HERD CONSTANTLY UNDER CONTROL

MILKING:

INDIVIDUAL MILKING POINT CONTROL AND MONITORING OF MILKING PROCESSES AND EFFICIENCY IN REAL-TIME.



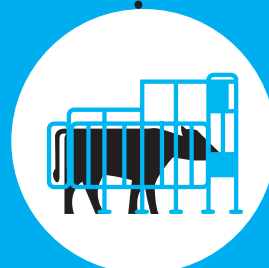
HEALTH:

EARLY DETECTION OF HEALTH PROBLEMS FOR EACH INDIVIDUAL ANIMAL THROUGH CONTINUOUS RECORDING OF RUMINATION IN MINUTES.



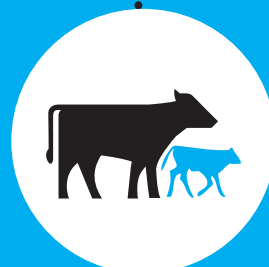
FEEDING:

SUPPORT FOR DEVELOPING THE BEST FEEDING STRATEGY FOR EACH INDIVIDUAL ANIMAL AND EXACT INDICATIONS ON RATION EFFECTIVENESS OR ALIMENTATION CHANGES.



REPRODUCTION:

PRECISE HEAT DETECTION AND OPTIMIZATION OF CONCEPTION RATES THROUGH MOVEMENT AND MOVEMENT INTENSITY MEASUREMENTS.



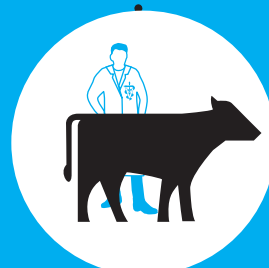
CALVING DIFFICULTY/ POST-PARTUM DISORDERS:

WARNING FOR POTENTIAL CALVING DIFFICULTIES AND POSSIBLE POST-PARTUM HEALTH PROBLEMS.



VETERINARY:

VETERINARY DIAGNOSTIC ACTIVITIES AND CHECKS MADE EASIER THROUGH SPECIFIC REPORTS.





MILKING

By controlling and monitoring the process and efficiency of milking in real-time, **DataFlow™ II** provides the necessary information for maximizing milk production and herd productivity. The system enables a global overview of milking by monitoring each milking point. It indicates the milking status of each individual cow and a range of additional useful information, such as the cow number, milk production and whether the cow needs to be monitored. Possible problems related to the cows – low production or health issues (for example, significant differences in milk conductivity, blood in milk, or kicking), or other conditions such as heat – are immediately signalled during milking.





HEALTH

The decrease of daily milk production could be an early sign of health problems. However, in most cases, a drop in milk production may indicate a problem that had originated several days before.

RUMINATION IS AN EARLIER AND MORE RELIABLE INDICATOR OF A COW'S WELL-BEING AND HEALTH: A DROP IN RUMINATION IS A FIRST WARNING SIGN OF DISEASE; MILK PRODUCTION WILL USUALLY RETURN TO NORMAL FOLLOWING EFFECTIVE VETERINARY TREATMENT.

EARLY DETECTION OF HEALTH PROBLEMS

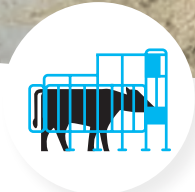
DataFlow™ II, with its connected devices, is able to monitor cows 24 hours a day and record rumination minutes. It is through the real-time monitoring of rumination that possible health problems can be detected and cured early on, thereby avoiding a negative impact on the level of milk production.

DataFlow™ II provides constant control and monitoring of the health status of individual cows and the herd as a whole, and if appropriate, reports health issues to allow for early intervention.

UDDER HEALTH

One of the major factors affecting milk yield is the onset of mastitis, an acute inflammation of the mammary gland. Mastitis is one of the most common diseases in dairy farms and one of the major causes of economic losses among them. Milkline provides a scientific and safe system for preventing mastitis in the form of MilproP4C, a control unit connected to the milking parlour that is able to work separately on individual udder quarters. This system prevents the risks of overmilking by discontinuing milking at the right time. It can also detect the onset of mastitis before it affects the health of the animal. The MilproP4C system is able to interact seamlessly with the **DataFlow™ II** software. **With DataFlow™ II, possible mastitis cases spotted by the MilproP4c unit can be monitored in real time, detected and cured. Moreover, cows with mastitis can be monitored to prevent the disease from spreading within the rest of the herd.**

The MilproP4C control unit, together with DataFlow™ II, simplifies control activities, improves the health and production capacity of animals and lowers business costs.



FEEDING

Nutrition affects the health, fertility and production of the cow. It has been demonstrated that an incorrect daily feeding programme, especially before and after calving, is a key factor of infertility in dairy cows. Lower milk yields may also be determined by an insufficient intake of certain nutrients or an inadequate diet. Nutritionists have long since considered the mastication of the bolus as a key aspect for the health monitoring of dairy cows; drops in rumination time can be caused by the incorrect administration of the feed ratio.

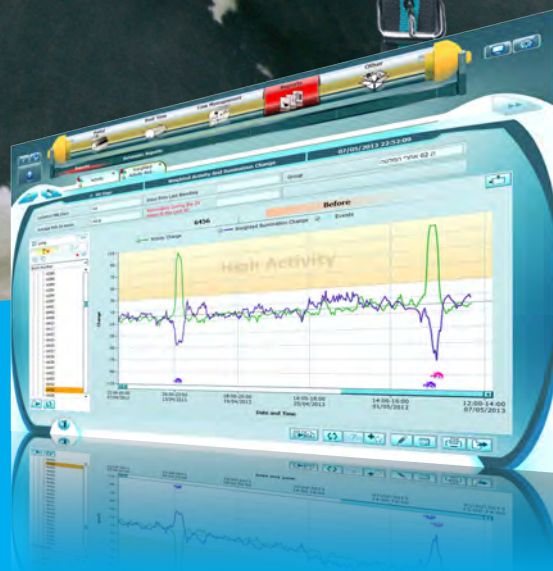
Managing cow feeding is therefore, despite being a difficult task, one that is crucial for all farmers. **The DataFlow™ II system provides valuable support in determining the most suitable feeding strategy for your herd. It provides all the necessary information for determining a feeding ratio that is able to maximize milk yield, ensure the animal's well-being and reduce feed and labour costs.**

EARLY DETECTION OF NUTRITIONAL DISORDERS

Rumination is a fundamental step in the cow digestive process. **DataFlow™ II**, through rumination monitoring, is able to detect cows that exhibit changes in rumination activity. It provides exact timing information about the effectiveness of the feed ratio, as well as data related to nutritional changes and intervenes before milk production starts to decrease.

THE CORRECT DIET

DataFlow™ II determines the correct diet for each individual cow. The system is also able to determine for each animal the amount and type of feed according to lactation stage, group and milk yield produced. This not only reduces feed costs – one of the most important expenditure items for dairy farms – but also results in higher milk production with consequent optimization of profit margins.



REPRODUCTION

Most of the heats occur during evening/night hours and only lasts for a short time. Visual heat-detection observation of cows is not entirely reliable, because it is based on individual ability and experience. It is also incomplete, because it is impossible to conduct an observation for 24 hours. This is one of the major factors for the need to reduce heat detection rate (HDR) in dairy farms.

Automatic heat detection reduces the daily time dedicated to heat-detection, improves conception rate, reduces insemination costs and improves intercalving interval. It is also possible to reduce the number of days open, increase the herd and improve the genetics of the herd, thereby increasing milk production during the dairy cow's production cycle.

Monitoring cows' activity and rumination may provide further insight into heat-detection. Since studies have demonstrated that all cows show a drop in rumination when in heat (Reith and Hoy 2012 J. Dairy Sci. 95:1-5), a cow's heat may be further confirmed through individual rumination monitoring.

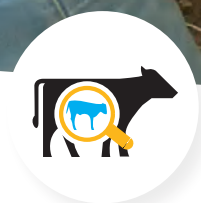
DataFlow™ II is extremely accurate in terms of indicating the optimal time for insemination and simplifies the individual cow detection activity. This increases conception rates, reduces insemination costs and the interval between one calving and the next. By reducing the calving-conception interval, farms are able to optimize milk production and maximize yield.

HEAT DETECTION RATE

DataFlow™ II is able to collect all the data necessary for determining the animal with exceptional precision when it comes into heat. The software is also able to provide an indication for the optimum time for insemination of the cow, thereby increasing the chances of success and ensuring a reduction in the number of days open, followed by optimization of the lactation curve and milk production.

CONCEPTION RATE

Once the cow on heat is detected, the system immediately provides a notification of this in order to proceed with artificial insemination. Conception rate is affected by many factors, such as the cow's health, the season, some pathologies, the ability of the technician in carrying out the insemination, lactation and milk production. DataFlow™ II monitors the effectiveness of artificial insemination interventions and provides useful information for optimizing the reproduction programme and cutting costs.



DIFFICULT CALVING/ POST-PARTUM DISORDERS



Predicting calving difficulty is fundamental not only for the health of the new-born calves and their mothers, but also to safeguard lactation and to prevent the loss of the productive potential of a future dairy cow. **DataFlow™ II is able to provide notifications for difficult calving through real-time monitoring of rumination.** As stated in some studies, it is in the period near calving that a significant drop of rumination occurs (Schirmann et al., 2013 Joint Annual Meeting (JAM) USA).

DataFlow™ II also provides pro-active management of the herd. The system provides notifications for possible cow-related health problems (ketosis, metritis, mastitis, abomasal dislocation, etc.) before they become pathologies. Early detection allows for timely intervention, shortening the recovery period and limiting any negative impact on productivity performance.



VETERINARY CHECK



DataFlow™ II allows for the use of a portal dedicated to veterinary service with specific graphs and tables (insemination, fertility summary, conception rate, heat-detection rate, pregnancy rate, suspected abortion, etc.). The portal can be customized to create a veterinary check packet; the veterinarian can insert the routine weekly or monthly checks to be carried out within the herd. The system automatically detects the group of animals matching the set parameters and sends notifications concerning these animals. The veterinarian can also create specific reports for each intervention, to be referred to when needed. **DataFlow™ II renders diagnosis/veterinary check activities easier and provides an updated representation of each animal's health and of treatments carried out.** The system reduces the veterinary technician's time/labour, thereby reducing the costs invested in veterinary service.



SOLUTION TO THE IDENTIFICATION AND MONITORING OF ANIMALS

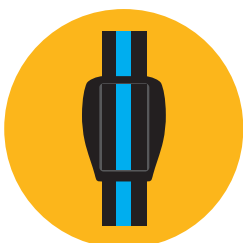
DATAFLOW™ II SENSORS COLLECT ALL INFORMATION TO BE MONITORED AND CONTROLLED FROM THE COLLAR WORN BY ANIMALS AND AUTOMATICALLY TRANSFER IT TO THE SOFTWARE THROUGH A DEDICATED NETWORK.

Each animal has a collar composed of a complete belt, tag and weight. The collar above the tag must be placed on the top left of the neck of the cow. Data tags are sent to a long-range wireless antenna, which in turn transmits the data to the software several time during each hour, so that the information in the system is always updated, regardless of where the animal is. The antenna is also capable of transmitting data to the tag and triggering the updating of the tags; in future, the antenna might also be used for other advanced features.

THE TAGS ARE PRODUCED IN TWO DIFFERENT MODELS: THE **H LD-TAG** FOR THE DETECTION OF CALORI ONLY AND THE **HR LD-TAG**, WHICH MONITORS REPRODUCTIVE HEALTH.



The **H LD-TAG** constantly monitors movement and movement intensity. Through the registration of 24 hours of data, it can provide extreme precision in the detection of heats.



The **HR LD-TAG** is able to constantly monitor rumination, as well as adjust motor activity and the intensity of movement. Through the registration of 24 hours of data, it can provide the monitoring of health status and extreme precision in the identification of oestrus.



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