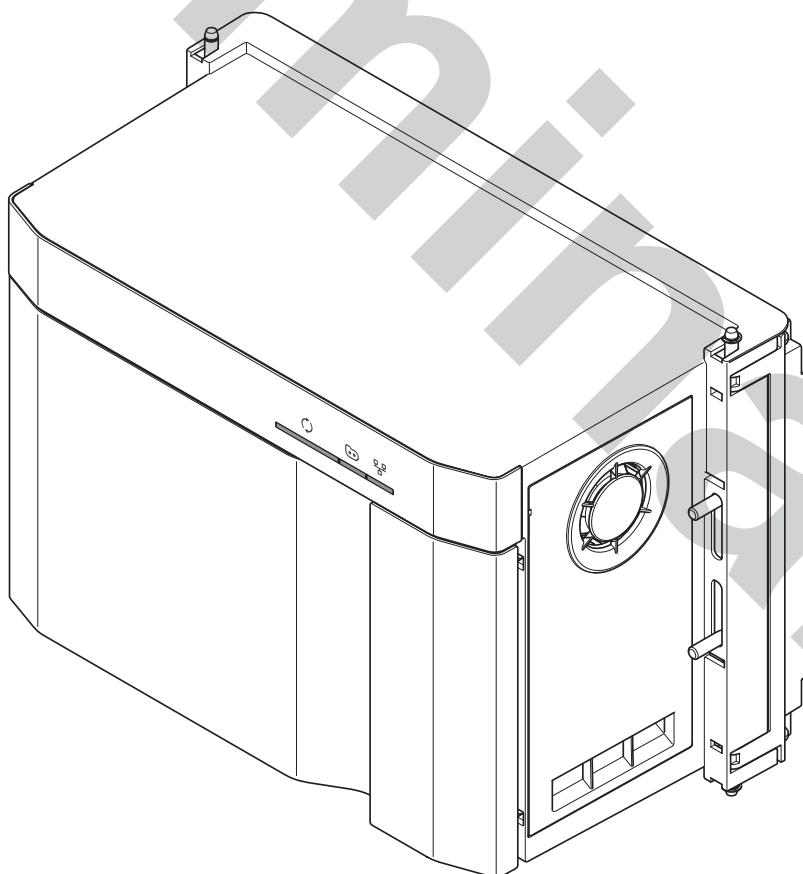


DeLaval Herd Navigator™ precision analytics 100 Instruction Book



Preliminary

DeLaval Herd Navigator™ precision analytics 100

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DeLaval Herd Navigator™ precision analytics 100

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EU Declaration of Conformity

Name of product:

DeLaval Herd Navigator™ precision analytics 100

Type/model:

HN100

Report No.

D0000092398

The product complies with requirements of the following directives:

Radio equipment directive RED 2014/53/EU

Restriction of the use of certain hazardous substances (RoHS) - 2011/65/EU

Harmonized standards which have been used or parts thereof:

EN 300 330 V2.1.0

EN 301 489-1 V2.2.0

EN 301 489-3 V2.1.1

EN 50581

Other technical standards and specifications used:

EN 61000-6-2: 2005 +AC:2005

EN 61000-6-3:2007

EN 61010-1:2010

EN 61010-2-081:2015

Fulfils RoHS by design and purchase control

This declaration of conformity is issued under the sole responsibility of the manufacturer.

Tumba 2019-09-23

Signed:



Name: Magnus Berg
Position: Executive Vice President
Department: Product Management & Development

Person authorised to compile the technical file:

Product Manager
P.O. Box 39
SE 147 21 TUMBA
Sweden

Name and address of manufacturer:

DeLaval International AB
P.O. Box 39
SE 147 21 TUMBA
Sweden

Safety precautions

DeLaval Herd Navigator™ precision analytics 100

1 Foreword

The safety and operating instructions must be observed by any person involved with the use or operation of this equipment.

Under no circumstances must the equipment be used if it is damaged or if the operation of the equipment is not completely understood.

2 Disclaimer

The information, instructions and parts listed are applicable and current on the date when issued. DeLaval reserves the right to make changes without notice.

3 Precautionary statements

Precautionary statements are safety-related warning messages intended to prevent the incorrect or hazardous use of equipment, machinery or software.

The following list defines the different types of precautionary statements used in DeLaval documentation:

Danger: Refers to an imminent and severe risk. Failure to comply with the instruction will result in serious injury or death.

Warning: Refers to a potential but severe risk. Failure to comply with the instruction may result in injury or death.

Caution: Refers to a limited risk. Failure to comply with the instruction may result in minor injury.

Mandatory: Refers to an action or behaviour that is essential to a safe and proper use of the equipment.

Prohibited: Refers to an action or behaviour that is incompatible with a safe and proper use of the equipment.

Note! Indicates important information related to a situation or behaviour where a non-immediate or potential hazard presents a risk of damage to property or equipment.

⚠ This symbol indicates risk of injury.

⚠ This symbol indicates risk of electric shock.

Refer to ISO 7010 for other symbol definitions.

4 Safety regulations

4.1 Safety regulations - General



Warning!

Intended use

Do not use the equipment for any other purposes than the intended use.



Warning!

Risk of injury!

The system must only be operated by trained personnel. Make sure that children and unauthorised people do not come into contact with the system.



Mandatory!

Read the instructions carefully before using the equipment. Contact the local DeLaval dealer if there are parts of these instructions that are not understood. Compliance with the instructions ensures a correct and safe use of the equipment. Save the instructions for future reference.



Prohibited!

Do not use inadequate parts or consumables.

Using products which do not meet specified requirements, for example spare parts or consumables, or not appropriately trained personnel for the DeLaval product may lead to risks or damage. Consequently it may also void or limit the warranty.



Caution!

Falling hazard

Ensure that the ladder is properly secured when working at a considerable height.



Warning!

Do not use spray cans containing insecticides around the milking station. This will damage the parts that are made of plastic such as the tubes for compressed-air.

5 Safe and healthy work routines

- The system requires a daily inspection to make sure it works correctly. The inspection is performed by the Farm Surveillance Monitor (FSM) application, installed on the PC of the farm. The customer should respond to messages from the FSM.
- Reproduction events (calvings, inseminations, pregnancy checks, dry-offs, etc.) must be reported daily in the herd management software.
- Use only DeLaval Herd Navigator™ 100 cassettes and diluent containers.
- To prevent malfunction, never load damaged cassettes into the device.
- Always contact a local service technician if the system stops working.

- Only authorised DeLaval service technicians can repair the system. To prevent injury and damage to the system, nothing should be repaired by the operator.
- Do not place anything on top of the Herd Navigator 100 device.

6 Consumables

- Consumables must be stored according to the instructions issued. Incorrect storage or handling may ruin them.
- Keep the cassettes in a refrigerator.
- Consumables must be handled free from dirt during maintenance.
- Make sure the outer surfaces of the equipment are clean when loading consumables. Dirt and feed residues may attract insects and bacteria.

7 Compliance with national regulations

7.1 Compliance Statement

This equipment was tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.

DeLaval Herd Navigator™ precision analytics 100

Safety precautions

- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note! Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

7.2 ISED Compliance Statement

This device contains license-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Developments Canada's License-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Note! Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

8 Type plate

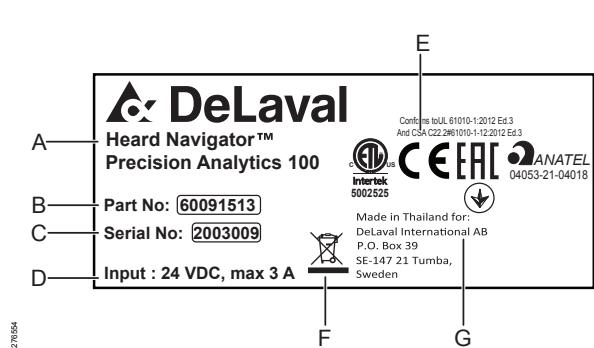


Fig. 1: The Herd Navigator 100 type plate.

A	Product name
B	Part number
C	Serial number
D	Input: voltage, maximum current
E	CE marking
F	Crossed-out wheeled bin with a horizontal bar, see Chapter 2 "Disposal of waste electrical and electronic equipment" on page 39 .
G	Manufacturer's address

9 Warranty

Note! DeLaval will not take any responsibility for damage resulting from faulty installation, operation, or for improper or inadequate care and maintenance.

Note! DeLaval will not take any responsibility for any damage resulting from frost. The owner/user must take the necessary measurements to prevent the ambient temperature around the equipment from dropping to or below the freezing point.

Note! Modification may create risks not covered by the original construction. Do not make any modifications which have not been approved by DeLaval.

Note! Be aware that teat sealants used on dry cows therapy can clog the system. Make sure to use the manufacturing instructions to remove it completely from the teats.

General description

DeLaval Herd Navigator™ precision analytics 100

1 Introduction

Herd Navigator 100 is an advanced automatic analysis system designed for VMS V300, placed on the inside of the blue door of the VMS cabinet. It measures the progesterone level for each cow with relevant time intervals, which supports the reproduction management at the farm.

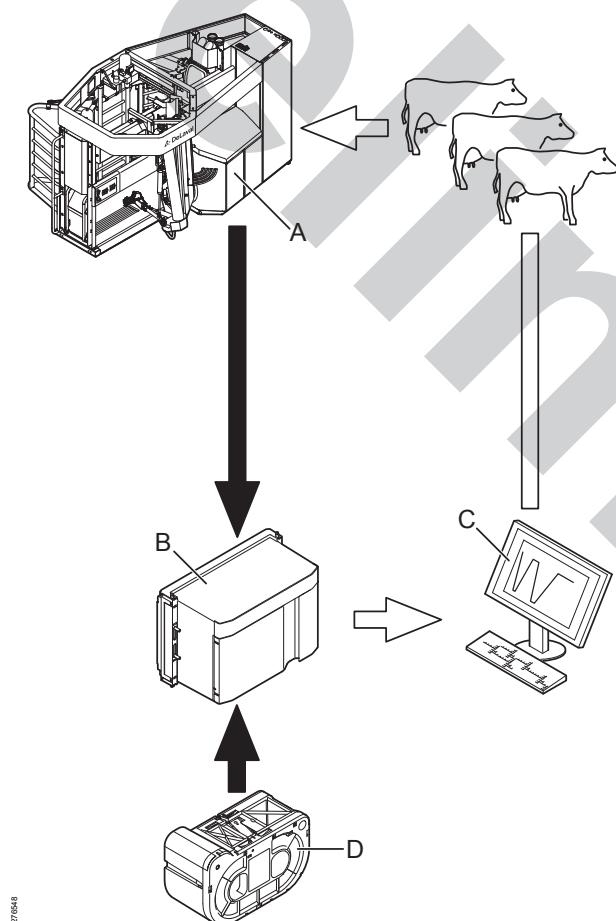


Fig. 2: Herd Navigator 100 system overview.

- A: VMS system
- B: Herd Navigator 100
- C: Biomodel and DelPro Farm Manager
- D: Cassette

1.1 Herd Navigator 100 system workflow

The Herd Navigator 100 system controls sampling, transport, analysis, and data processing of milk samples during milking.

DeLaval Herd Navigator™ precision analytics 100

General description

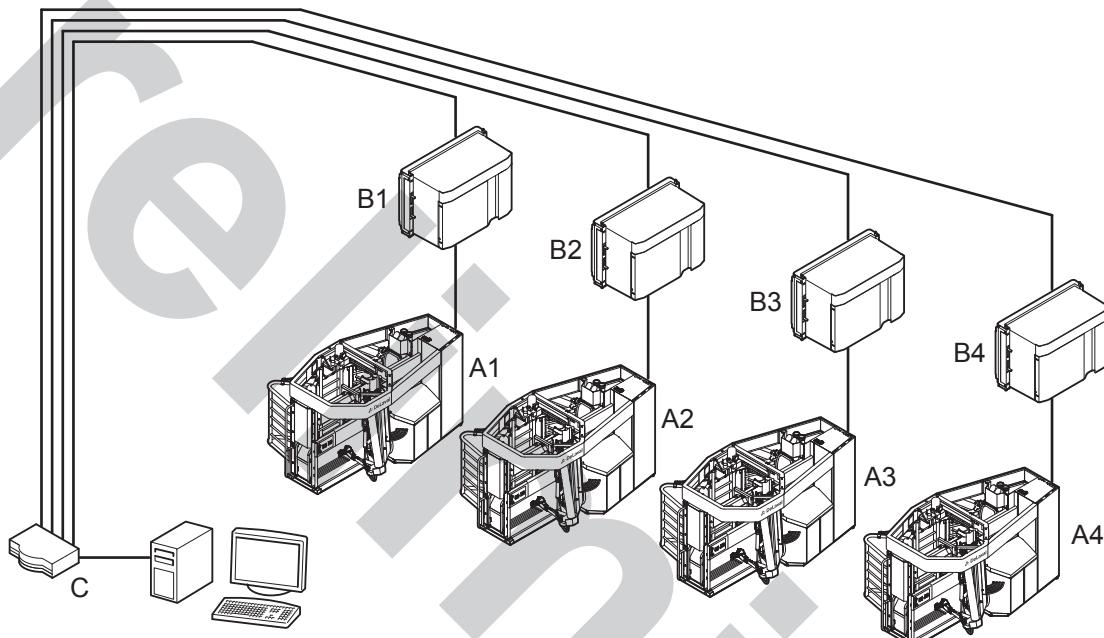


Fig. 3: The Herd Navigator 100 system workflow.

Herd Navigator 100 system workflow and main connections:

1. The biomodel (C) sends a sampling order to the Herd Navigator 100 unit (B).
2. When a cow is identified, the cow ID is sent immediately to Herd Navigator 100. If the cow ID matches the sampling order, a milk sample is taken in Herd Navigator 100. Consequently, milk sampling takes place after milking.
3. When the sampling of a cow is completed, a representative sample of milk is transported from VMS (A) to Herd Navigator 100.
4. The results of the analysis are sent from the Herd Navigator 100 to the biomodel software to be processed. The results are shown in the DelPro Farm Manager as data in tables, graphs, and reports, along with suggested actions (standard operating procedures, SOPs).

DeLaval Herd Navigator™ precision analytics 100

General description

2 Main parts of the Herd Navigator 100 system

2.1 Herd Navigator 100

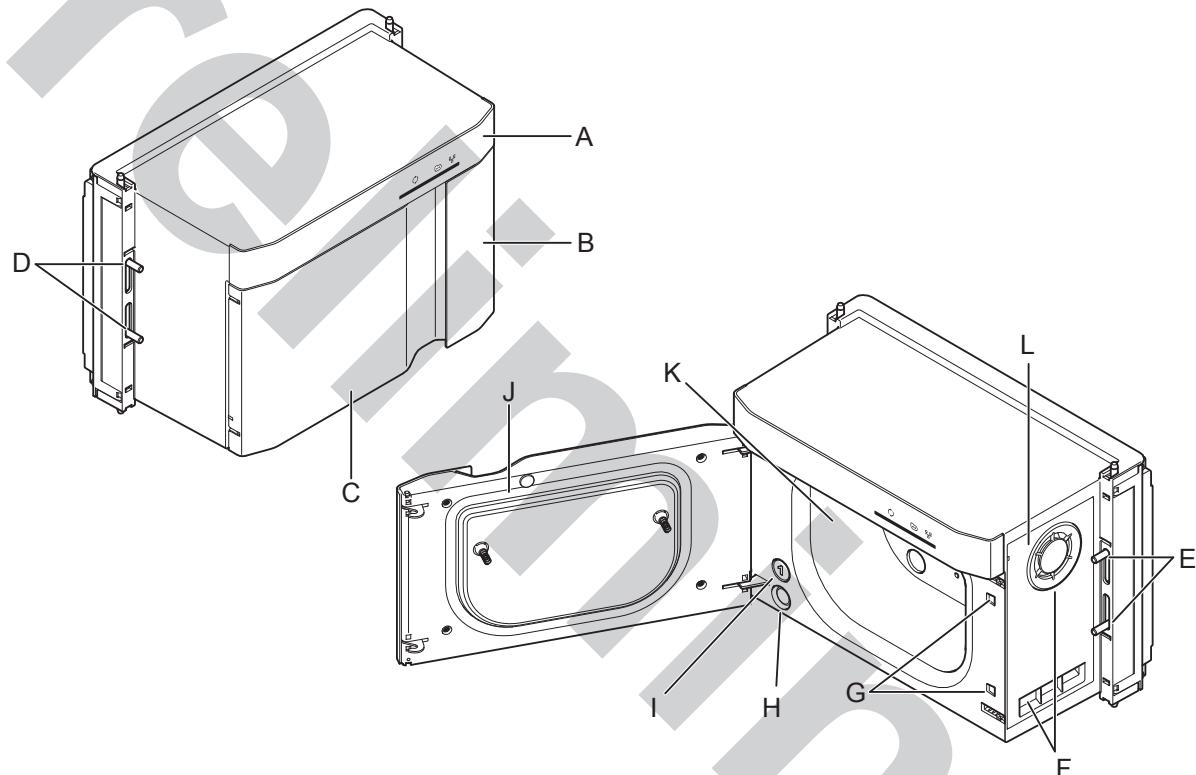


Fig. 4: The main parts of Herd Navigator 100.

- A: Status display
- B: Door handle
- C: Door
- D: Left side sliding latches
- E: Right side sliding latches
- F: Cooling vents

- G: Side panel service release
- H: Main switch
- I: Identification number
- J: Door seal
- K: Cassette compartment
- L: Side panel

DeLaval Herd Navigator™ precision analytics 100

General description

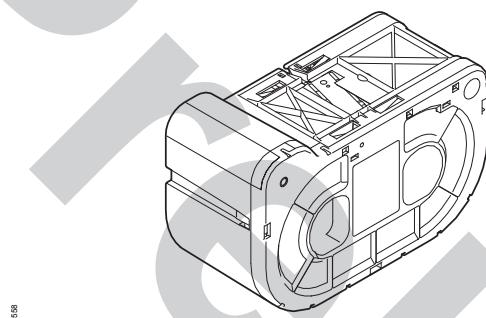


Fig. 5: Herd Navigator 100 cassette.

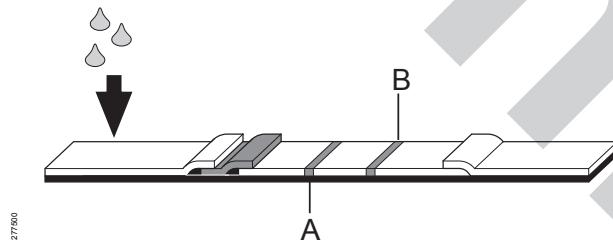


Fig. 6: Herd Navigator 100 stick.

2.2 Cassettes

The Herd Navigator 100 cassette contains 400 dry sticks which are the analytical elements intended for the measurement of progesterone. The daily use is about 15-20 sticks. The consumption depends on specific farm conditions, such as the number of cows per VMS and the number of pregnant cows.

The stick shows two lines after the incubation time. The first line (A) shows the progesterone level in the milk. The more intense the line is, the higher the progesterone concentration. The second line (B) shows if a sufficient amount of liquid has been applied on the stick.

2.3 Refrigerator for cassettes

A refrigerator is needed for storage of the Herd Navigator 100 cassettes. The refrigerator requires 30 litres of storage per Herd Navigator 100 unit.

DeLaval Herd Navigator™ precision analytics 100

General description

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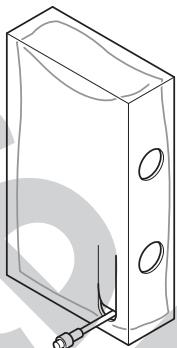


Fig. 7: Herd Navigator 100 diluent box.

2.4 Diluent box

The Herd Navigator 100 diluent box contains the liquid diluent solution used during analysis. It is mixed with milk to perform the progesterone analysis, but also to rinse and clean the dosage module and mixing chamber.

Note! To prevent that milk sucks into the diluent and contaminate the diluent, it is important to disconnect the diluent connector in case the flow module is removed. Contaminated diluent will destroy the function of the diluent and the sampling results will be inaccurate.

2.5 Technical data

Herd Navigator 100

Weight	10.5 kg
Length	580 mm
Height	370 mm
Width	400 mm
Operating temperature	0-45 °C (32-113 °F)
Power connection permanently from VMS V300 power supply (class II)	24 VDC, max 3.7 A, max 88 W, 50/60 Hz
Ethernet connection	50 m

Cassette

Weight	0.85 kg
Measurements	254 x 119 x 173 mm

Diluent box

Weight	1.550 kg
Measurements	220 x 58 x 148 mm
Volume	1500 ml

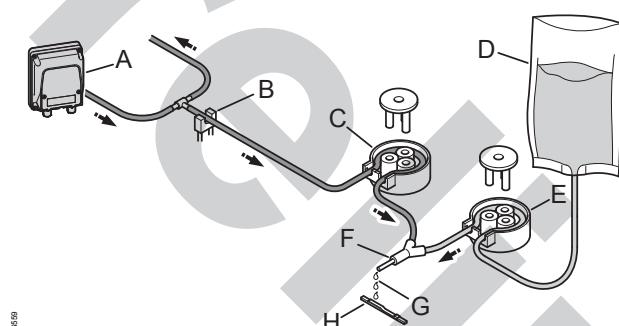


Fig. 8: The sampling workflow for Herd Navigator 100.

- A: SSO pump
- B: Optical Fluid sensor
- C: Peristaltic Milk Pump
- D: Diluent
- E: Peristaltic Diluent Pump
- F: Mixing Chamber
- G: Needle
- H: Stick

3 Herd Navigator 100 sampling workflow

The Herd Navigator 100 sampling routine is performed in the VMS when the cows are milked.

1. Herd Navigator 100 receives milk from the VMS controller via the single sample outtake pump (SSO) (A).
2. The peristaltic milk pump (C) uses the new milk to clean the tube from milk residues from the previous sample and saves milk for the new analysis. The needle (G) is in the drain position and the first milk goes to the drain.
3. The peristaltic diluent pump (E) runs at the same time as the peristaltic milk pump (C). The speed of the pumps is set by a mixing ratio.
4. The mixing chamber (F) mix milk and diluent (D).
5. The pumps stop, and needle (G) and stick (H) move to the dose position.
6. The pumps start again and a dosage of 45 microliters of mixed milk and diluent is applied to the stick (H).
7. A chemical reaction takes place in the stick (H) and it is coloured.
8. The incubation time (around 5.5 min) begins.
9. The stick (H) moves to the optical reader which scans the intensity of the stick colour. The measurement of the progesterone concentration is then transferred to the biomodel software.
10. The peristaltic milk pump (C) runs to empty the tubes from residues and sends it to the drain (the needle is in drain position).
11. The biomodel processes the analysis results and communicates them to the Del-Pro farm manager.

Cleaning

The Herd Navigator 100 is cleaned in the ordinary VMS cleaning/rinse. During cleaning, the needle is in the drain position throughout the whole process.

4 Proactive farm management via the Herd Navigator 100 system

Traditionally, farm management is based on here-and-now actions from observations made in the herd, together with information from the farm management system and other data sources.

By analysing progesterone, Herd Navigator 100 creates alarms for heats, pregnancies, abortions and reproduction disorders.

The Herd Navigator 100 biomodel tells the system when different cows need to be sampled.

4.1 Biomodel

The Herd Navigator 100 biomodel:

- Tells the system when different cows need to be sampled.
- Processes the results from the milk sample analysis.
- Updates the state of each cow, whenever a new measurement result is received.
- Self-learns, which means that estimations and predictions of the state of individual cows improve each time the cow is measured.
- Sets heat alarms, along with an estimate of the quality of the heat.
- Adjusts the reproduction status from anoestrus, to cyclic and then to potentially pregnant depending on progesterone measurements.
- After insemination, confirms pregnancy and checks for possible abortions.
- Issues warnings of abortions.
- Issues risks for prolonged anoestrus, follicular cysts, and luteal cysts.

Note! To get proper results, it is very important to continuously update the cow calendar in Del-Pro Farm Manager software. Reproduction events, latest calvings, inseminations and pregnancy checks need to be registered in the system daily.

4.2 Distribution of cows in the herd

The system is developed for all year calving and not for strict seasonal calving.

General description

At any point in time, there must be at least 5% of samples with low progesterone level (< 5 ng/mL) and 25% of samples with high progesterone level (approximately 20 ng/mL) within the last 48 hours to get the Auto Correction Model (ACM) working.

Requirements:

- Each Herd Navigator 100 unit in a system has a distribution of cows in different reproduction stages.
It means that at least 5% of the cows should be in heat and 25% of the cows should be either pregnant or in the luteal phase of the heat cycle.
- To secure the required distribution of cows with low and high progesterone measurements, the minimum herd size for one Herd Navigator 100 system is 30 annual cows.

4.3 Progesterone level during the heat cycle

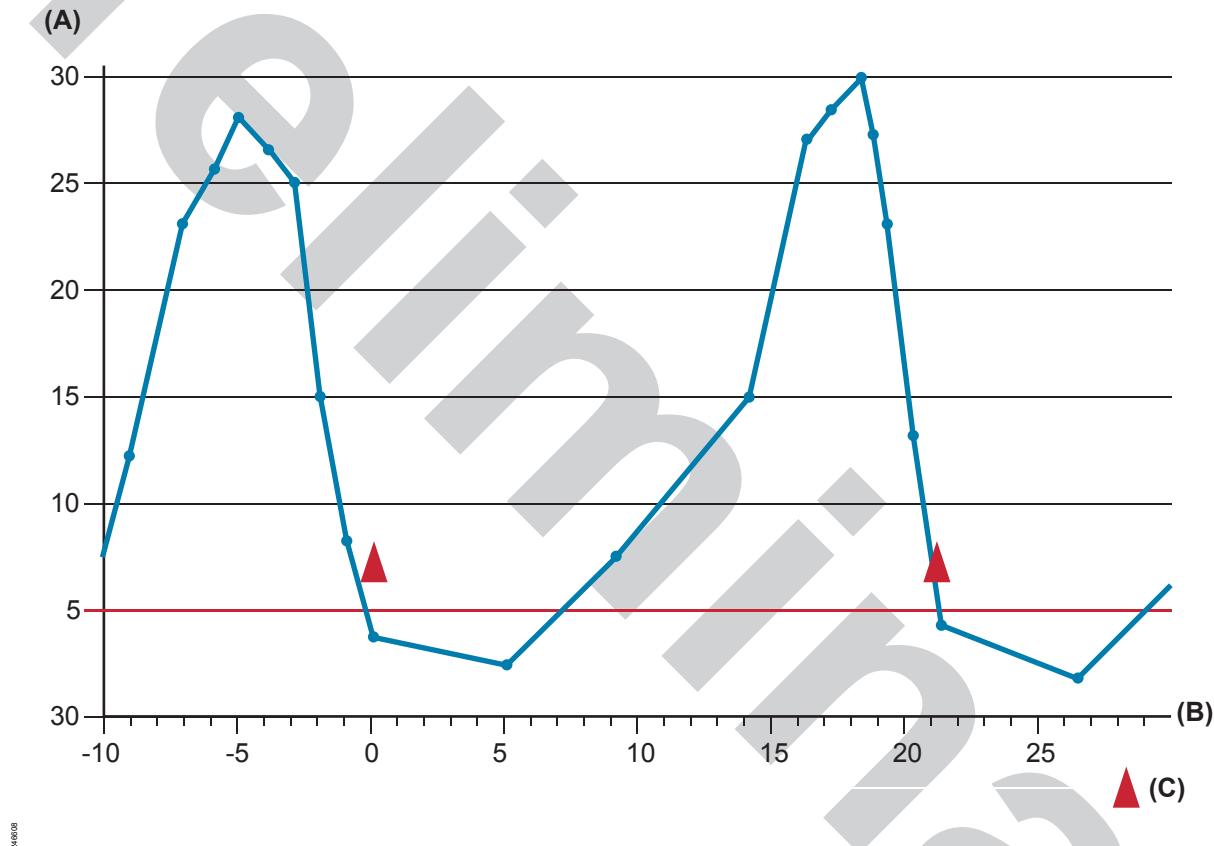


Fig. 9: Progesterone level during the heat cycle.

- A: Progesterone (ng/ml)
- B: Days from the first heat
- C: Heat alarm

Progesterone is a reproductive hormone produced by the ovaries and possible to detect in milk. The concentration of progesterone increases and decreases according to a cyclic pattern. By taking repeated samples from a cow during the lactation, it is possible to detect heat, pregnancy and fertility problems like prolonged post-partum anoestrus, follicular cyst, and luteal cyst.

The progesterone level in blood and milk always drops before a cow goes into heat. Consequently, a heat alarm is triggered when the progesterone level falls below a certain threshold (5 ng/ml). This indicates that the cow will be in heat

General description

for the next few hours and can be inseminated accordingly. The general recommendation is to inseminate the cow 36 to 48 hours after the alarm, but this time interval may vary depending on local farm conditions.

4.4 Progesterone level during a pregnancy

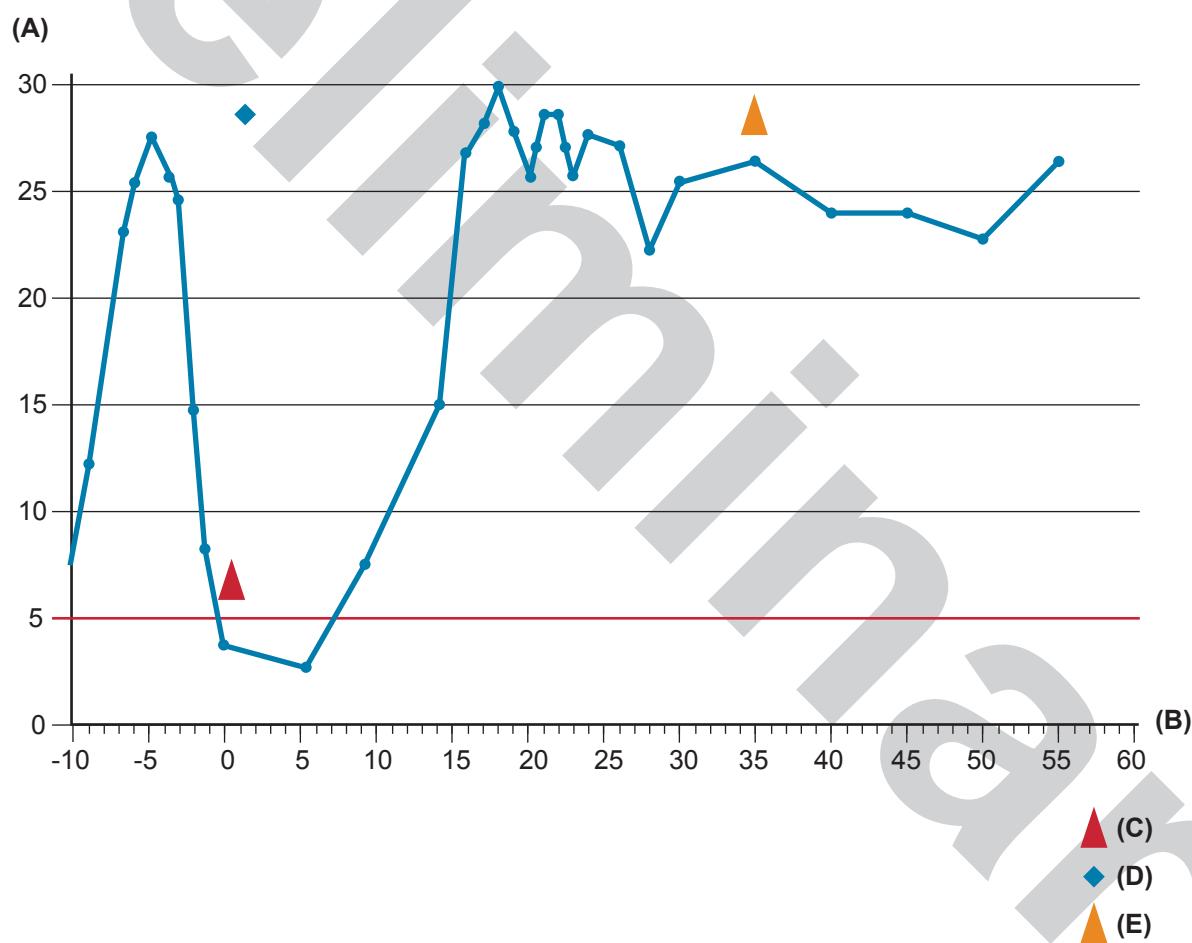


Fig. 10: Progesterone level during a pregnancy.

- A: Progesterone (ng/ml)
- B: Days from the previous heat
- C: Heat alarm

- D: Insemination
- E: Pregnancy

During pregnancy, the progesterone level should rise and remain high.

General description

4.5 Progesterone level after an abortion

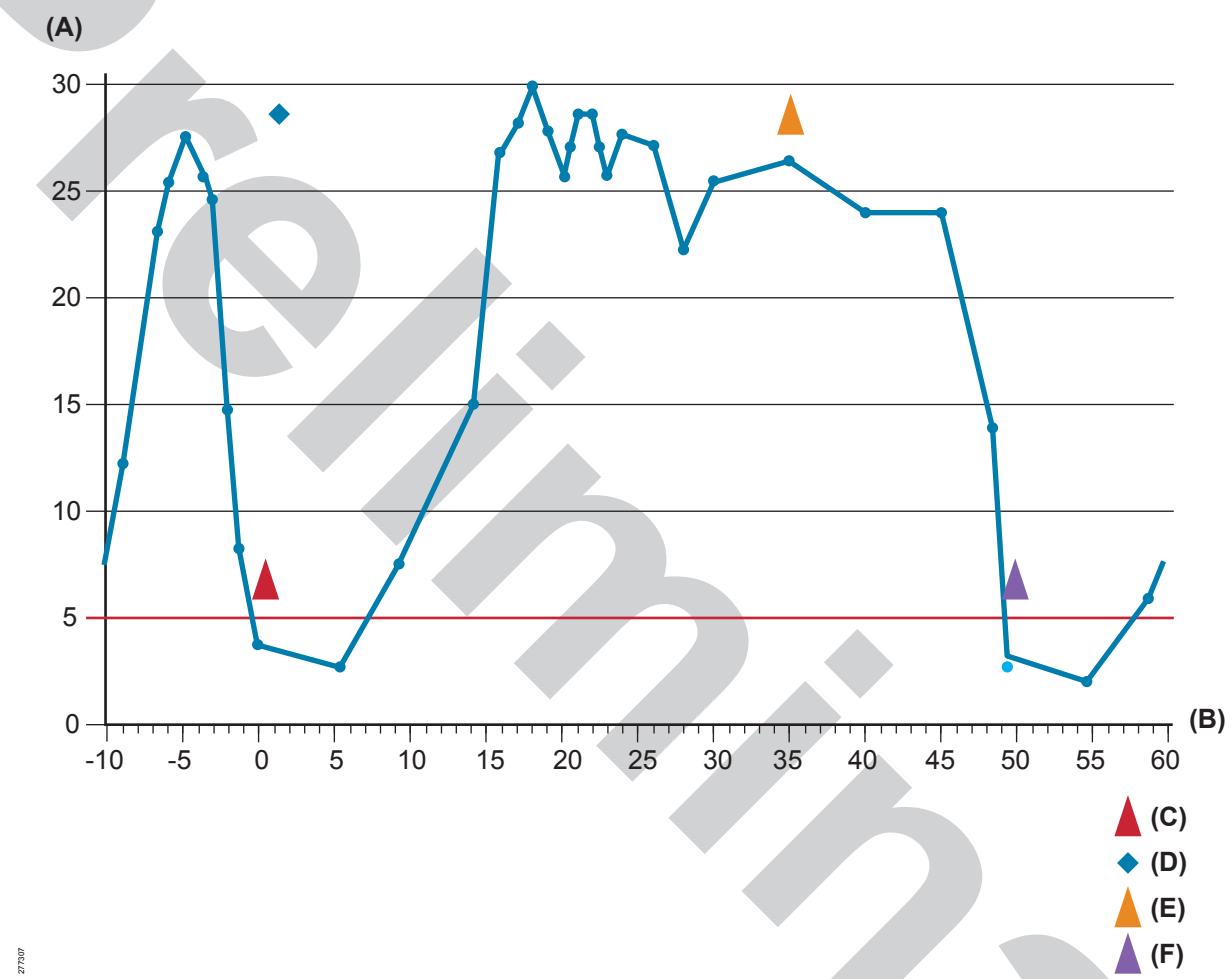


Fig. 11: Progesterone level after an abortion.

- A: Progesterone (ng/ml)
- B: Days from the previous heat
- C: Heat alarm

- D: Insemination
- E: Pregnancy
- F: Abortion

After an abortion, the progesterone level drops and the cow gets back to the cyclic stage.

4.6 Progesterone and prolonged postpartum anoestrus

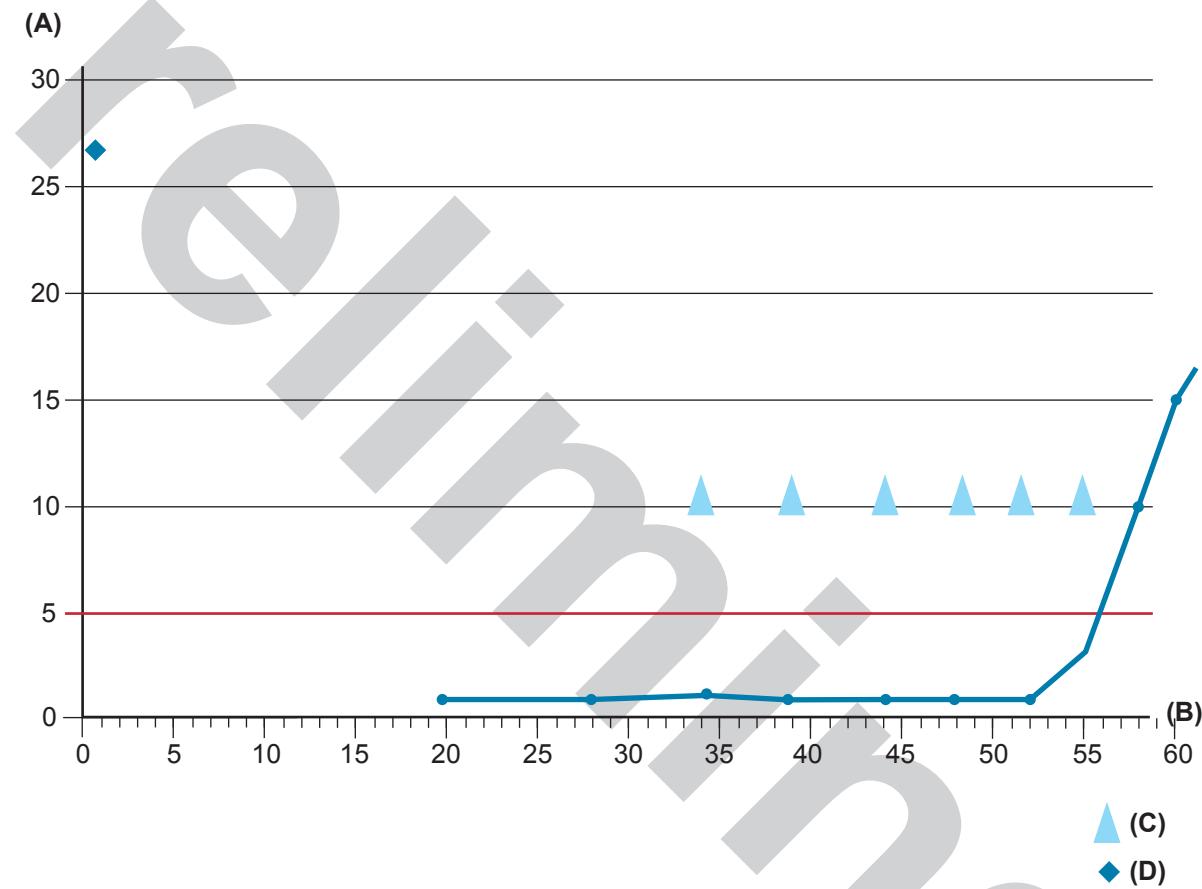


Fig. 12: Progesterone level during a prolonged post partum anoestrus (PPA).

A: Progesterone (ng/ml)
B: Days in milk (DIM)

C: PPA alarm (prolonged post partum anoestrus)
D: Calving

Prolonged anoestrus after calving (postpartum) is a problem seen on cows that cannot mobilize sufficient amounts of energy for milk production. This cannot be considered as a disease but is rather a symptom of suboptimal management and nutrition, or pathological problems, such as uterine and ovarian diseases. This prevents the resumption of ovarian activity after calving. As a consequence, the progesterone level remains low.

4.7 Progesterone and follicular cysts

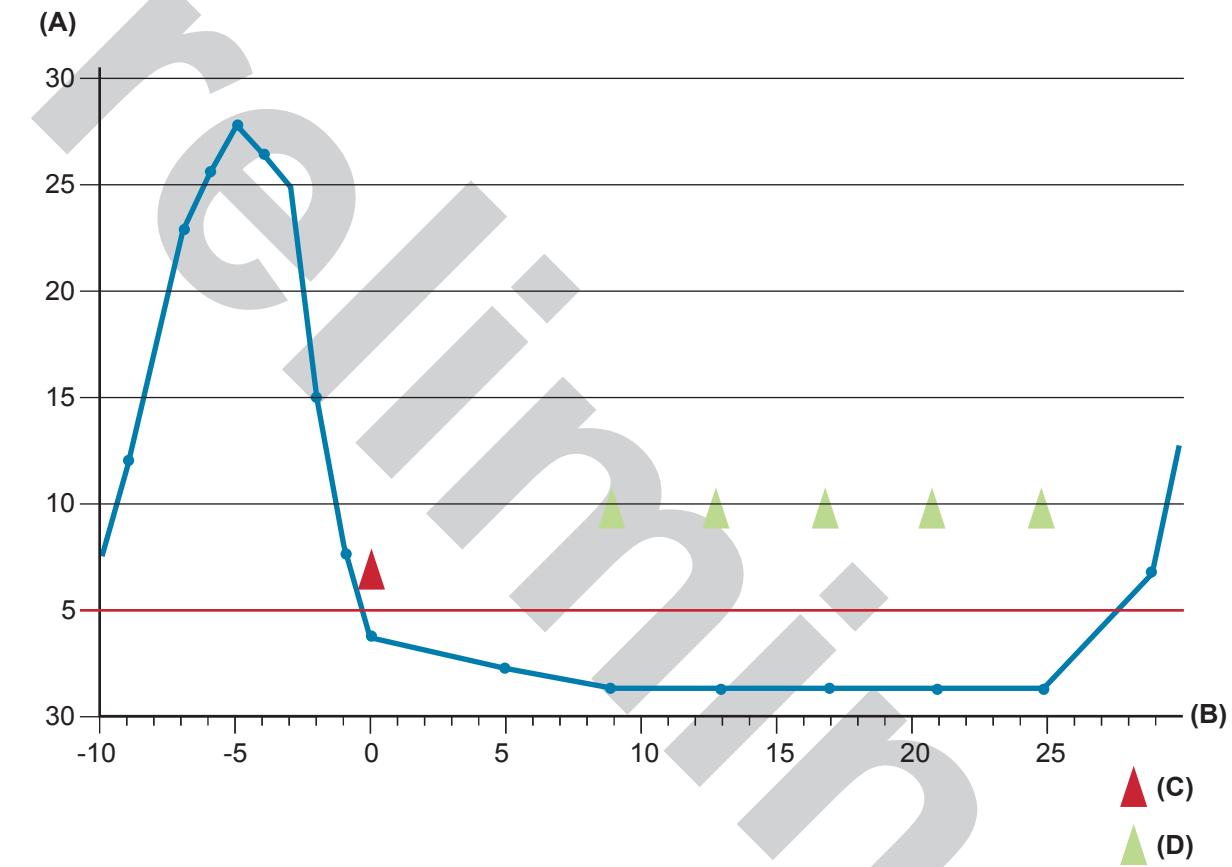


Fig. 13: Progesterone level during a follicular cyst.

A: Progesterone (ng/ml)
B: Days from previous heat

C: Heat alarm
D: Follicular cyst alarm

Follicular cysts are a common reproductive disorder in dairy cows. Typical clinical signs are prolonged and intermittent oestrus behaviour. It occurs when large ovarian follicles fail to ovulate. As a consequence, progesterone levels will not rise as expected.

4.8 Progesterone and luteal cysts

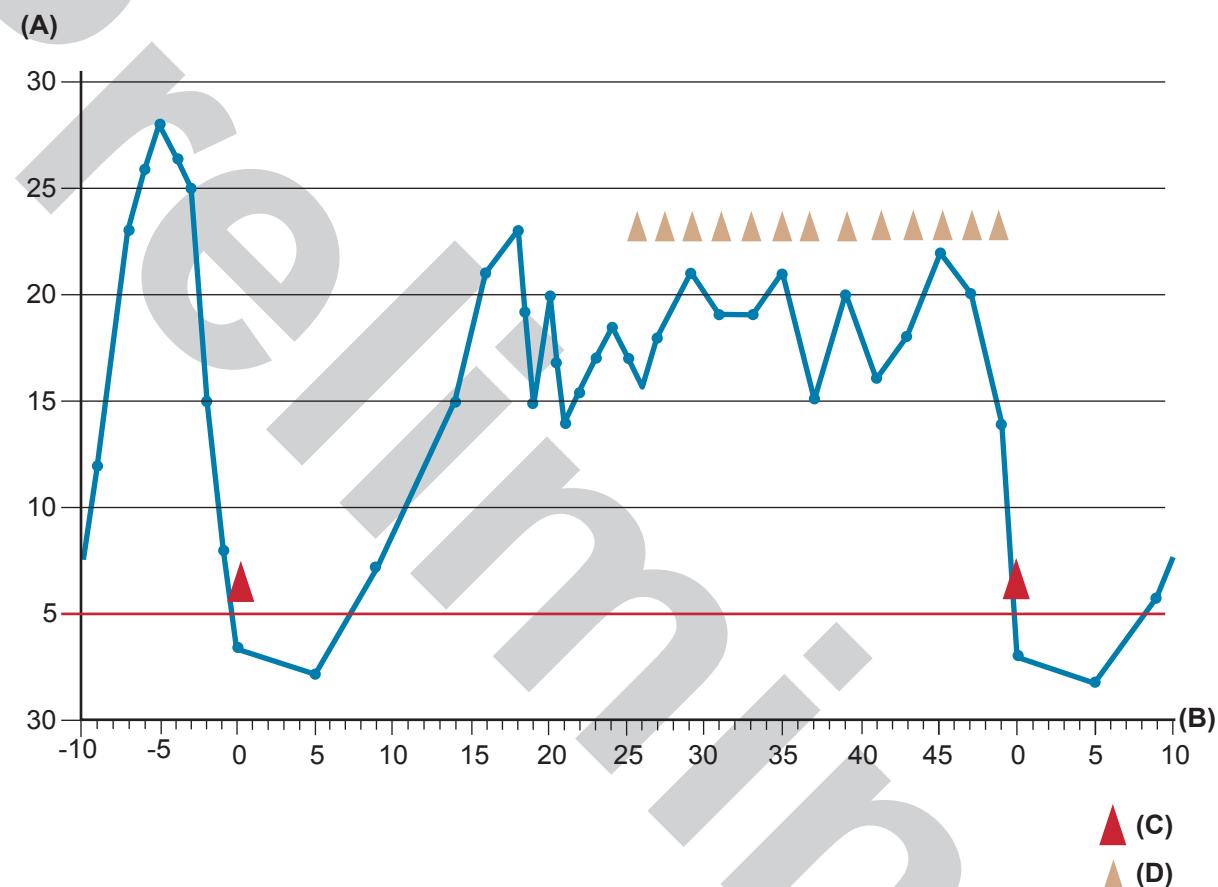


Fig. 14: Progesterone level during a luteal cyst.

A: Progesterone (ng/ml)
B: Days from heat

C: Heat alarm
D: Luteal cyst alarm

In some cows, the corpus luteum (yellow body) fails to regress towards the end of an oestrus cycle. The result will be a continuous production of progesterone and thus preventing the cow to get in heat.

This condition is usually associated with uterine infections, including pyometra, in the early post-partum period.

4.9 Milk sampling frequency

By default, the milk sampling frequency is set according to biological knowledge, but it also tries to minimise the consumption of consumables. In other words, the default settings analyses as little as necessary without compromising the validity of the diagnosis.

The biomodel initiates a more frequent sampling of a cow if the system suspects that the cow is in an abnormal condition or approaching to an expected heat.

4.10 Milk sampling periods

Progesterone is sampled 30 days before the end of the voluntary waiting period (VWP) to 55 days after successful insemination or the end of the sampling window.

In the case of early abortion, Herd Navigator 100 starts measuring again.

4.11 Standard Operation Procedures (SOPs)

Standard Operation Procedures (SOPs) are created in the DelPro farm manager and propose a standardized way to handle cows according to certain criteria.

The SOP criteria are possible to change so that they suit different herds. It is also possible to create new SOPs.

Note! It is strongly recommended to only create new SOPs or edit existing SOPs together with a Herd Navigator 100 advisor.

Operation

DeLaval Herd Navigator™ precision analytics 100

1 Status of Herd Navigator 100

The technical status of the Herd Navigator system is monitored in the Farm Surveillance Monitor (FSM) application, installed on the PC of the farm.

This information is also indicated on the Herd Navigator 100 unit, which has three status display icons, each with a status light underneath. The icons provide information on operation status, cassette status, and connection status.

DeLaval Herd Navigator™ precision analytics 100

Operation

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The status icons provide information about whether the Herd Navigator is running or if any problems have occurred.

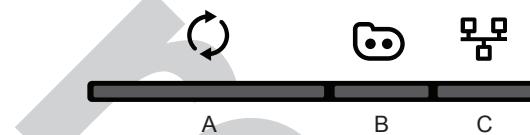
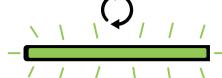
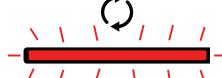


Fig. 15: Status display.

A: Operation status
B: Cassette status
C: Connection status

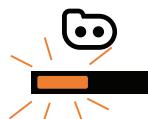
Status display icon descriptions

Operation status	Cassette status	Connection status
No operation in progress:  	Initialising cassette:  	No power: 
Operation in progress:  <ul style="list-style-type: none">Wait for the operation to finish before opening the door	Cassette is loaded:  	Connected to network: 
Not operational:  <ul style="list-style-type: none">Open and close the doorContact a service technician if the error remains	Change cassette soon:  	No network connection: <ul style="list-style-type: none">Contact a service technician if the symbol remains after one hour

» Continue next page

DeLaval Herd Navigator™ precision analytics 100

Operation

Operation status	Cassette status	Connection status
	Change cassette immediately: 	
	Cassette is empty:  ■ Replace the cassette ■ Contact a service technician if the error remains	

Operator's maintenance

DeLaval Herd Navigator™ precision analytics 100

1 Risks during maintenance



Caution! Falling hazard

Ensure that the ladder is properly secured when working at a considerable height.

2 Maintenance schedule

No	Operator's maintenance task	Frequency	Max. interval	Replacement parts or kits
1	Replacing the cassette	-	Monthly	<input checked="" type="checkbox"/> 2150020979
2	Replacing the diluent box	-	-	<input checked="" type="checkbox"/> 2150010268
3	Fat sampling procedure with an SSO pump and Herd Navigator 100	-	Monthly	

Frequency	-
Max. interval	Monthly
Estimated time:	-
Service type:	Replace

No 1 Replacing the cassette

Replacement parts or kits:

- Art No: 2150020979

DeLaval Herd Navigator™ precision analytics 100

Operator's maintenance

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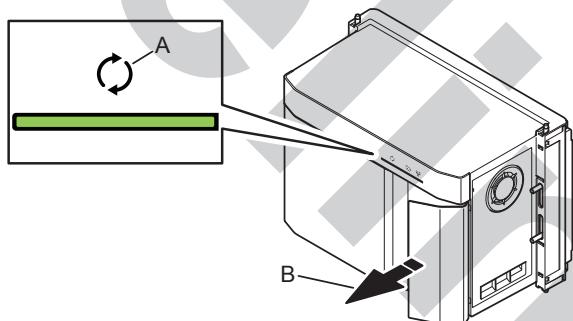


Fig. 16: Checking the operation status before maintenance.

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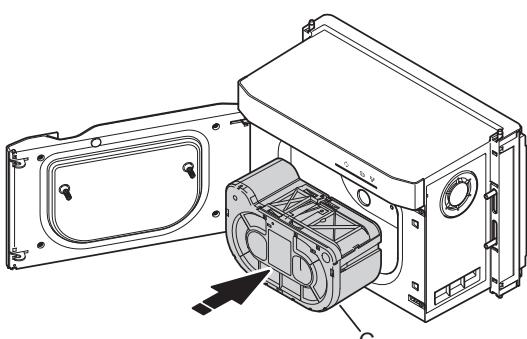


Fig. 17: Replacing the cassette.

The main maintenance task for the operator is to replace the cassette. The cassette needs to be replaced every month under normal conditions and expires after ten weeks.

It is important to replace it with a new one as soon as possible, to not interrupt the sampling. Otherwise, there is a risk that the accuracy and the timing of the diagnosis will be affected.

1. Check that the operation cycle status is off (no process is running) (A).
2. Open the front panel by pulling the door handle outwards (B).
3. Grab the cassette in the centre holes and pull it out gently.
4. Check that the empty cassette area is clean and free from particles, dirt, liquids, or liquid residues.
5. Wipe off the camera lens. Lens is placed on top off the cassette room.
Screen wipes Optical Reader, 20 pieces (2150022821).
 - 5.1 Wipe the lens with the wet screen wiper.
 - 5.2 Wipe the lens with the dry screen wiper.
6. Unpack the new cassette (C) and push it gently into the empty cassette area.

DeLaval Herd Navigator™ precision analytics 100

Operator's maintenance

27862

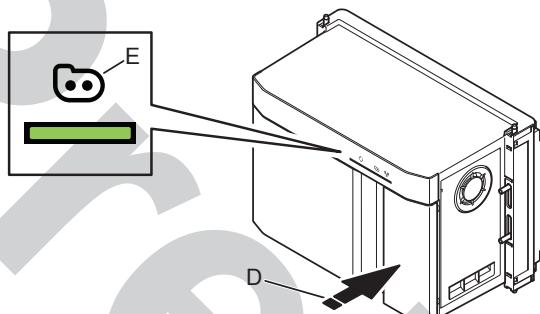


Fig. 18: Closing of the front panel.

Frequency	-
Max. interval	-
Estimated time:	-
Service type:	Replace

7. Close the front panel and push the handle into the locked position (D). The closed door automatically places the cassette in the operational position.
8. After about 30 seconds, the green light under the cassette status icon indicates that the new cassette is operational (E).

No 2 Replacing the diluent box

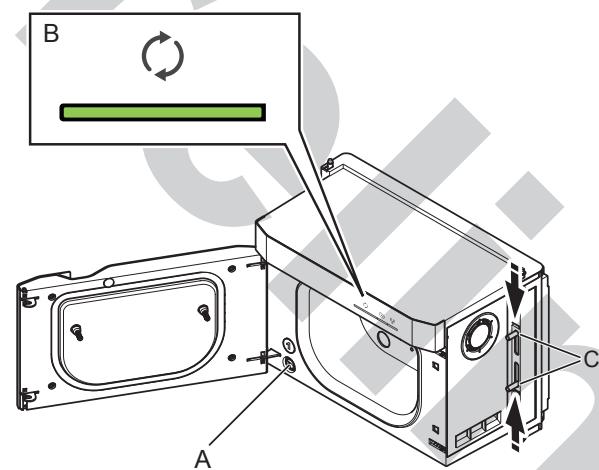
Replacement parts or kits:

- Art No: 2150010268

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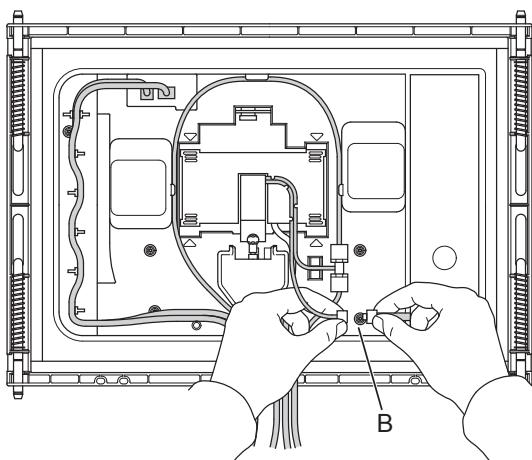
Service technicians normally replace the diluent box every 8 months. New diluent containers are supplied with the cassettes, and there should be a stock of diluent containers and cassettes on the farm. If the diluent runs out before the next service, replace the diluent yourself.



270971

Fig. 19: Turning off the main switch (A).

1. Turn off the main switch behind the front door (A).
2. Press the two latches on the side of the Herd Navigator 100 module fully together (C) to open up the backside of the module.



270980

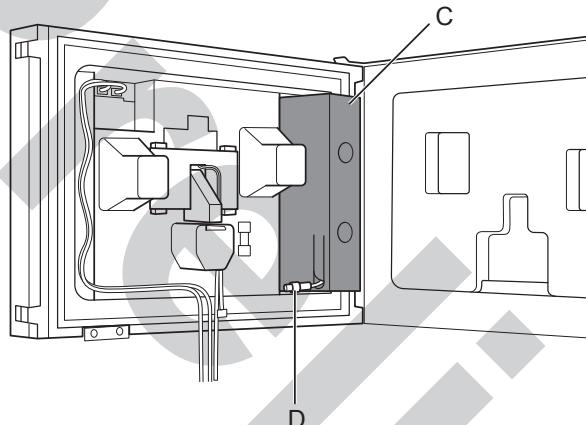
Fig. 20: Disconnecting the diluent connector.

3. Disconnect the diluent connection (B) by turning it counterclockwise to remove the consumed diluent box.

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4. Open the side of the new diluent box to retrieve the diluent connector (D).



270731

Fig. 21: Placement of the diluent box.

270731

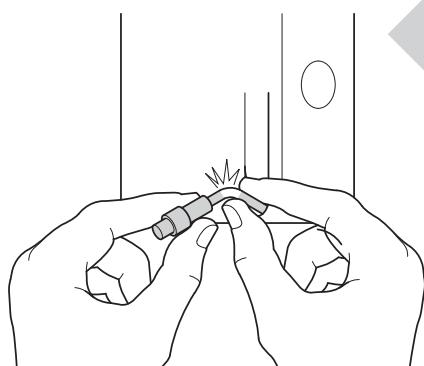


Fig. 22: Breaking the diluent sealing.

5. Break the diluent sealing by bending the tube more than 90° until liquid floats around the connector.
6. Slide the diluent box (C) into the slot.
7. Connect the diluent connector (D) to the flow module diluent connector by twisting the two parts together in a clockwise motion, see (B) in Fig. 20. This automatically opens the valve in the diluent connector.

Note! To prevent that milk sucks into the diluent and contaminate the diluent, it is important to disconnect the diluent connector in case the flow module is removed. Contaminated diluent will destroy the function of the diluent and the sampling results will be inaccurate.

Frequency	-
Max. interval	Monthly
Estimated time:	-
Service type:	Verify

No 3 Fat sampling procedure with an SSO pump and Herd Navigator 100

DeLaval Herd Navigator™ precision analytics 100

Operator's maintenance



Fig. 23: Selecting the VMS.



Fig. 24: Manual (closed stall) mode.

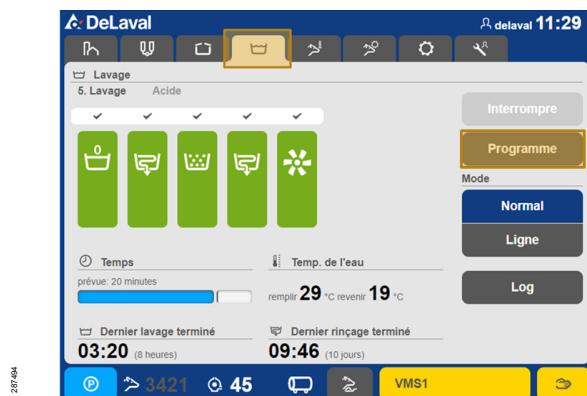


Fig. 25: Cleaning tab.

Make sure there are no animals inside the VMS before starting the procedure.

Rinsing the VMS (duration approximately 10 minutes)

1. On the touch screen tap "VMS" in the lower right corner of the main screen.

2. Tap the refresh button in the lower right corner and then the "Manual (closed stall)" mode.

3. Tap the cleaning tab in the upper menu. Then tap the "Program" button.

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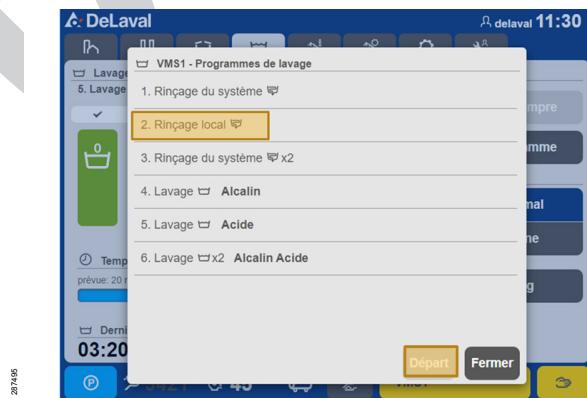


Fig. 26: Local rinse.

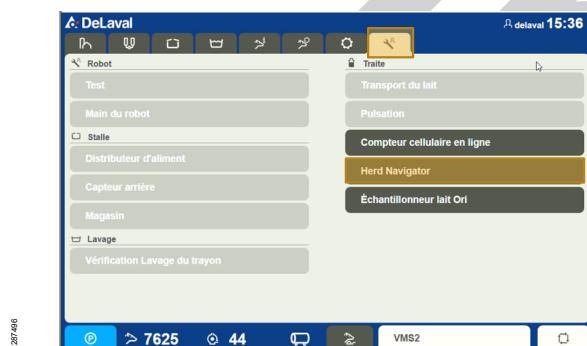


Fig. 27: Maintenance tab.

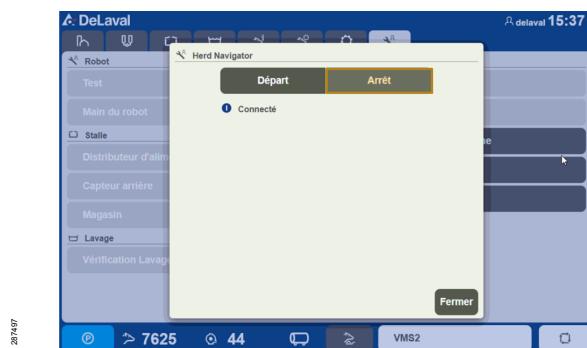


Fig. 28: Stop button.

4. Tap "Local rinse" and then "Start".
5. Wait until the end of the rinse cycle (when all icons in the washing tab turn green). The process takes approximately 10 minutes.

Deactivating the Herd Navigator 100 sampling

6. **Note!** For VMS BL8.2.9 and higher go directly to step 8 on page 37. Herd Navigator 100 unit stops/starts automatically when the ORI sampler/DeLaval fat sampler is started/stopped.

In the "Maintenance" tab tap "Herd Navigator".

7. Stop the Herd Navigator 100 with the "Stop" button.
 - 7.1 If the OCC is installed, deactivate the OCC.
8. Disconnect the milk tube between the SSO pump and the Herd Navigator 100 module.
9. Connect the fat sampler to the SSO pump.

DeLaval Herd Navigator™ precision analytics 100

Operator's maintenance

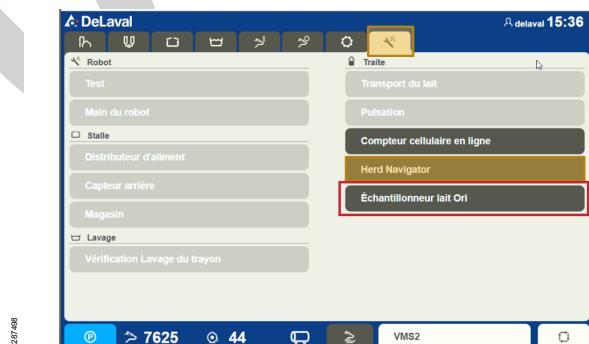


Fig. 29



Fig. 30: Auto mode.

10. On the touch screen activate DeLaval fat sampler or the ORI sampler.

11. Switch the VMS into Auto mode.

12. Perform the fat sampling procedure.

Activating Herd Navigator 100 sampling

13. After the fat sampling procedure, go back to the VMS touch screen and stop DeLaval fat sampler or ORI sampler.

14. Disconnect the fat sampler.

15. Connect the milk tube between the SSO pump and the Herd Navigator 100.

16. On the VMS touch screen activate the Herd Navigator.

Note! For VMS BL8.2.9 and higher the Herd Navigator 100 unit stops/starts automatically when the ORI sampler/DeLaval fat sampler is started/stopped.

Disposal

DeLaval Herd Navigator™ precision analytics 100

1 Disposal and recycling information

When the product reaches the end of life, dispose it properly according to local laws and regulations.

1.1 Disposal of packaging material

(Packaging EU Directive 94/62/EC)



This symbol indicates that the product's packaging material can be recycled.

2 Disposal of waste electrical and electronic equipment

(European WEEE Directive 2012/19/EU)



The symbol of a crossed-out wheeled bin with a horizontal bar beneath should be affixed on all electrical and electronic products. This symbol indicates that when the product have reached the end of life, it must not be disposed of with municipal waste.

It is the customer's responsibility to dispose of the waste equipment by handing it over to an authorised collection point for the recycling of waste electrical and electronic equipment. In most Member States, consumers may also return waste equipment to the retailer upon purchase of an equivalent new product.

To prevent possible harm to human health or the environment from uncontrolled waste disposal, separate these items from other types of waste and recycle them responsibly, to promote the sustainable reuse of material resources.

Contact your local authority for details of the nearest designated collection point.

Note! This symbol is only valid in the European Union. If you wish to discard this product, contact your local authorities or dealer and ask for the correct method of disposal.

3 Disposal of consumables



Used consumables can be disposed of with household waste.

3.1 Disassemble the cassette

1. Remove the top lid of the cassette by inserting a flat screwdriver or scissor into the marked holes and push the shaft downwards.

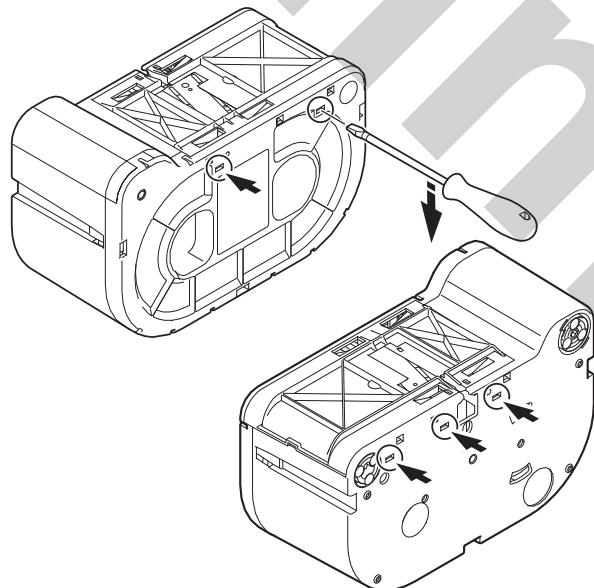


Fig. 31: Removing the top lid of the cassette.

2. Remove the front lid of the cassette by inserting a flat screwdriver or scissor into the marked holes and push the shaft downwards.
3. Take apart the plastic parts and the aluminum film.
4. Recycle the parts separately.

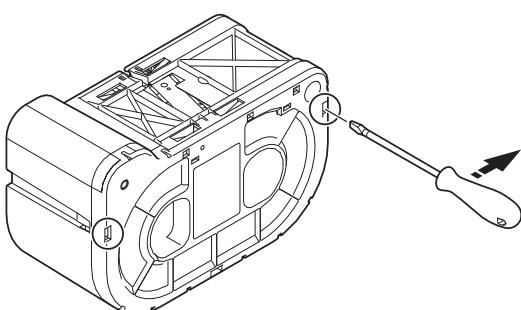


Fig. 32: Removing the front lid of the cassette.

3.2 Disassemble the diluent box

Disassemble the diluent box by removing the plastic bag from the cardboard box.

4 Disposal of milk

The milk used in the Herd Navigator 100 module is let out through a drain tube into the VMS drain.

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Preliminary