

# VADIA 2

Vadia Suite User Manual

Version 2.0



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# 1. DISCLAIMER

## 1.1. Copyright

© 2022, BioControl, All rights reserved worldwide. No parts of the software including source code may be reproduced, transmitted, transcribed or translated into any language or computer language in any form or by any means, electronic, magnetic, optical, manual or otherwise, without the prior written permission of BioControl.

The documentation must not, in whole or part, be copied, photocopied, reproduced, translated or transmitted to any electronic medium or machine readable form without prior consent, in writing, from BioControl.

Names and marks appearing on the products herein are either registered trademarks or trademarks of BioControl and/or its subsidiaries. All other trademarks, trade names or company names referenced herein are used for identification only and are the property of their respective owners.

## 1.2. Documentation

To access the latest manuals and notifications, go to <http://biocontrol.no/vadia>

## 1.3 Disposal of Electronic Waste

As with most electronic products, this equipment must be disposed of in an environmentally friendly way, and in accordance with existing regulations for electronic waste. Please contact your BioControl representative for more details.



## 1.4. Safety

This system is designed to be safe to operate. The safety devices that are installed are there for personal safety and must not be modified, removed, or disconnected. Any modification to the equipment's original design may compromise the personal safety. Consequently, it may also void or limit the warranty.

Improper use of this device can damage the meter. Please read and understand all of the information provided in this User Guide and other included documentation before use. Refer to the specifications section for detailed information on the device characteristics.

## 1.5. FCC Compliance Statement

This equipment was tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This device complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. The radiation is below exemption level for handheld equipment. The antenna used for this transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

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

## 2. PRODUCT DESCRIPTION

Udder health problems are often related to the milking equipment, many times in combination with inadequate milking routines. Notorious are teat-end vacuum fluctuations due to poor quality liners, liner slips or insufficient vacuum capacity. Pathogens reaching the teat-end due to 'backspray' or 'clusterflooding' is another known cause.

BioControl's VaDia is designed for milking technicians, advisors, veterinarians and other professionals in the dairy industry to deal with these problems. It is the next-generation Milking Time Test (MTT) instrument for testing during milking ('wet test') and is the result of a close cooperation with the International Dairy Federation IDF and Tine, the Norwegian dairy farmers cooperative.

Malfunctioning pulsators also have a big impact on udder health and milk quality. VaDia can be used for quick and easy Pulsator Testing and Falloff and Attachment Testing (ISO 5707 and 6690).

Milk line cleaning – Slug analysis, The cleaning of the milk line is assured through a few different processes. The VaDia is analyzing the physical aspect of the slug that is being sent through the milk line.

VaDia is battery operated and small and lightweight enough to be taped to a teatcup during milking. VaDia works completely 'stand-alone', which enables the adviser to forget about the actual measurement and concentrate on observing milking routines. Logged data is analyzed after or during milking with VaDia Suite, an easy-to-use PC-tool to view vacuum details and generate summary reports.

A Bluetooth streaming mode is available for real-time, in-parlor diagnostics. This is also handy for advisors, schools and practical farmers who can use VaDia as a training tool for new milkers and students. VaDia Suite is adapted for touch screen use, allowing the user to see the data live and perform tests and recordings in the parlor as well as VaDia+ app for Android and iOS mobile devices.

# 3. VADIA STARTUP KIT

Check your startup kit for the following items. Please contact your reseller if anything is missing or different.

**Hardware** - data collector VaDia 2

**Software:**

- VaDia Suite (Windows)
- Vadia+ (iOS and Android)

- 1 VaDia 2
- 2 USB cable
- 3 VaDia USB stick
- 4 Needle tool
- 5 Silicon tube on roll
- 6 Box with accessories\*:
  - 2x T- piece
  - 2x Milk filter holder
  - 10x Milk- filter
  - 10x Stainless Steel tube



\* accessory quantities are doubled for **VaDia 2 - KIT with 2**



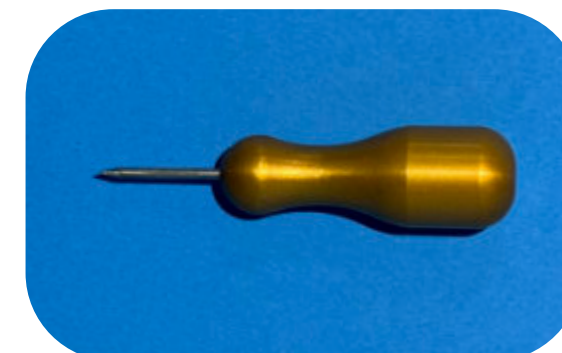
1



2



3



4



5



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# 4. SOFTWARE

## 4.1 VaDia Suite PC Program for Analysis and Report Making

Fully integrated PC-software with modules for:

- Milking Time Test and Milking Registration
- Pulsator Testing (ISO 6690), Cluster Falloff and Attachment Testing (ISO 6690)
- Milk Line Cleaning - Slug analysis
- Milking Parlour Efficiency test
- Liner Compression test
- Resistance in Milkflow test

User Interface Adapted to Touch Screens.

Automatic updates when you start up the PC program.

Comprehensive customer database and results from previous tests.

Available in many languages, including Asian languages.

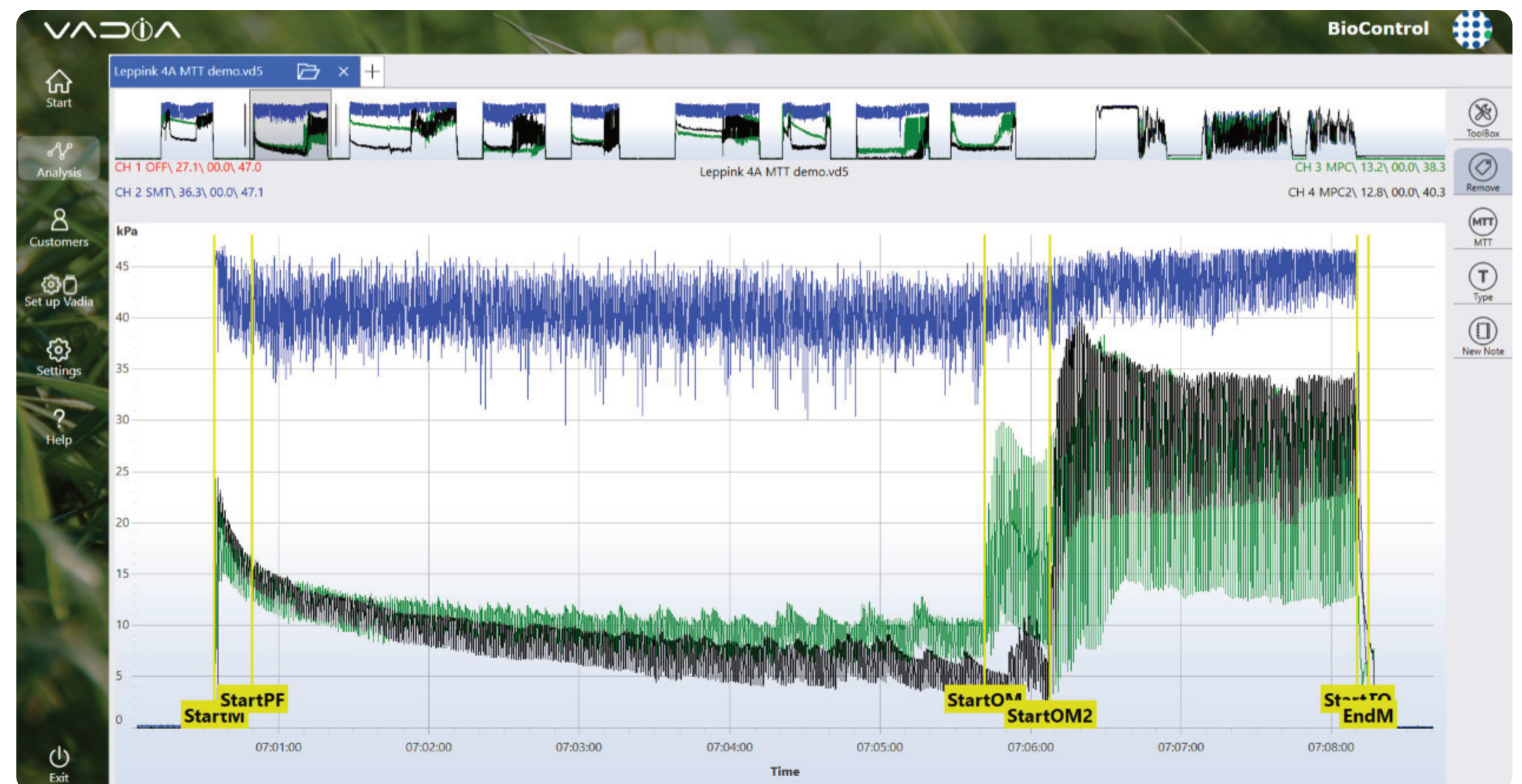
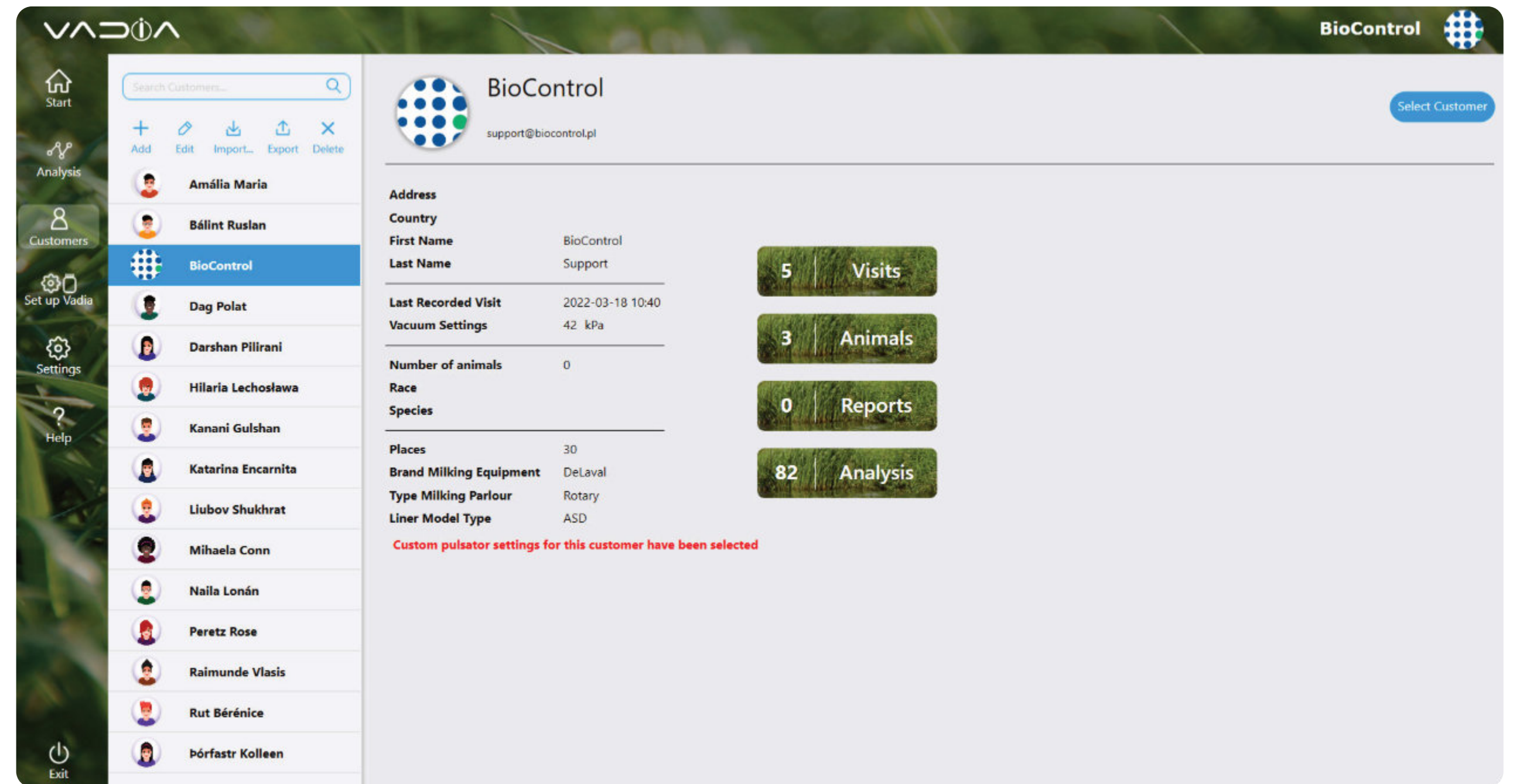
Reports generated as .pdf or .doc for easier editing and storing.

Deviations from target values highlighted.

Reports with summary page and chosen information from tests.

Easy BT streaming with fast insertion of pulsator number.

For all brands and types of milking equipment, including robots.





## 4.2 VaDia+ for Android and iOS

- View vacuum in real time
- Up to 4 VaDia devices connected at once
- Live Pulsator Test results

**(PRO - license registration required)**

- Fall off test - step by step procedure

**(PRO - license registration required)**

- Easily create, browse and share reports

### NOTE:

One license can be registered in one VaDia+ application only.



## 4.3 Setup VaDia2

Download the app and charge your new VaDia2.

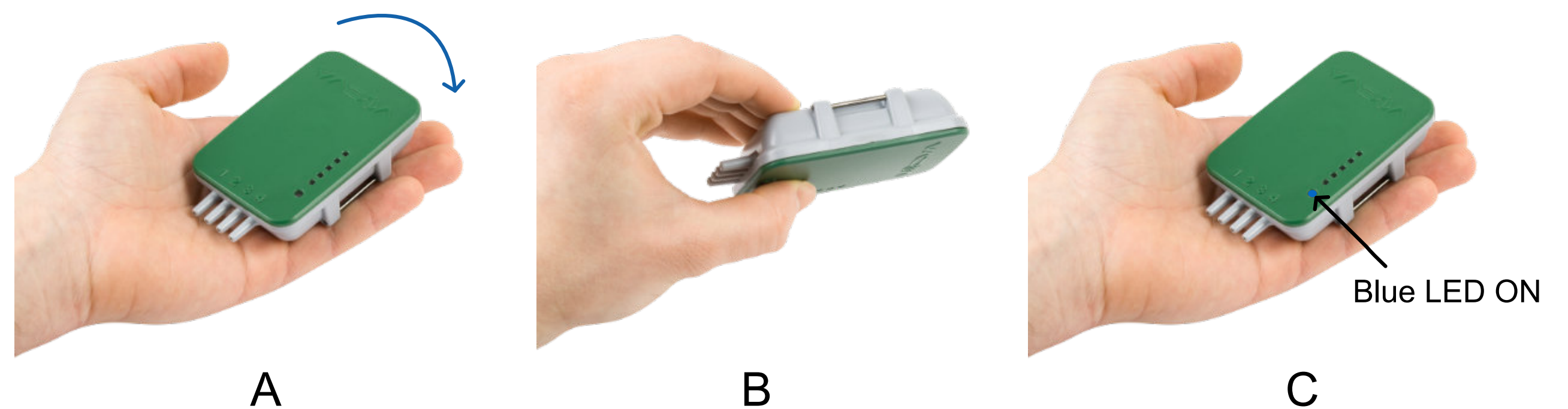
1. Provide power to the cable with a computer or wall outlet using the USB cable.
2. Attach the cable to VaDia2. LEDs on device light up when the device is charging.

### Configure VaDia using Vadia+

1. Visit the following addresses on your phone or tablet:

- **Android:** [https://play.google.com/store/apps/details?id=com.biocontrol.vadia\\_lite&hl=pl&gl=US](https://play.google.com/store/apps/details?id=com.biocontrol.vadia_lite&hl=pl&gl=US)
- **iOS:** <https://apps.apple.com/us/app/vadia/id1633986826>

2. Install the app on your device
3. Rotate VaDia2 by 90 degrees to activate Bluetooth
4. Connect to VaDia2 in Vadia+ via Bluetooth and go to "Settings" to configure your device. For more information, please refer to Vadia+ User Manual.



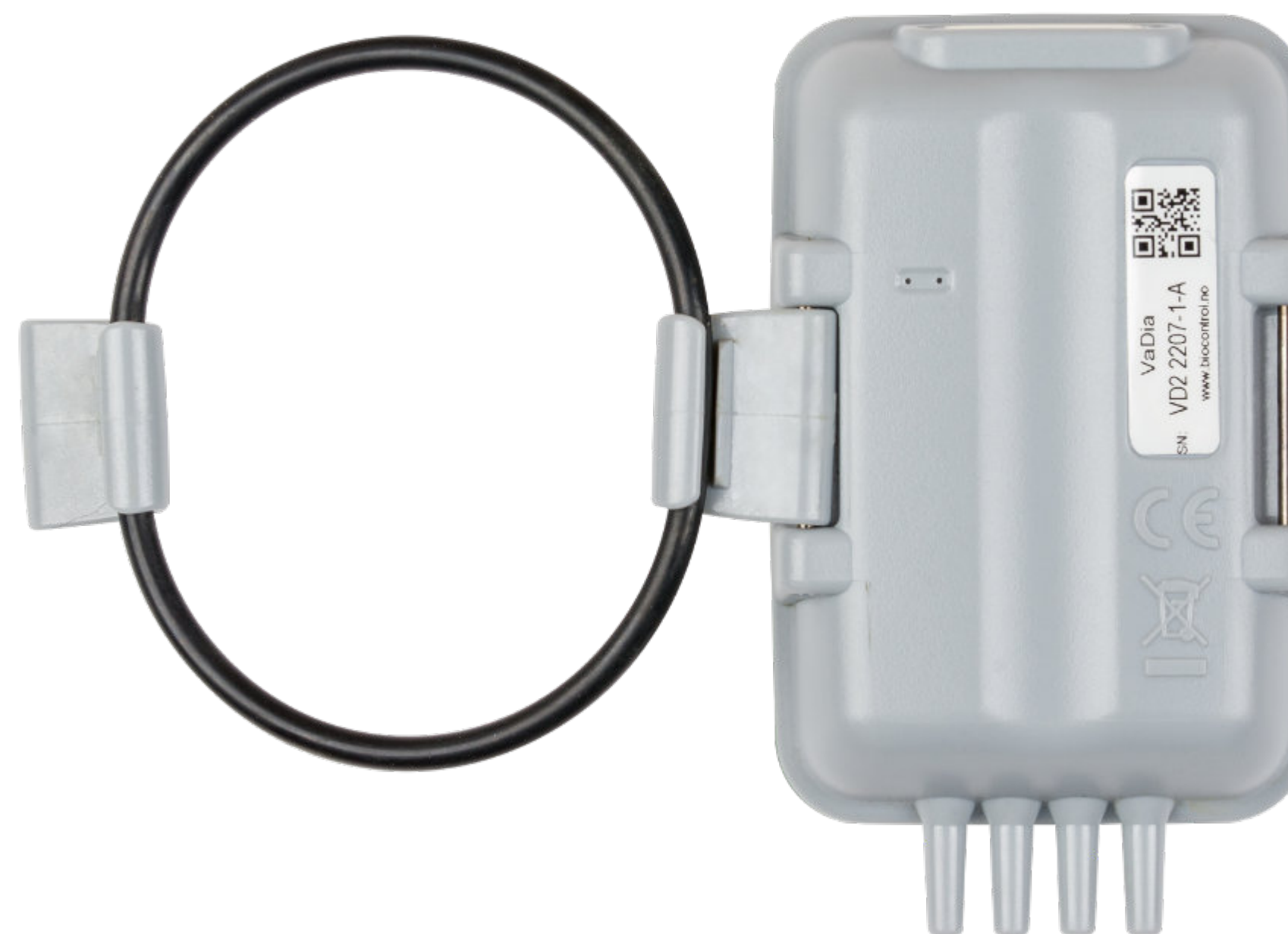
## 5. DEVICE

This unit is shipped fully tested and calibrated and will provide many years of reliable service if used in accordance with its intended use.

### 5.1 Key features

- Light weight – can be attached directly onto teat cup without causing teat cup falling during milking
- Rugged – the enclosure will seal and protect the device from dust and water – submersion (with plugs on nipples)
- Durable – fully charged battery will allow to collect data for approximately 16 hours
- Standalone – connect the device to test points and let it collect data while you check other important aspects of the milking process
- Multiple channels – collect data from four different test points
- Bluetooth connection – connect the device via Bluetooth to your phone, tablet or laptop to see and analyze live data
- Universal – VaDia can be used with any type and brand of milking equipment, including milking robots
- LED status signaling – quickly check the status of the device by looking at the LEDs
- Multi-purpose – combined with Vadia Suite software, allows thorough and complex equipment and milking process analysis

The process of connecting the device to the milking system can be found in respective test type chapters.



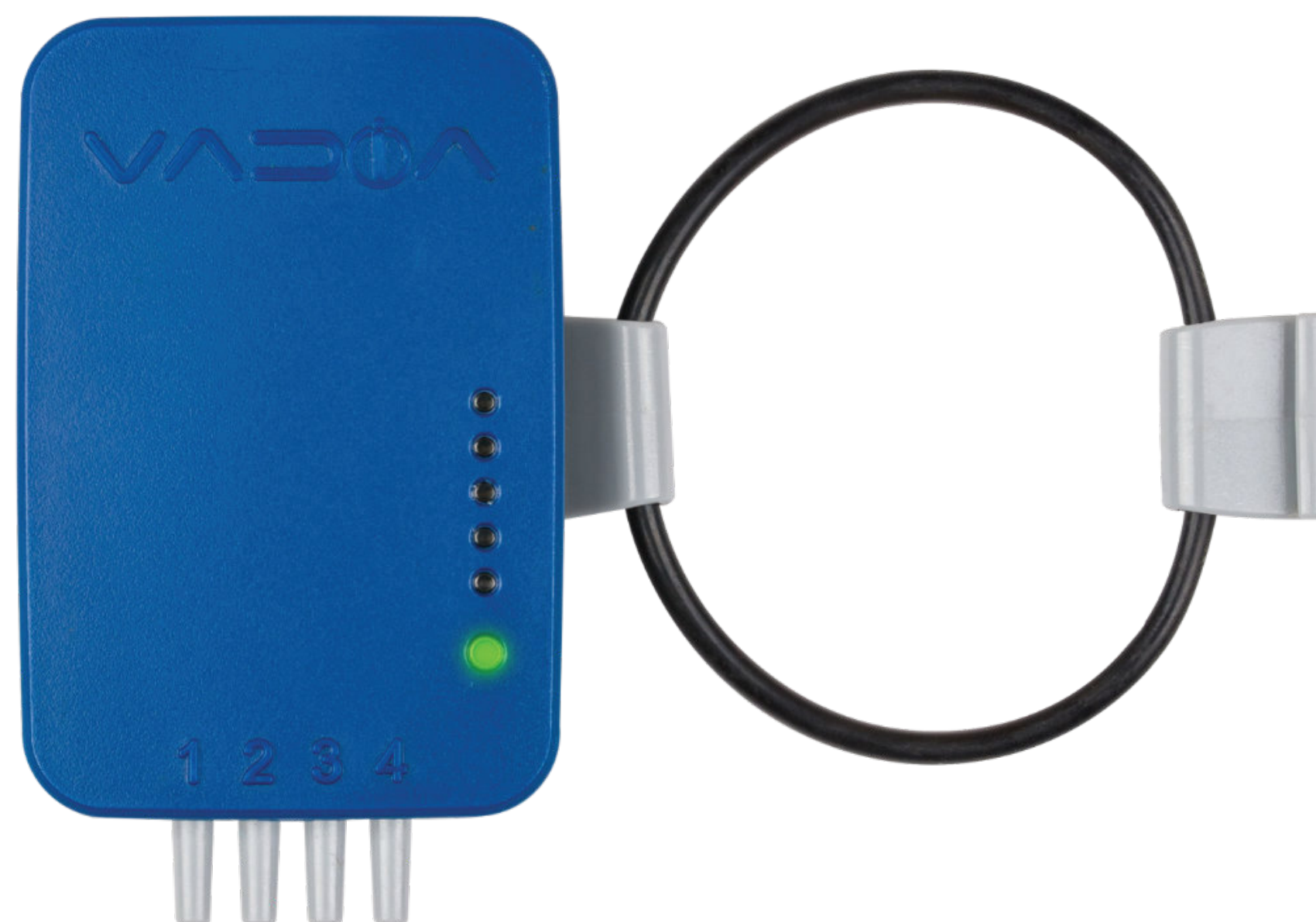
## Hardware

VaDia logs vacuum and pulsation at four points in the milking cluster. It is battery operated, small and lightweight enough to be attached to a teat cup during milking. VaDia works completely 'standalone' which enables the advisor to forget about the actual measurement and concentrate on observing milking routines. The logged data can be analyzed after milking with VaDia Suite, an easy-to-use PC-tool, to view vacuum details and generate summary reports.

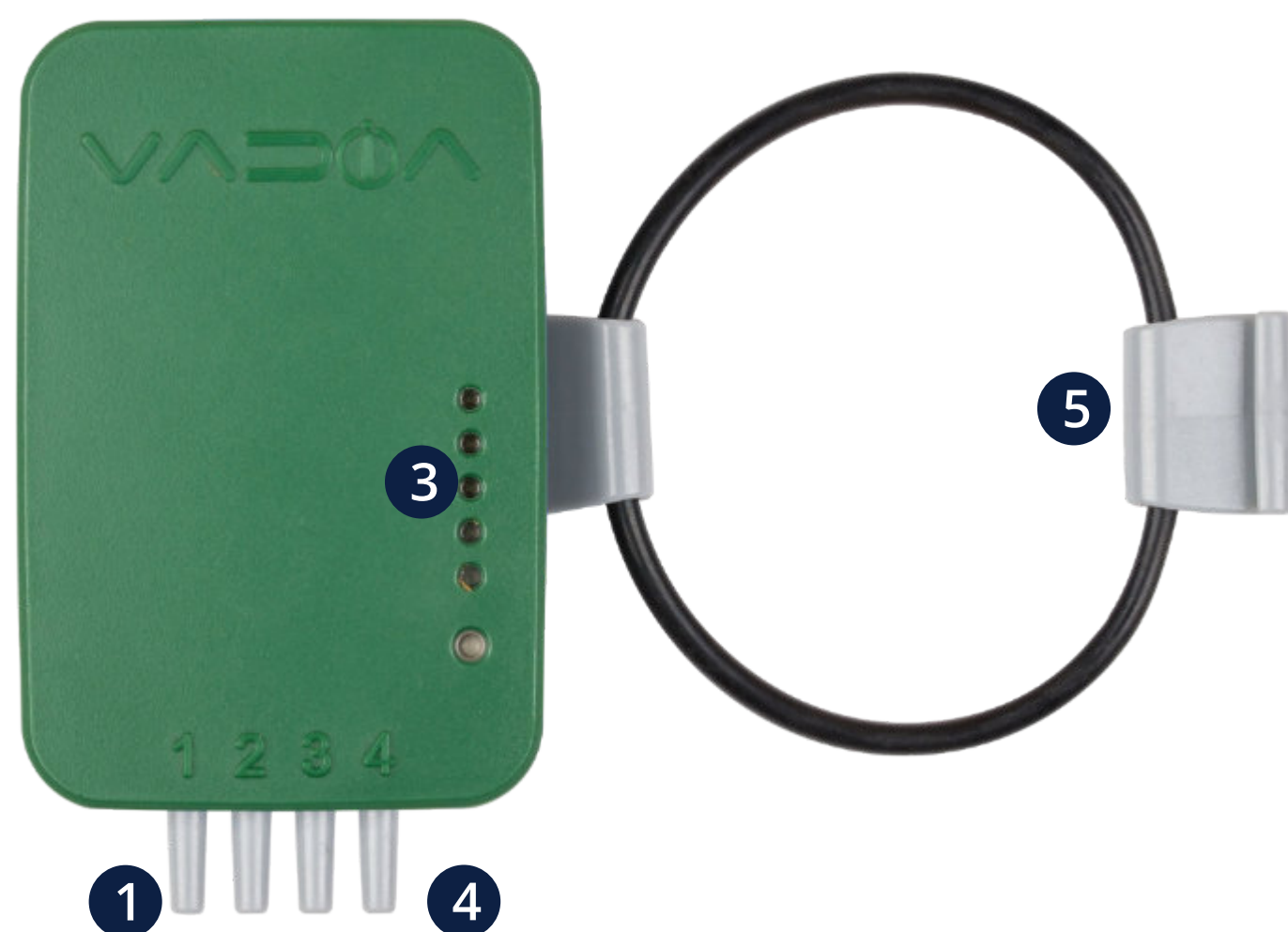
A Bluetooth streaming mode is used for online in-parlor testing and diagnostics.

VaDia can be used on all brands and types of milking equipment, including milking robots.

VaDia is a multi-purpose instrument.



## 5.2. Hardware overview



- ① Vacuum sensors
- ② USB connector
- ③ Status LED
- ④ Nipple cover

- ⑤ Strap
- ⑥ USB Cable\*

\*Part Number: 0507.5727.00 Vadia2 USB magnetic cable

## 5.3 Operation

VaDia is continuously in sleep mode and will automatically wake up when vacuum raises above 2,5 kPa.\*

Logging can begin when the following is done and verified:

- The LED blinks according to the correct status
- The battery is charged
- Now attach VaDia to the test object and connect the vacuum sensors

**Autostart:** Every 5\* seconds, VaDia will shortly wake up and measure vacuum to determine if milking vacuum is present on one of the sensors. If not, the device will return to sleep mode to save battery. When vacuum raises above 2,5 kPa\*, the device will at the next 5\* second interval leave sleep status and log all channels for at least 15\* minutes. VaDia will stay in this 'awake' status if vacuum on any of these channels stays above 2,5 kPa.\*

**Autostop:** If vacuum disappears for more than 15\* minutes on all channels, VaDia will stop logging, it will go into sleep mode again and will check for vacuum only once per 5\* seconds.

**Feel safe:** The logged data is stored in VaDia memory and is not erased when the battery is empty or disconnected.

**NOTE:** After 2 hours of no vacuum and device movement, Vadia2 goes into deep sleep mode and will not log vacuum! To activate the device again, please rotate it by 90 degrees.

**\*Unless the parameter is set to a different value**

There are three states in which the device can be:

**State 1** – connected via USB to the PC – device does not check for vacuum change and does not collect and save data

**State 2** – connected via USB to the charger (without possibility to send data) – measuring frequency interval is 1 second (checks if vacuum rises above 2,5 kPa)

**State 3** – USB not connected – measuring frequency interval is 5 seconds (checks if vacuum rises above 2,5 kPa)

## 5.4 LED (Description)

### VaDia status indicator – large tricolor LED

- **Green** – data is collected and saved to file
- **Cyan (green and blue)** – data is collected and saved to file, vacuum on all channels below activation point (close to 0)
- **Blue** – data is collected, but not saved to file, vacuum on all channels below activation point (close to 0)

In all of the cases above, data is streamed through Bluetooth as long as the connection has been established. If VaDia is connected via Bluetooth, the LED blinks every 1 second with 0.2 seconds pause.

### VaDia battery indicator – one red and 4 green LEDs

Indicator is turned on while collecting data or when device is connected via USB, or both.

**1.** While device is connected via USB and charging all LEDs except the red one will light up proportionally to the charge level, unless battery level is below 15%, then only red LED will blink. When battery is charged, all four green LEDs are ON without blinking – battery charged 100%, VaDia powered through USB.

**2.** If USB is unplugged, then battery charge level is indicated as follows:

- a. 4 green LEDs ON – 75-100%
- b. 3 green LEDs ON – 50-75%
- c. 2 green LEDs ON – 25-50%
- d. 1 green LED ON – 15-25%
- e. 1 red LED ON – 0-15%



LEDs will light up for 3 seconds with 10 seconds pause. If battery level drops below 15% during data collection (red LED ON) then within 2 seconds data collection is stopped and small LED will blink in RED. VaDia stops collecting data and will not resume until battery is sufficiently charged. Vacuum data is not collected, only real time clock is sustained. To start collecting data, user needs to charge the device.

## 5.5 Battery

VaDia is equipped with a built-in Li-Ion battery. Fully charged should allow to continuously collect approximately 16 hours of data. Charging time from 0% to 100% should take approximately 3 hours.

When VaDia battery is empty, approximately 10-15 minutes of charging should provide about 2-3 hours additional working time.

VaDia can remain in sleep mode and be ready to be activated for up to six months (if fully charged and in proper conditions).

### Charging the device:

- Connect the charger to power outlet and connect the device via USB
- Once fully charged, all four green LEDs will be turned ON
- After charging, remove the USB cable from the device and unplug the charger from power outlet

### Caution!

- Use only the AC adapter specified for this product
- Do not charge the device in presence of flammable liquids or gases
- Do not expose charger to rain or snow

Battery replacement is not possible, the device is factory sealed and should not be opened outside of BioControl facilities.

If battery replacement is required, please contact BioControl Service Team ([rog@biocontrol.pl](mailto:rog@biocontrol.pl)).





## 5.6 Calibration

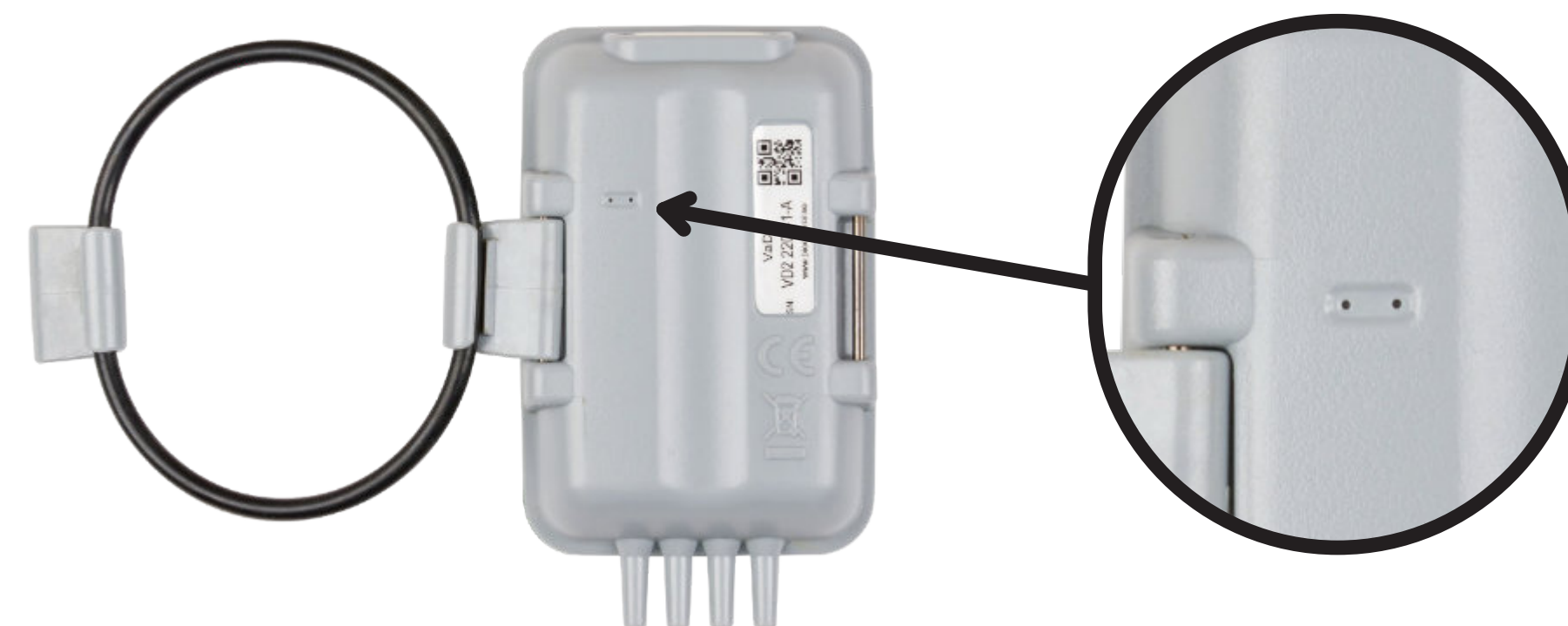
The tool is calibrated at the factory prior to shipment. If calibration is required, please contact BioControl Service Team ([rog@biocontrol.pl](mailto:rog@biocontrol.pl)). It is advised to calibrate the device at least once a year.

## 5.7 Maintenance

Always use the supplied Milk Filter when connecting to the Short Milk Tube or other tubes with liquids and foams.

Robotic Milking: switch-off steam cleaning

VaDia can be cleaned using soft damp cloth with a bit of mild cleaning detergent (e.g. soap)



Keep this part clean, but never use sharp tools (e.g. needle) to clean it, because it might damage the membrane.

## 5.8 SPECIFICATION

The tool is calibrated at the factory prior to shipment. If calibration is required, please contact BioControl Service Team ([rog@biocontrol.pl](mailto:rog@biocontrol.pl)). It is advised to calibrate the device at least once a year.

<b>Measuring frequency:</b>	200 Hz - 1600Hz* (advance) pr. Channel
<b>Accuracy:</b>	+/- 0.1 kPa
<b>Measurement range:</b>	0 to -100 kPa
<b>No of channels:</b>	4
<b>Communication:</b>	USB and Bluetooth 5 low energy.
<b>Battery:</b>	Rechargeable Polymer Lithium-Ion Battery 3.7V / 1350mAh
<b>Weight:</b>	<80g with battery
<b>Log transfer speed:</b>	Approx. 20 sec. per hour of logs
<b>Casing:</b>	Rugged and water proof, but care must be taken to minimize risk of malfunction due to moisture getting through nipples.
<b>Memory:</b>	Approx. 16 hours of logging.

### Maximum voltage and current used for charging:

6V and 0,5A

### Environment:

Indoor use only

### Optimal environment temperature and humidity:

0% to 95% RH, non-condensing 100% condensing or direct liquid media  
 Operating temp: -10C to +50C / Charging temperature: 0C to +40C

### Pollution Degree:

Pollution Degree 3, Electrical equipment in industrial and farming areas, unheated rooms, boiler rooms

## 5.9 CUSTOMER SUPPORT

Main website	<a href="http://www.biocontrol.no">www.biocontrol.no</a>
Product website	<a href="http://www.biocontrol.no/vadia">www.biocontrol.no/vadia</a>
Technical support email	<a href="mailto:support@biocontrol.pl">support@biocontrol.pl</a>
Service/repair support email	<a href="mailto:rog@biocontrol.pl">rog@biocontrol.pl</a>
Support telephone number	<b>0048735521406 (Poland)</b>

## 5.10 WARRANTY INFORMATION

This product is limited warranted against defects in materials and workmanship for twelve (12) months from the original date of purchase. The battery carries a limited warranty of 6 months from the manufacturing date. The battery must be properly charged according to the instructions in this manual.

If notice is received of such defects during the limited warranty period, the proven defective product(s) will either be repaired or replaced, at the manufacturer's option. Replacement products may be either new or like new. The manufacturer does not warrant that the operation of the products will be uninterrupted or error free.

The limited warranty does not apply to defects resulting from (1) improper or inadequate maintenance or calibration, (2) software, interfacing, parts or supplies not supplied by the manufacturer, (3) unauthorized modification or misuse, (4) operation outside of the published environmental specifications, or (5) physical damage due to external causes, including accident, abuse, misuse or problems with electrical power.

The product must be adequately sealed against water or moist ingress since damage to PCB and vacuum sensors due to water, moist or milk is not covered by this limited warranty.

To the extent allowed by local law, the above limited warranties are exclusive and no other warranty or condition, whether written or oral, is expressed or implied, specifically disclaiming and implied warranties or conditions of merchantability, satisfactory quality, and fitness for a particular purpose.

To the extent allowed by local law, the remedies in this limited warranty statement are the customer's sole and exclusive remedies. Except as indicated above, in no event will the manufacturer or its distributors be liable for loss of data or for direct, special, incidental, consequential (including lost profit or data), or other damage, whether based in contract, tort or otherwise.

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

**Note!** BioControl 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 freezing point.

# 6. INSTALL AND SETUP VADIA SUITE

## 6.1. Install

To install VaDia Suite your PC must be connected to the internet.

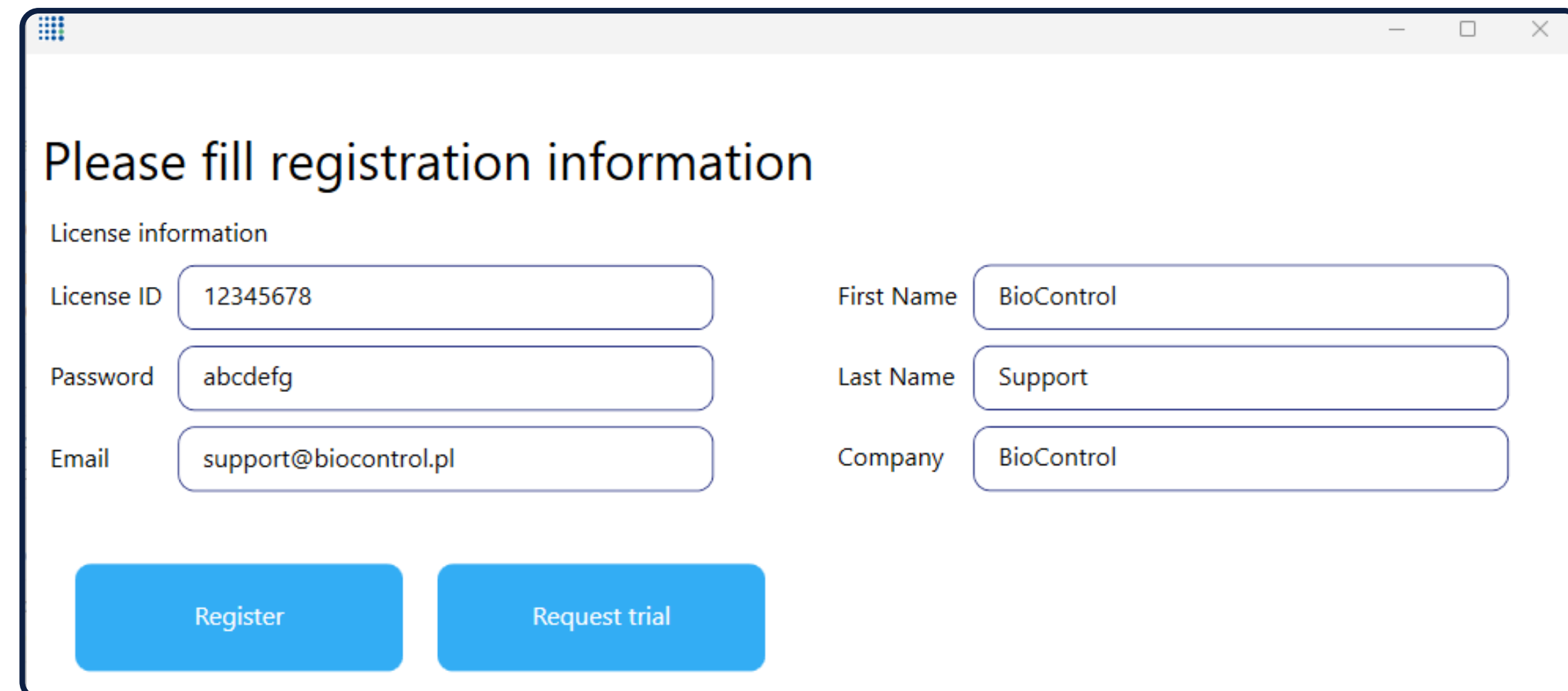
Run [VaDiaSuiteUpdater.exe](#) from the USB stick. This program can also be downloaded from the BioControl website [www.biocontrol.no/vadia](http://www.biocontrol.no/vadia).

VaDiaSuiteUpdater automatically connects to the BioControl server.

The License registration form will pop up.

If you already have a license, please fill in the form and click **“Register”**.

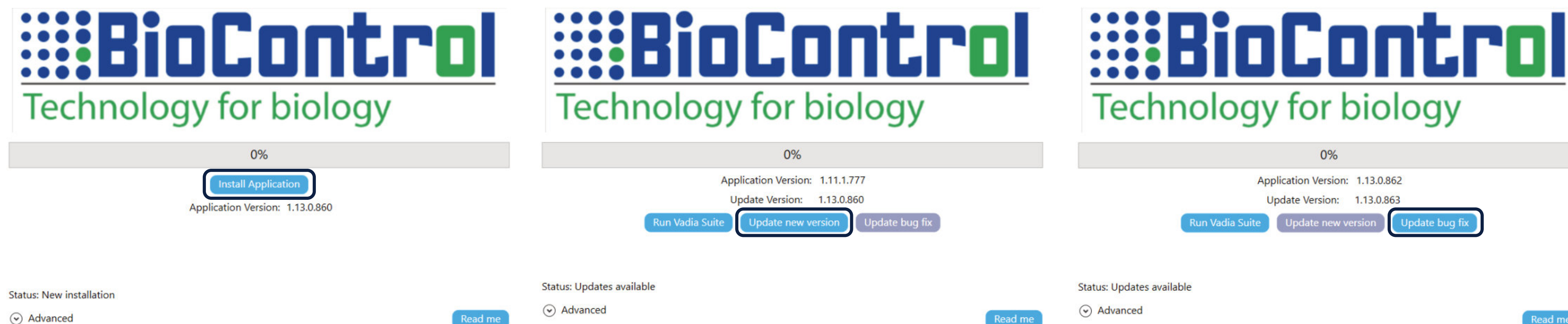
If you are interested to test the software, please fill in your personal data and send request by clicking **“Request trial”** button. You will receive license details via email.



The screenshot shows a registration window with the following fields and buttons:

License information	
License ID	12345678
Password	abcdefg
Email	support@biocontrol.pl
First Name	BioControl
Last Name	Support
Company	BioControl

Buttons: Register, Request trial



- 1 Click '**Install Application**' to install Vadia Suite software.
- 2 When VaDiaSuiteUpdater runs for the first time, it will install USB drivers, create necessary VaDia Suite directories and files and place a '**VaDia Suite**' shortcut on the desktop.
- 3 Click '**OK**', VaDia Suite will start. Next time double-click the VaDia Suite icon on the desktop to run VaDia Suite.

- 4 VaDiaSuiteUpdater will automatically start and connect to the BioControl server to look for updates and bugfixes. When update or bug fix is available, this will be indicated. (picture 2 and 3)
- 5 Click '**Update bug fix**' to install a bug fix. Bug fixes for your VaDia Suite version are always available for download with your VaDia Suite license and normally have small bug fix changes compared to your old version.
- 6 Click '**Update new version**' to install a new version of the VaDia Suite program. New VaDia Suite versions have substantial changes and add new functionalities to VaDia Suite program.

New VaDia Suite versions are only available if your **license is up to date** (you have a valid Updater license). When you install VaDia Suite you have access to new VaDia Suite versions for 12 months. After this time, a yearly fee must be paid to download new VaDia Suite versions from the BioControl server.

Contact [orders@biocontrol.pl](mailto:orders@biocontrol.pl) for more information.

If no updates are available or if the PC is not connected to the internet, VaDia Suite will start in the last version used.

**Minimum system requirements:**

**Processor:** Intel Core i3 or higher/AMD Ryzen 3 or higher (NO ARM processor)

**RAM:** 8GB or more

**Resolution:** 1200x800

**Disk space:** at least 150mb

**OS:** Windows 7/8/10/11 x64

**Recomended system requirements:**

**Processor:** Intel Core i5 or higher/AMD Ryzen 5 or higher (NO ARM processor)

**RAM:** 16GB or more

**Resolution:** 1920x1080

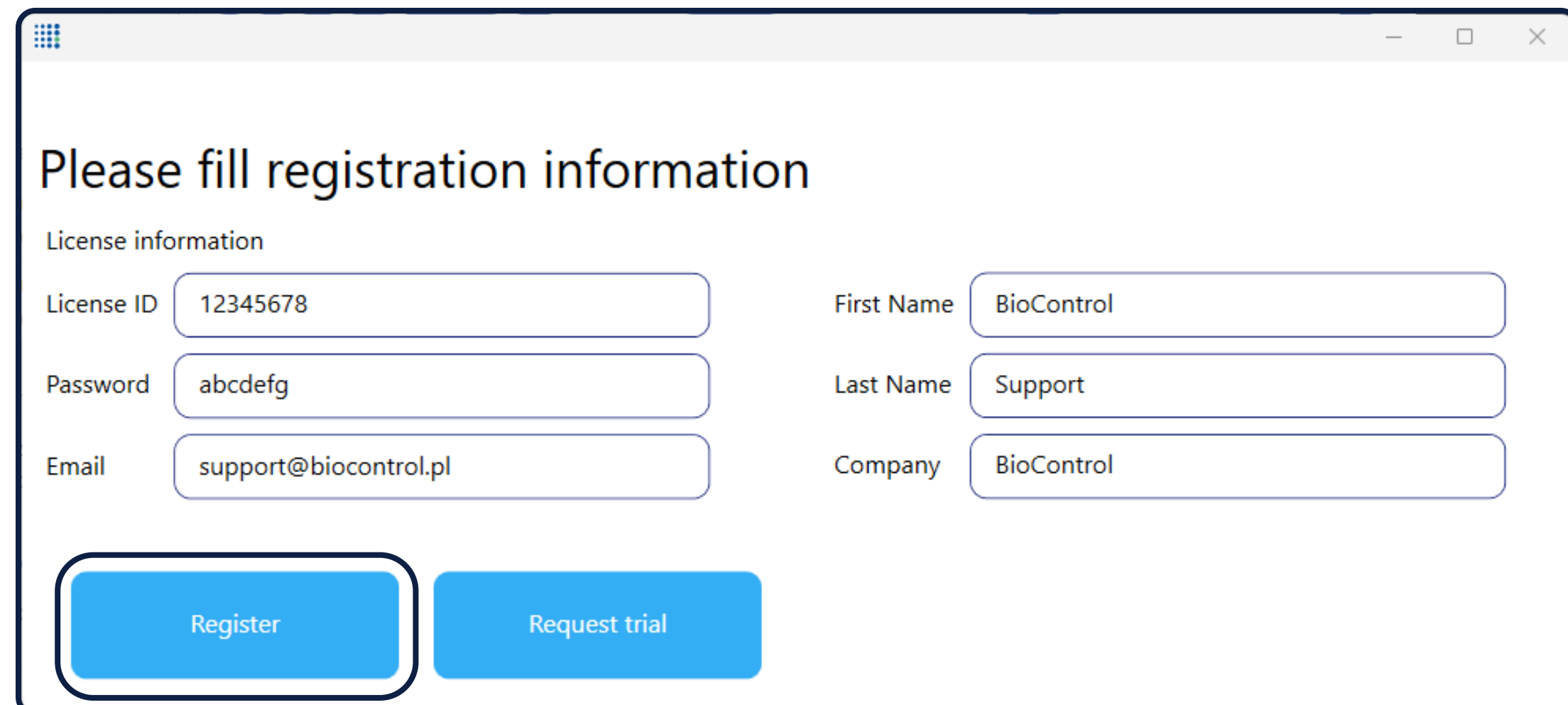
**Disk space:** at least 150mb

**OS:** Windows 10/11 x64

## 6.2. Activate

When running the program for the first time, the following screen will show. 'Register' button will become active when fields License ID, Password, Email, First and Last Name are filled.

In case you don't have license and password please fill in at least Email, First Name and Last Name fields and click Request Trial button. Then we will send you the trial license with all modules activated for 14 days. You can contact [orders@biocontrol.pl](mailto:orders@biocontrol.pl) to purchase a license ID and password for VaDia Suite.

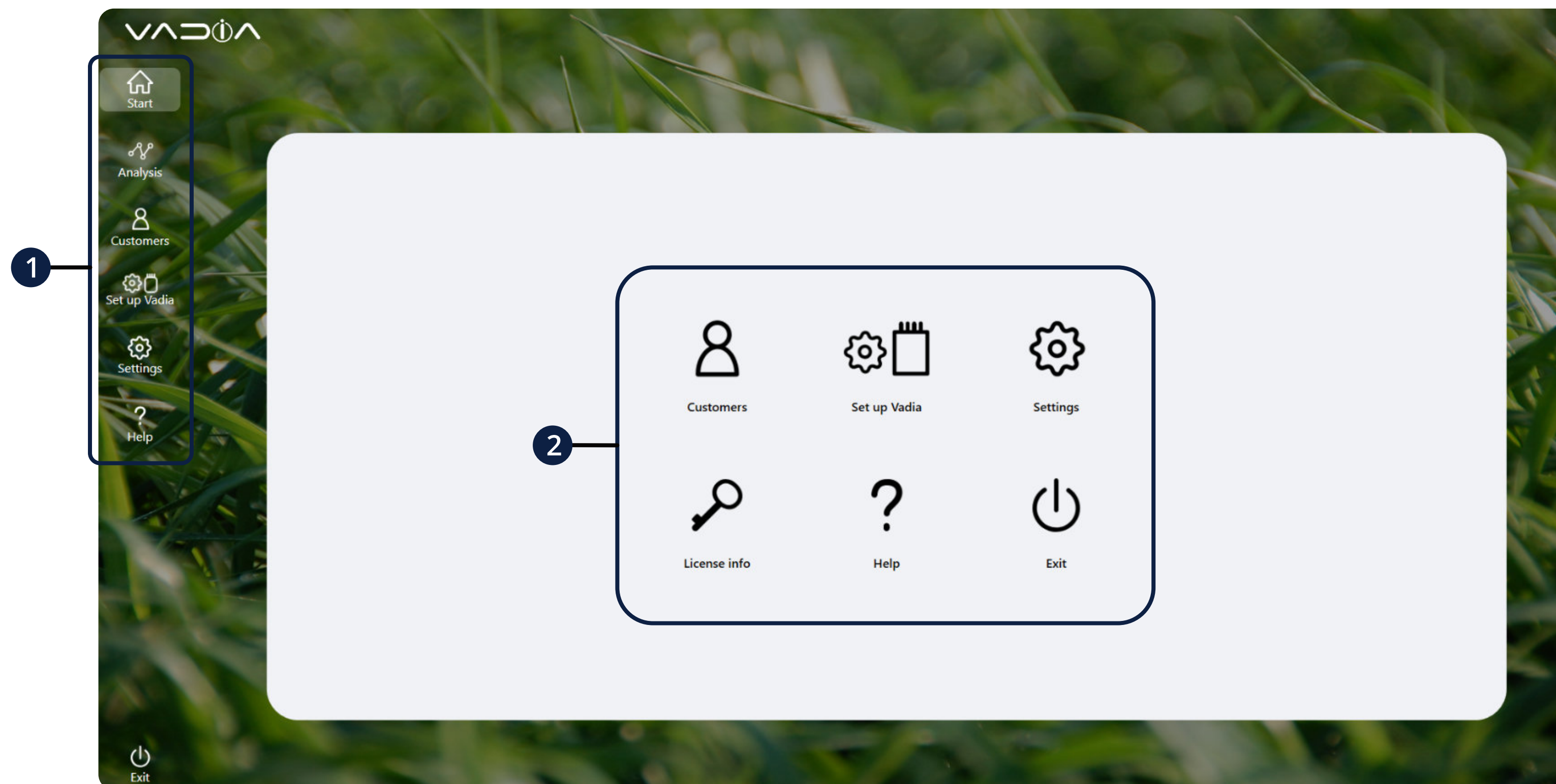


The screenshot shows a registration window titled "Please fill registration information". It contains two columns of input fields. The left column is labeled "License information" and includes fields for License ID (12345678), Password (abcdefg), and Email (support@biocontrol.pl). The right column includes fields for First Name (BioControl), Last Name (Support), and Company (BioControl). At the bottom, there are two buttons: "Register" and "Request trial". The "Register" button is highlighted with a red border, indicating it is active.

Please fill registration information	
License information	
License ID	12345678
Password	abcdefg
Email	support@biocontrol.pl
First Name	BioControl
Last Name	Support
Company	BioControl
<input type="button" value="Register"/> <input type="button" value="Request trial"/>	



## 6.3. Menu



1 Navigation menu

2 Home menu

### 6.3.1. License info

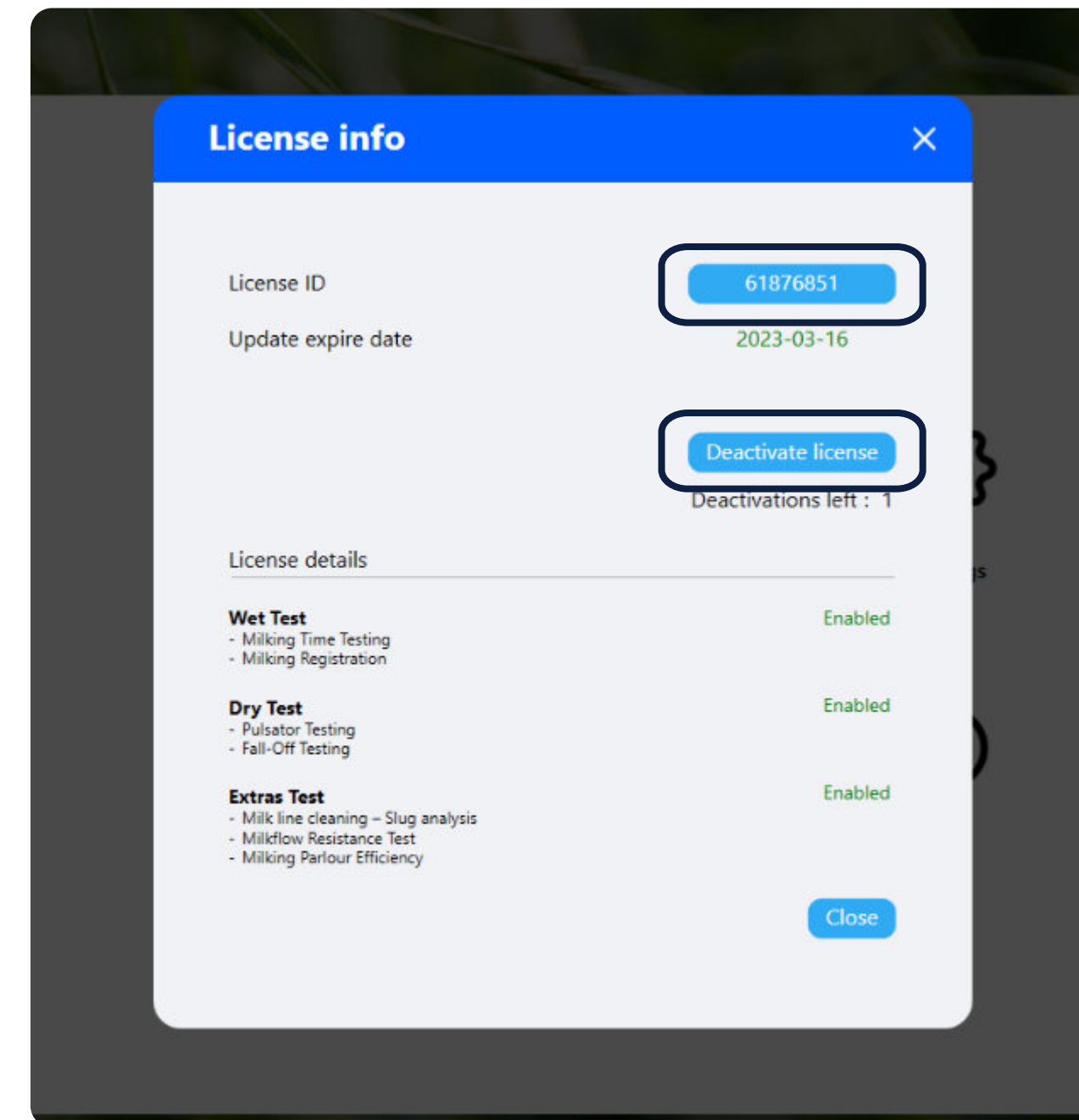
This screen lists license details and modules that are enabled within your license.

VaDia Suite functionality is divided into modules. The following modules are available:

**Wet Test:** Milking Time Test & Milking Registration – WetTest

**Dry Test:** Pulsator Test acc. to ISO 6690 & Falloff and attachment Test acc. to ISO 6690 – Dry Test

**Extras:** Slug Test Module, Milk Flow Resistance Test, Milking Parlour Efficiency Test, Liner Compression Test

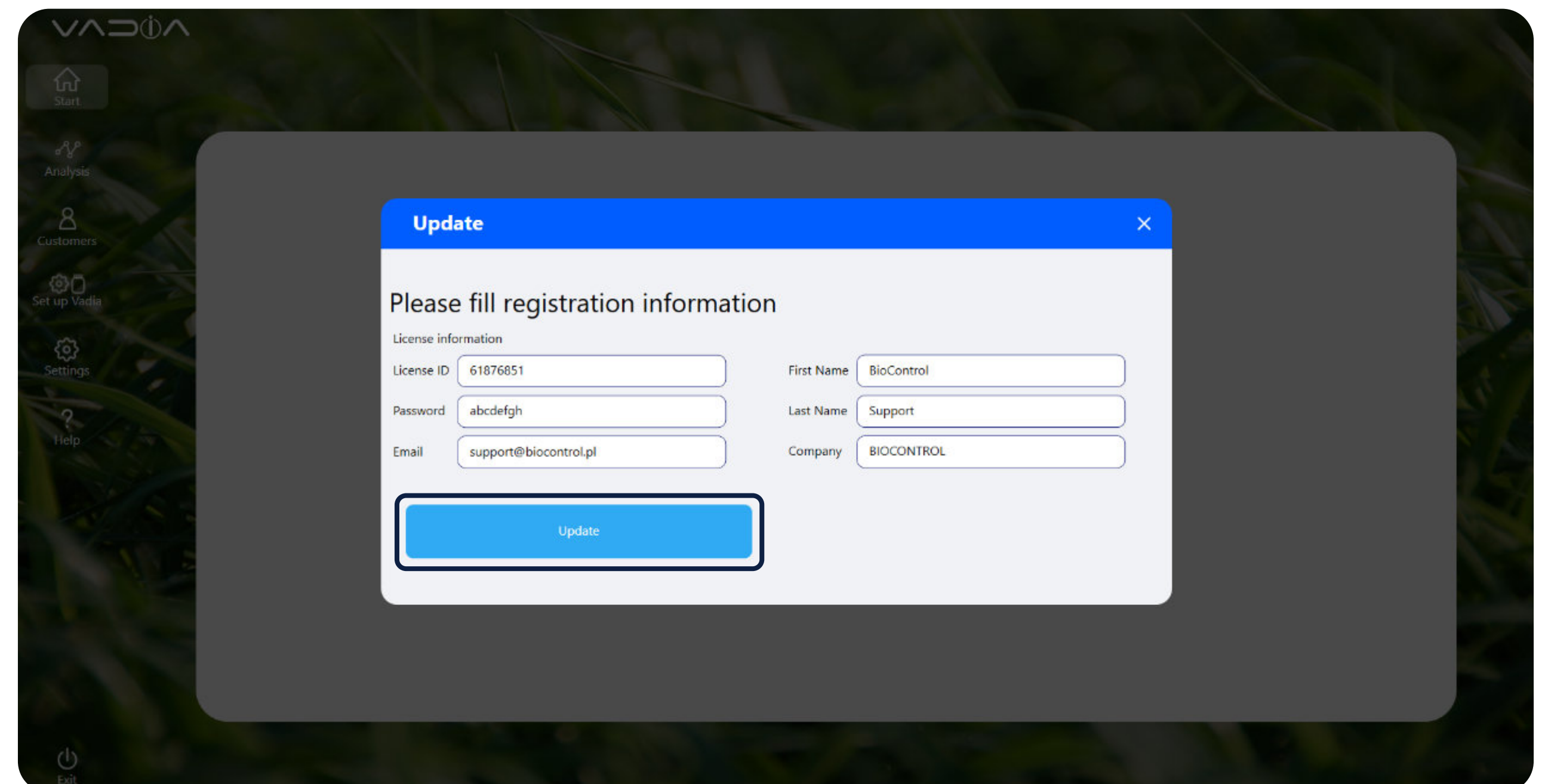


'Home' button > 'License info'

Click your license ID to show registration form.

You can update your license personal data here. For changes to take place, you need to insert your password and click 'Update'. You can also deactivate current license and provide a new one by changing license ID and new user personal data. Software will ask you to confirm the changes.

Clicking on „**deactivate license**“ will deactivate your license from current device. A pop up message will be displayed to confirm license deactivation.

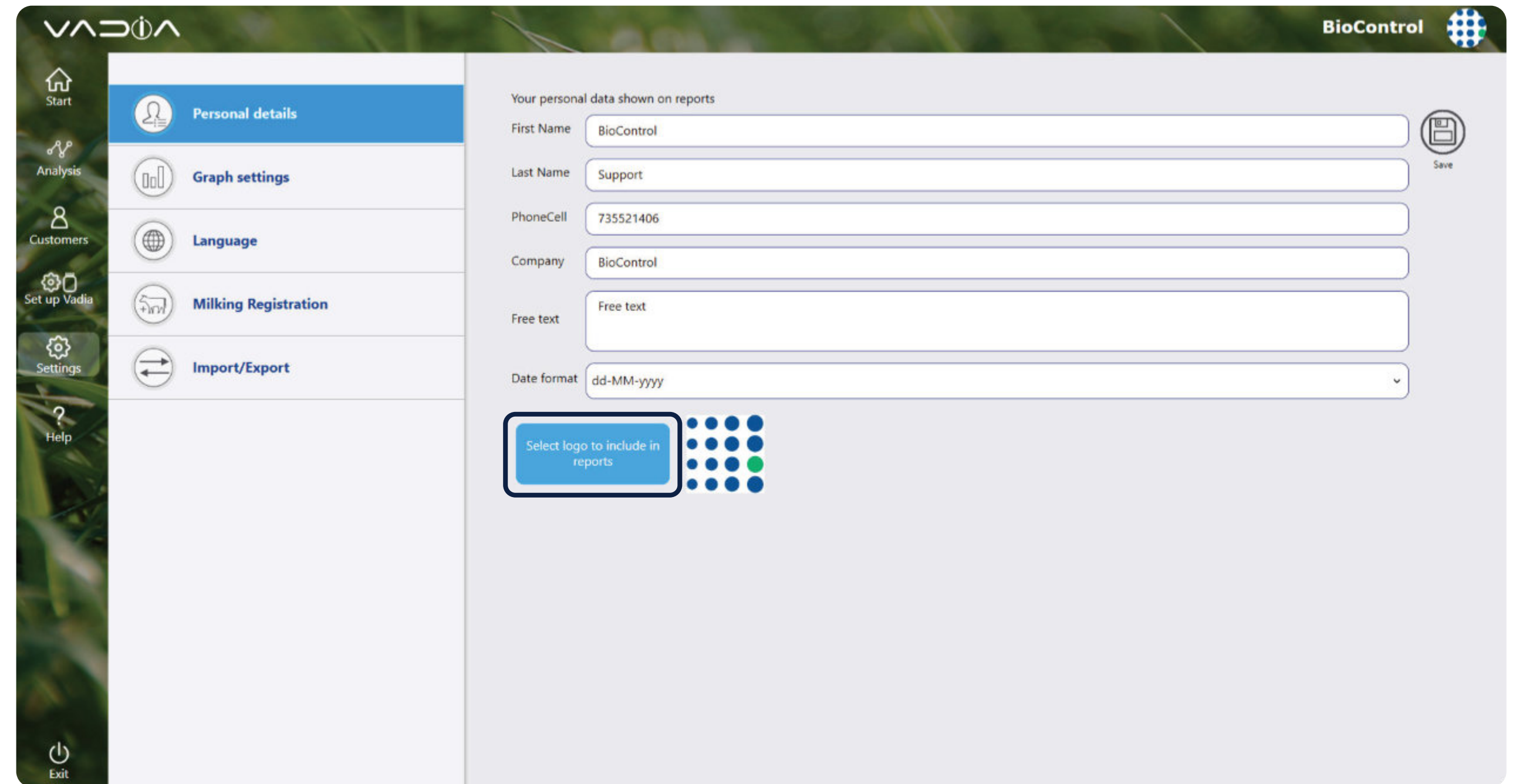


### 6.3.2. Personal details

Click 'Settings' > 'Personal details'

Enter your personal details (and logo!) that will be shown on all reports.

Click 'Save' to store.



### 6.3.3. Graph settings

Click 'Settings' > 'Graph settings'

Customize the graph scale, the minimum and maximum values, to better meet your needs. This menu also allows to change default channel settings for analysis window.

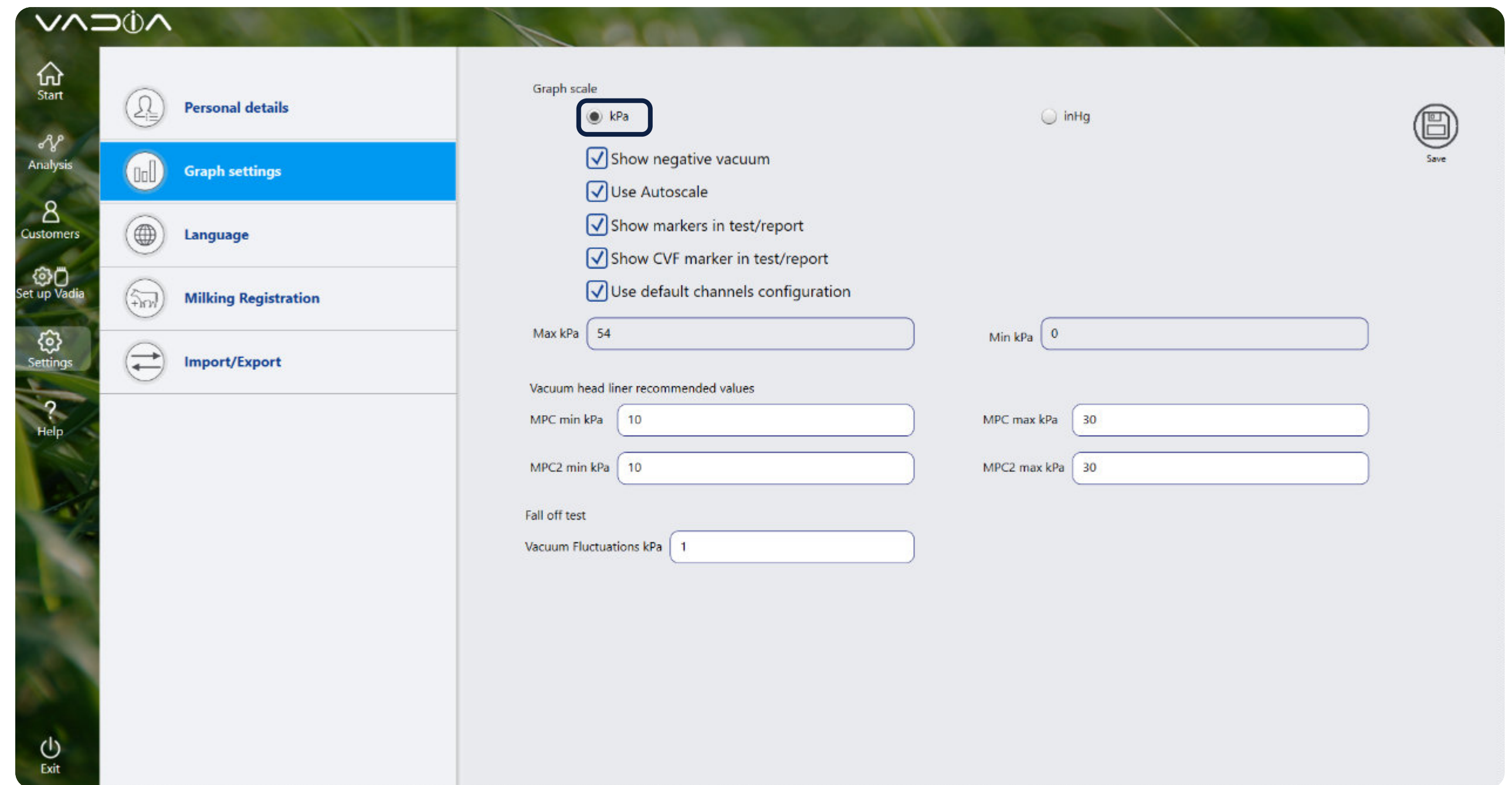
**Note:** Restart the application for changes to take effect.

New user interface version of the application allows to use '**Autoscale**', so the vacuum axis min/max are based around the data range. On top of that, you can disable all markers or CVF marker from your reports.

Please note, markers will disappear only after the test is done.

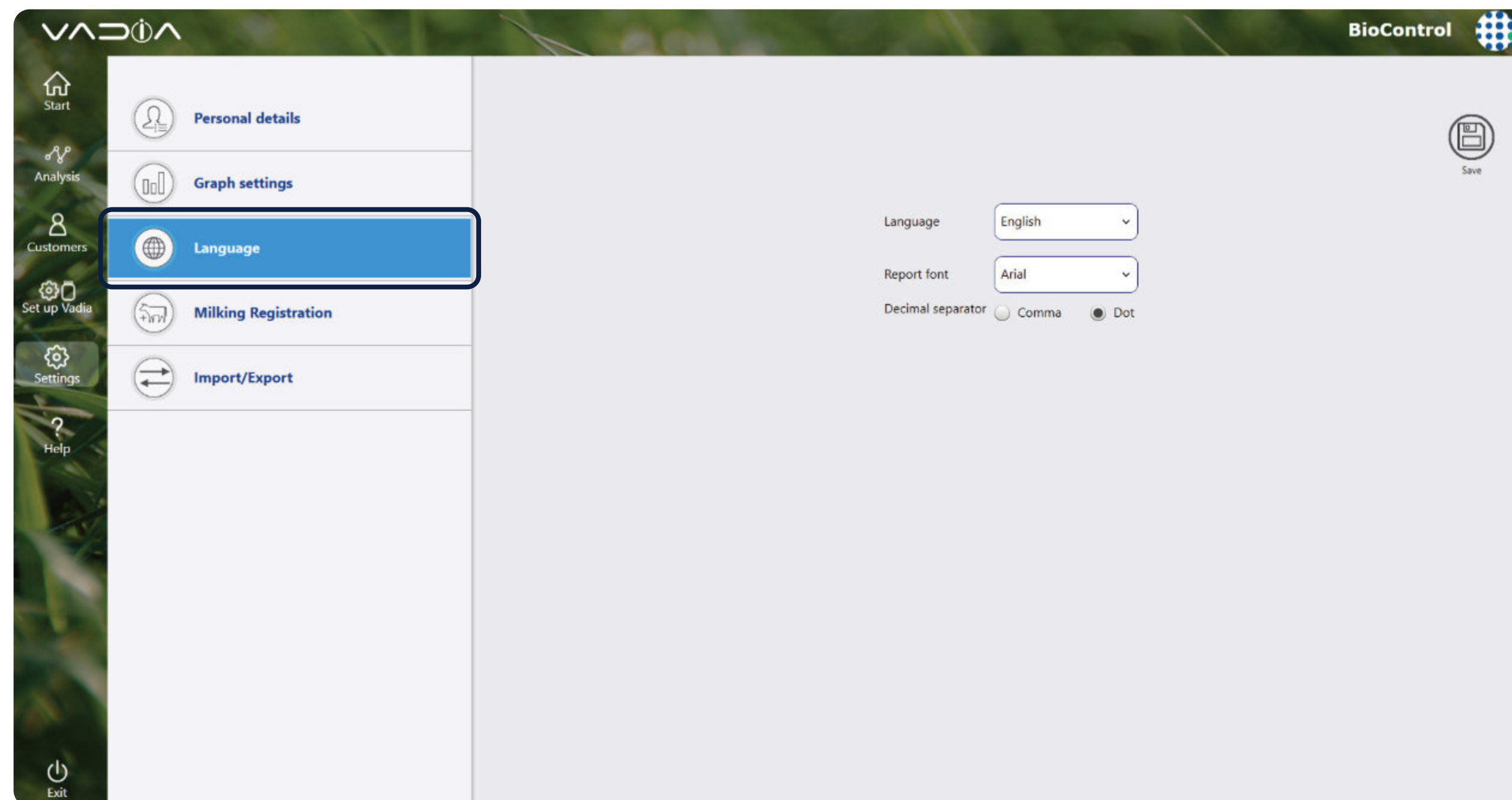
#### Vacuum head liner recommended values

Set the range within PeakFlow period in Milking Time Test for favourable MPC calculation. For more information, refer to MPC Favourable parameter description (chapter – General Results).



### 6.3.4. Language

Set the language displayed in Vadia Suite application. This screen also allows to change the font used in Reports. Make sure selected font is supported by your operating system and language. What is more, you can select which decimal separator you want to use in the application: a comma or a dot.



Click 'Settings' and go to 'Language' tab.

Click 'Save' to save changes.

**Note:** You need to restart application for the changes to take effect.

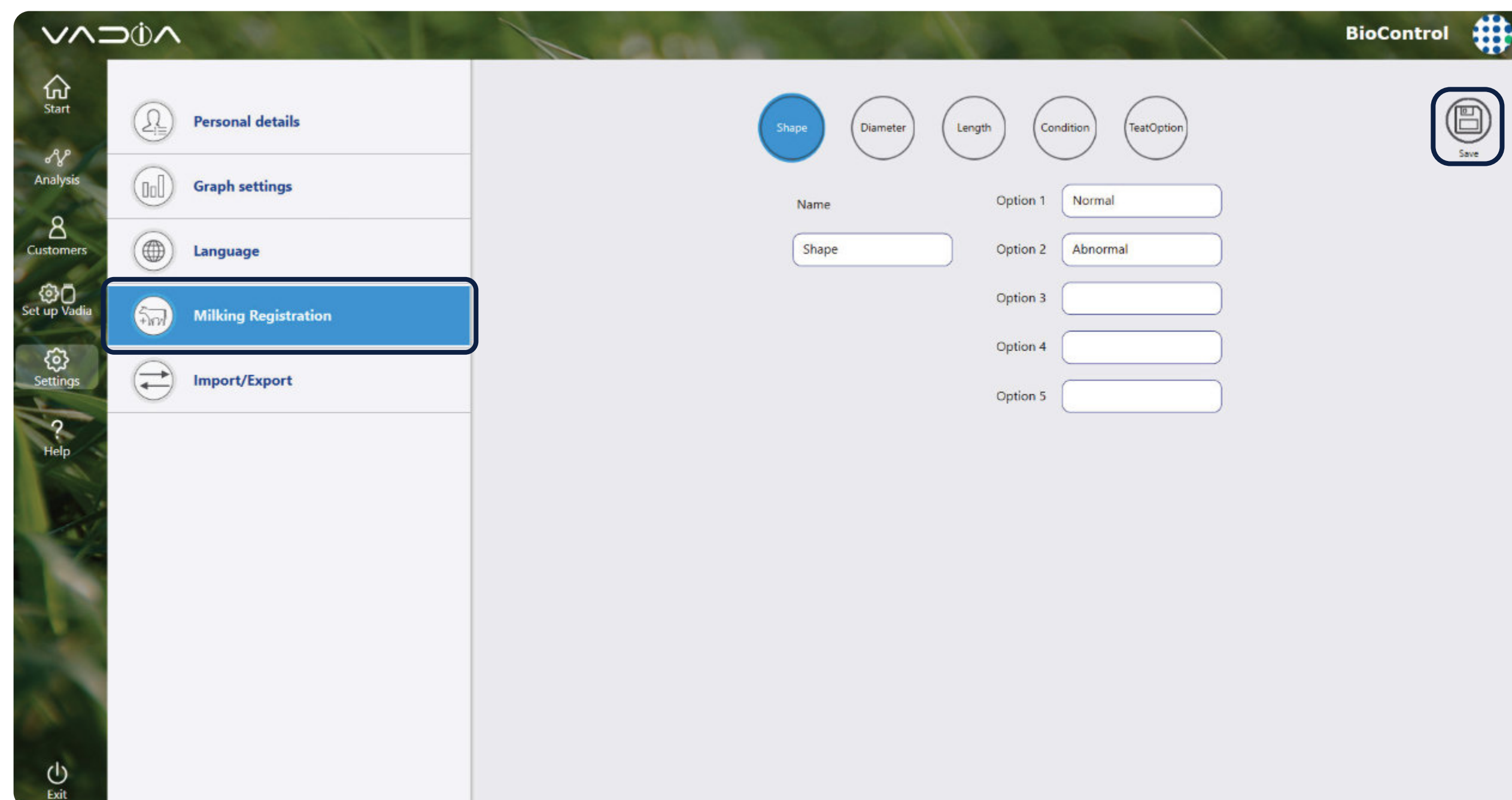
### 6.3.5. Milking Registration settings

Choose what kind of teat parameters you want to have. You can provide up to 5 parameters. Tap on parameter circle then provide its name and set values describing it.

Click 'Settings' and go to 'Milking Registration' tab.

Click "Save". You will see these values at 'Milking Registration' and 'Animals' menus.

For more information about Milking Registration, please refer to chapter 11.

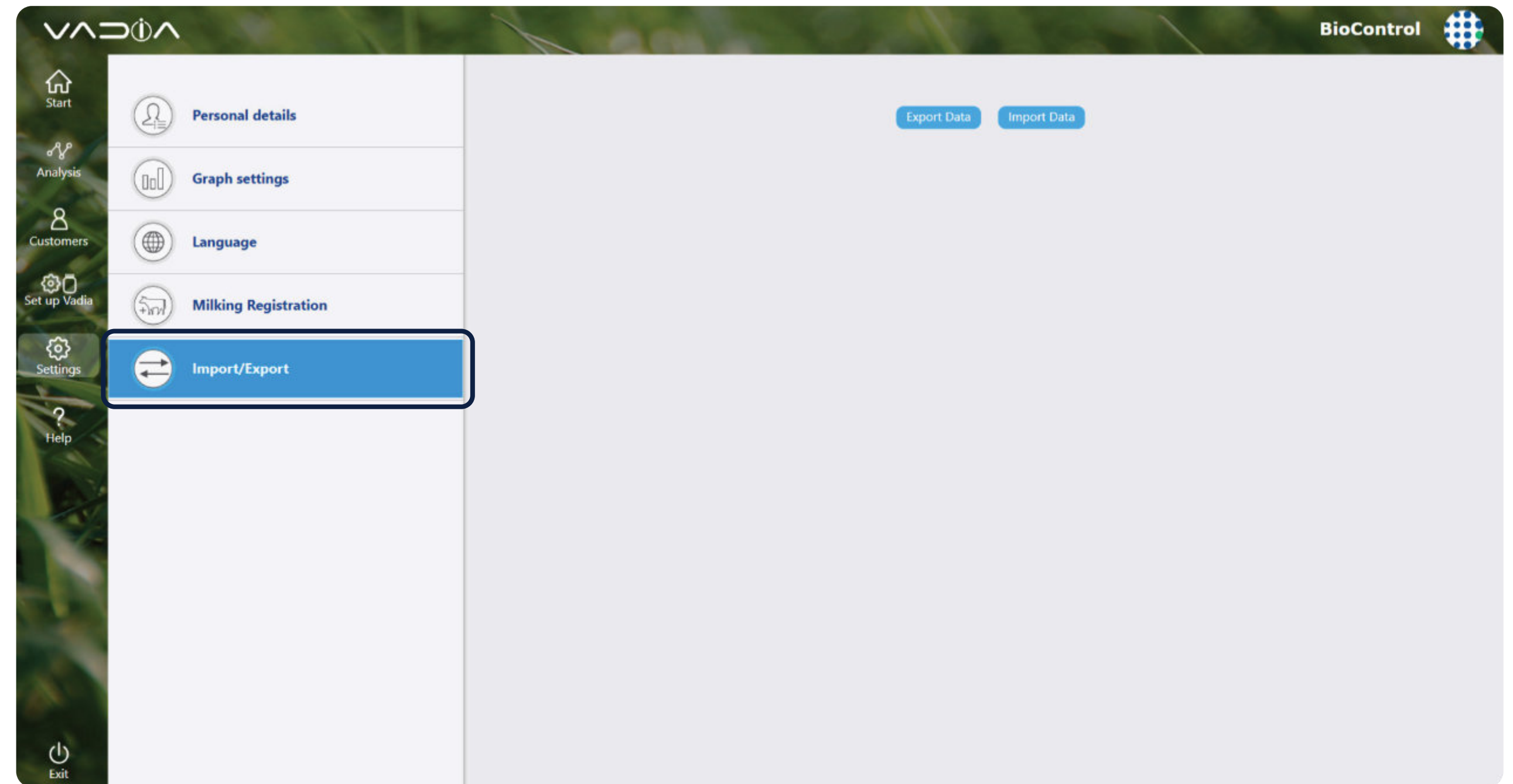


### 6.3.6. Import / Export

Click 'Import' or 'Export' to transfer all data from and to Vadia Suite installed on different devices. This function makes a backup of all your customers data.

Click 'Settings', then go to 'Import/Export' tab and select 'Export Data' to export or 'Import Data' to import previously exported data.

**Please note:** Software version needs to be the same to successfully import database.



# 7. CUSTOMER MANAGEMENT

Click 'Customer' to enter and manage customer data. Create a new customer by clicking 'Add Customer'.

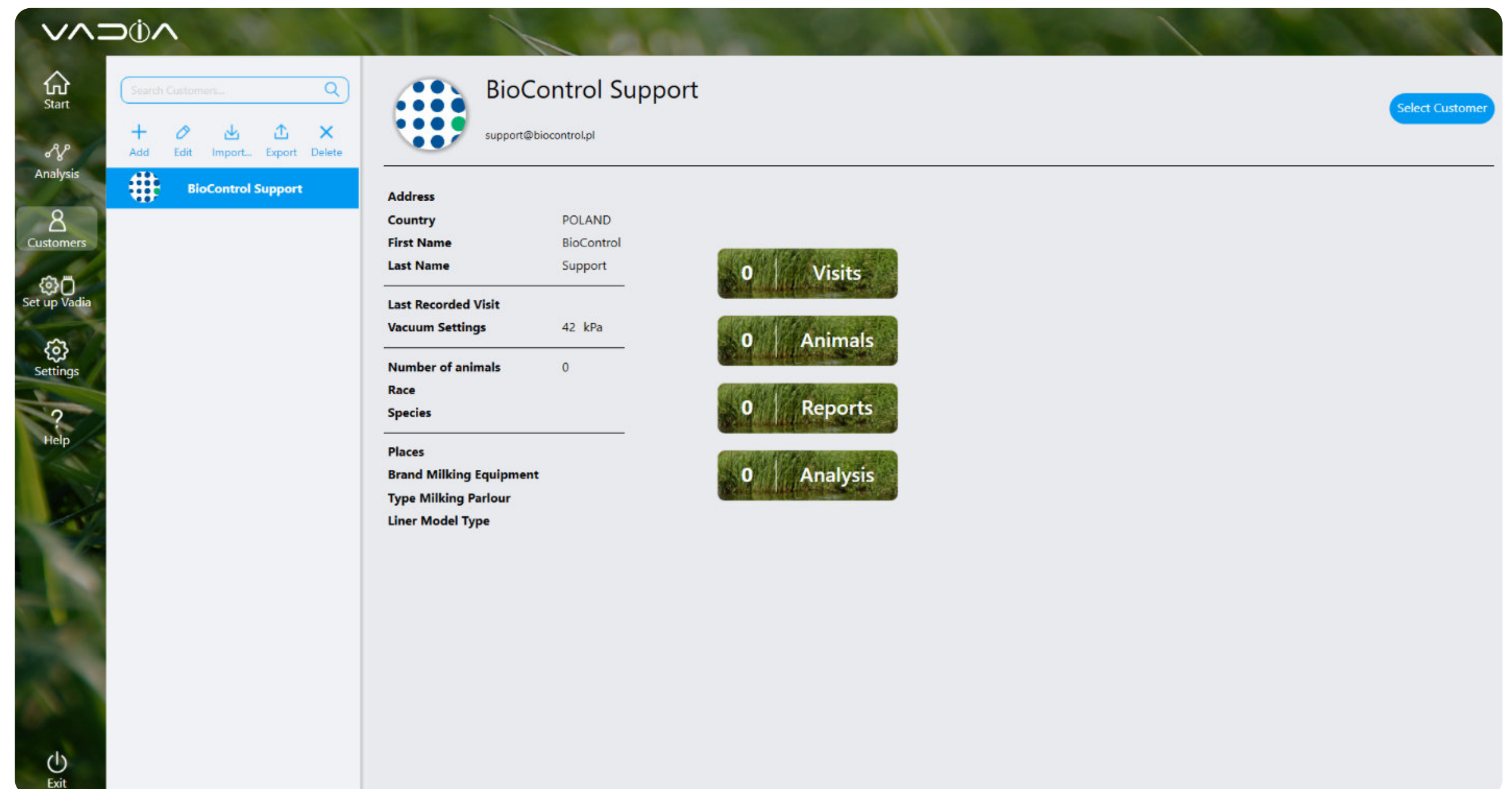
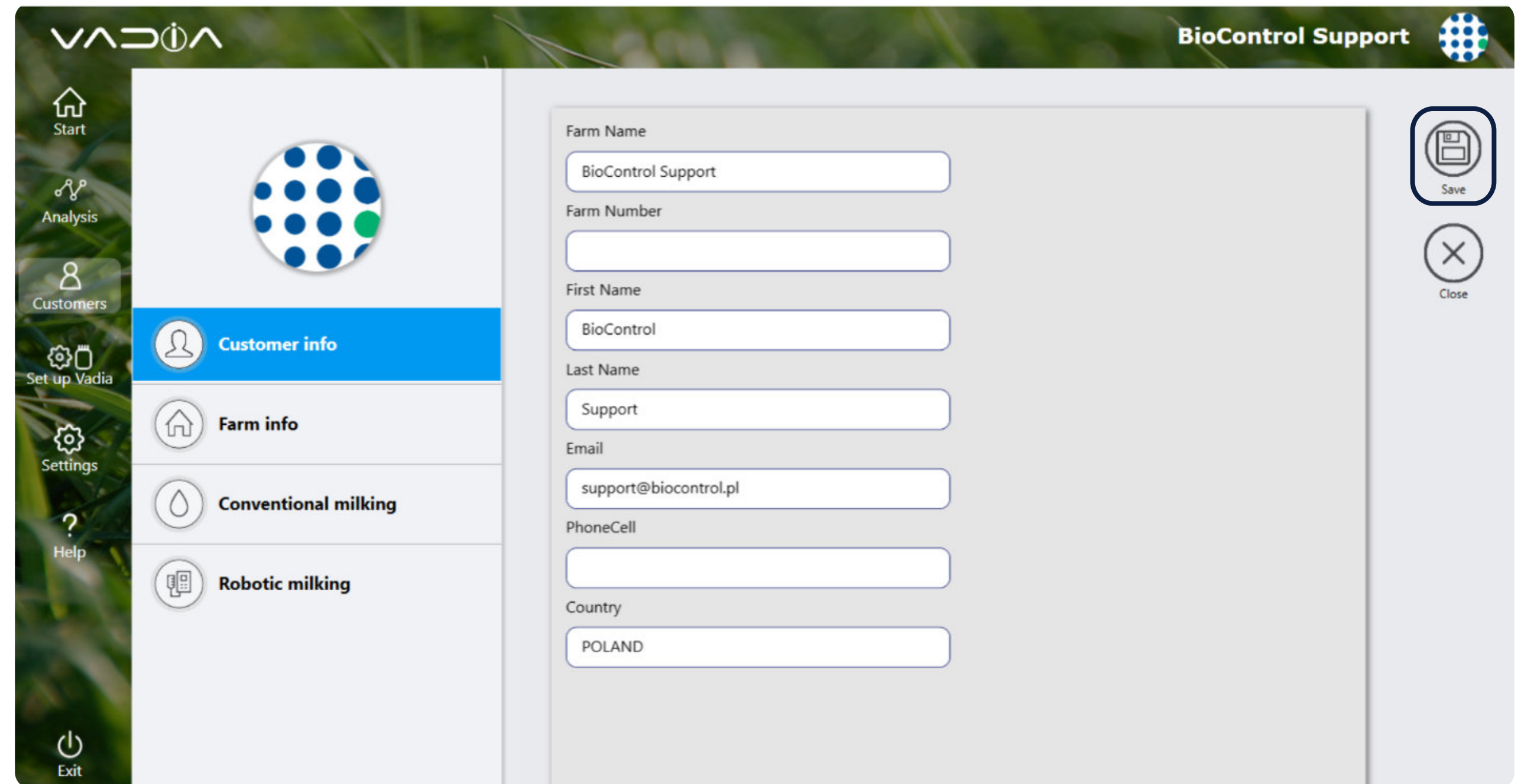
Customer database contains general customer information and details of the milking equipment, both for conventional and milking robot customers. Fill in the information about your customer and click 'Save'.

Select a customer by clicking on customer's name, or search for the customer in the search field. This customer is now 'active'. The active customer is also displayed in the top right corner of the screen. All data and reports that are made will be added to this active customer until another customer is selected.

Select a customer and click 'Edit' to edit a customer's information.

Select a customer and click 'Delete' to delete a customer.

**Careful:** all reports and historic data of this customer will be deleted!



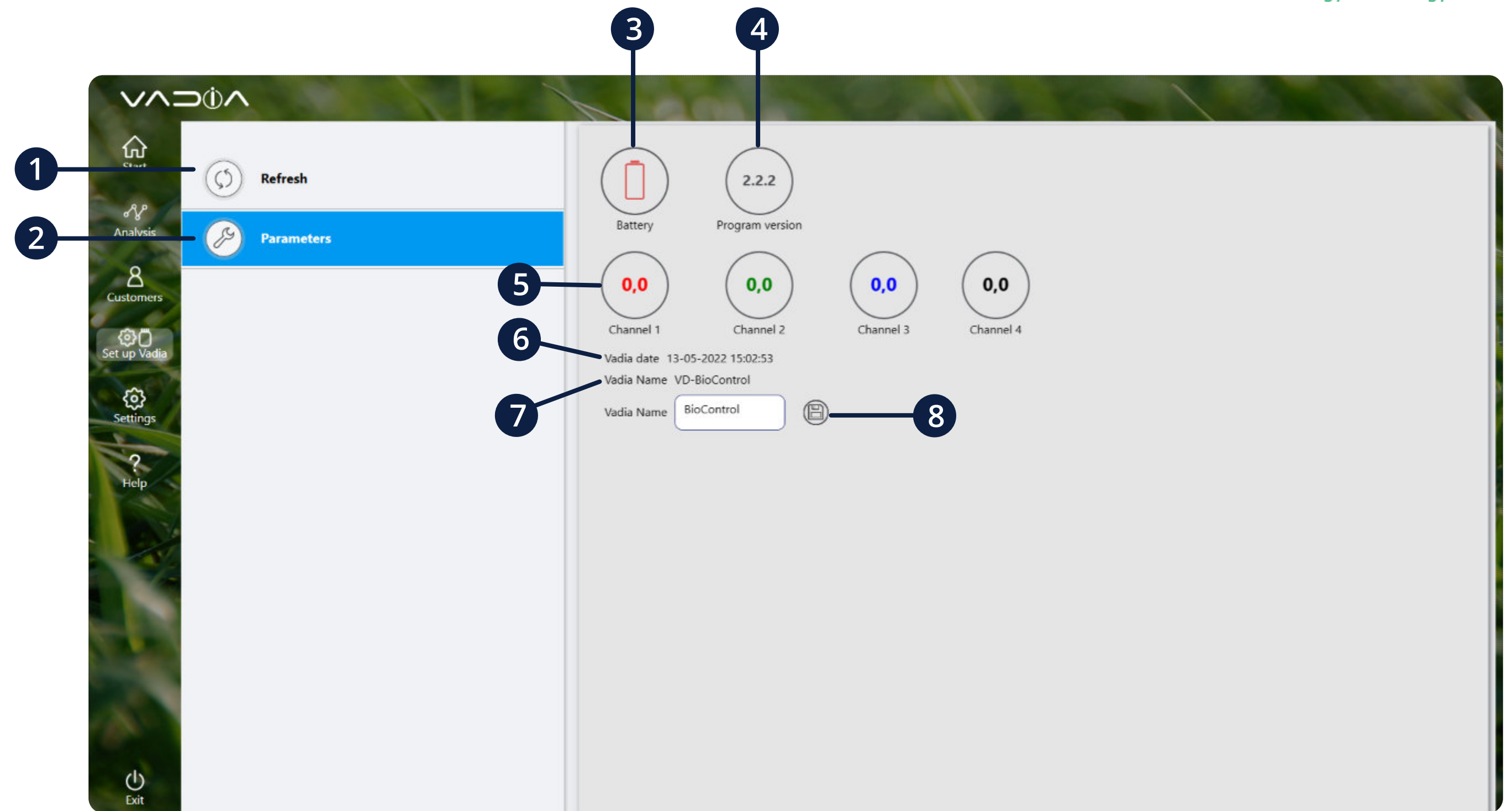


# 8. VADIA MANAGER

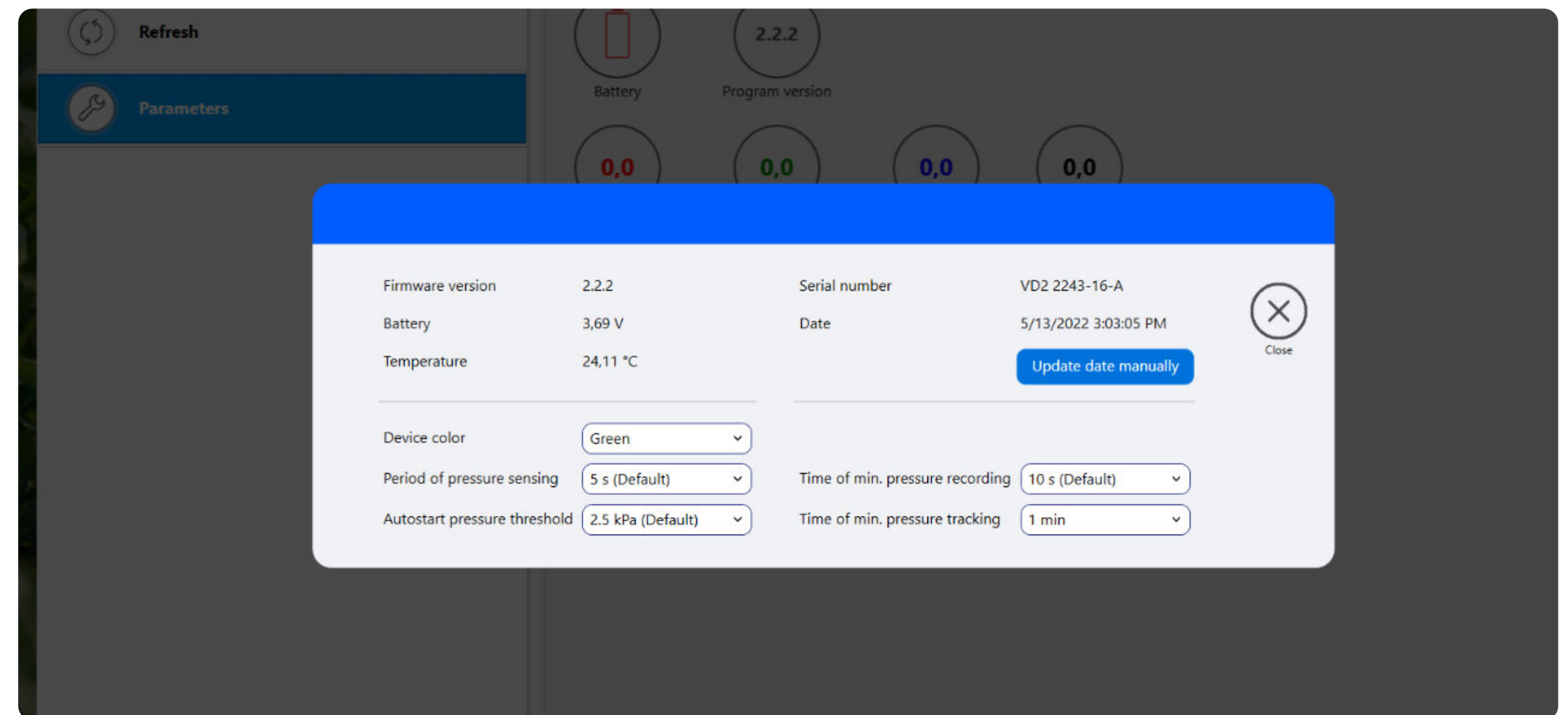
## 8.1. Connect your VaDia

VaDia Suite uses 'VaDia Manager' to check the status of the device.

- 1 Refresh the displayed status information, click 'Refresh'.
- 2 Parameters - change VaDia 2 parameters (further explained on the next page)
- 3 Battery capacity (explained further in VaDia Hardware section)
- 4 Program version - current firmware version of the device
- 5 Current vacuum on the sensor
- 6 VaDia clock (is set using PC-clock when Initialize button is pressed)
- 7 VaDia name - unique serial number
- 8 VaDia name - displayed device name can be changed here



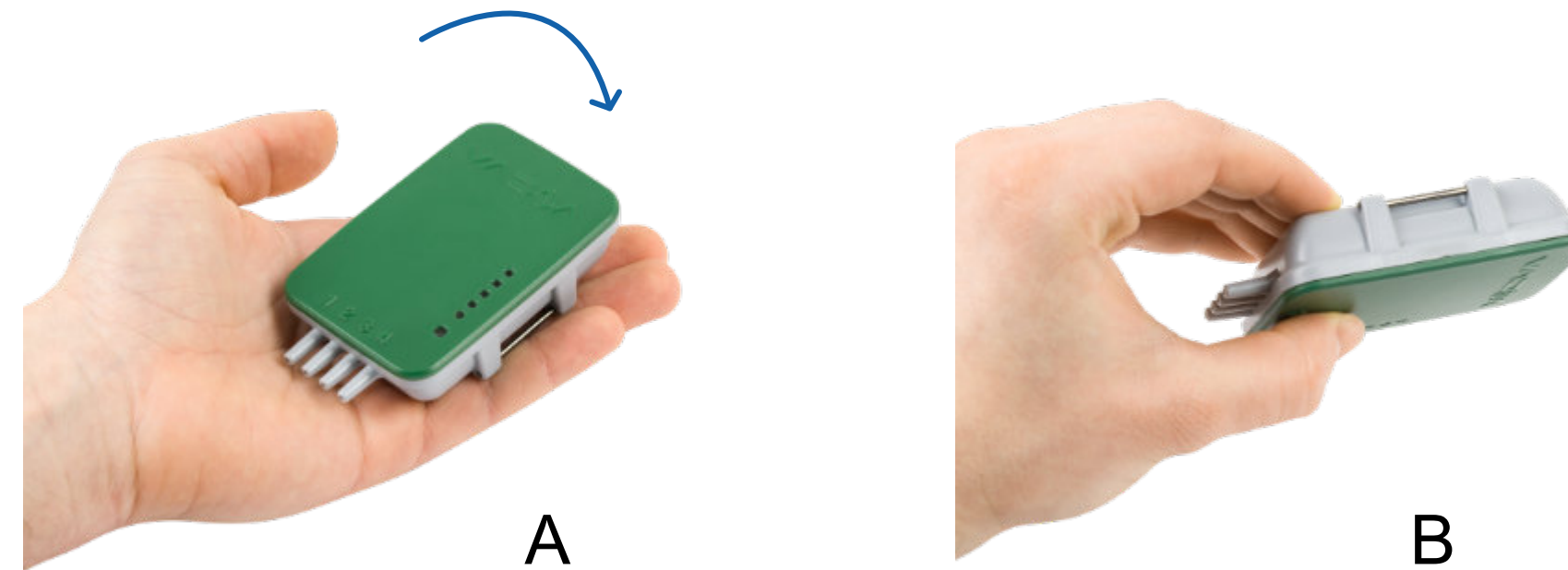
**i** Ability to change parameters.



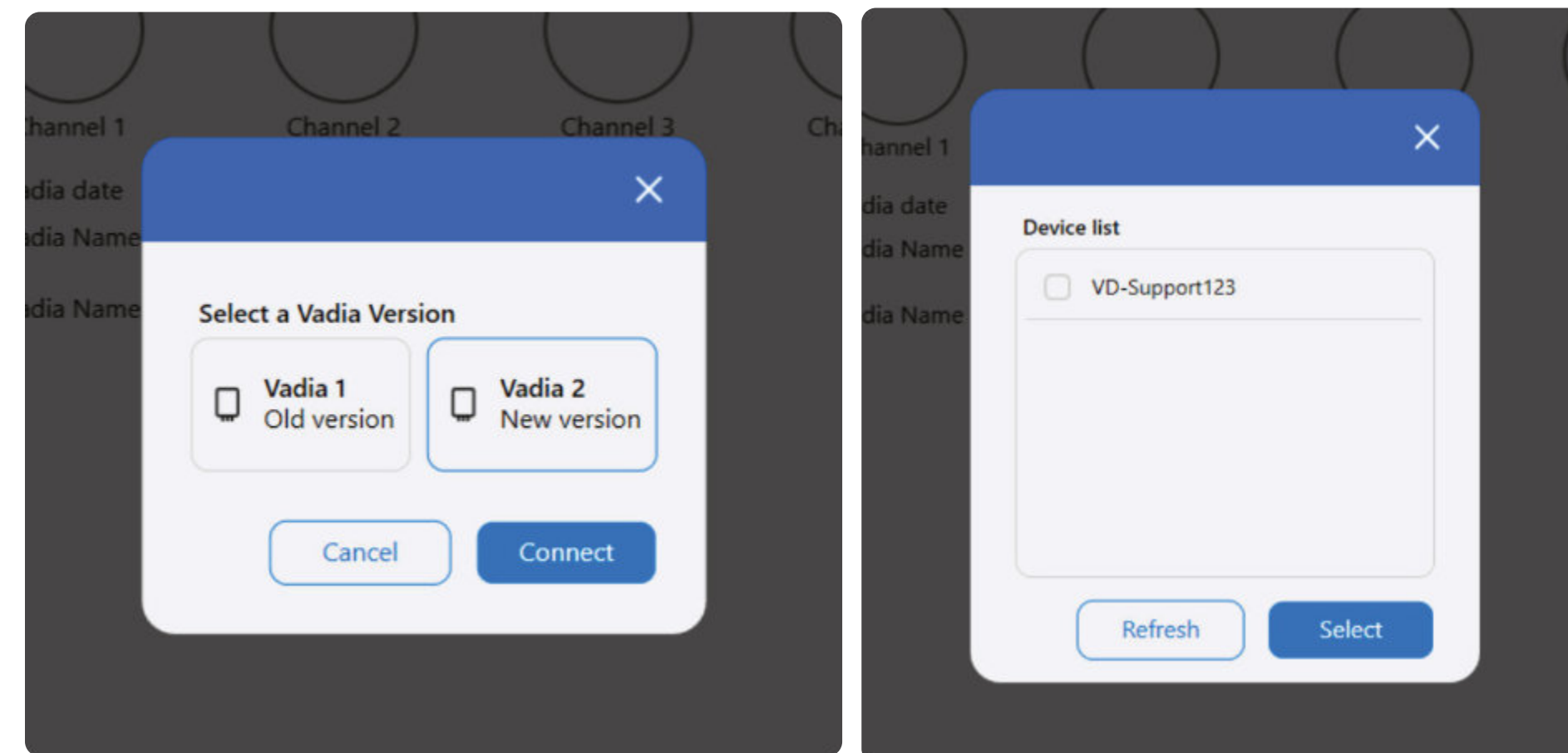
## 8.2. How to connect Vadia via Bluetooth

VaDia Suite connection:

1. Hold Vadia as in **picture A** and rotate the device as in **picture B** to enable BT.
2. Select **Vadia**
3. Then select a **device**, to connect to Vadia.



Note that the Bluetooth streaming mode consumes more power than the normal mode. VaDia operational time in Bluetooth mode will be significantly lower.



Here is a description of the parameters than can be set for VaDia:

Each parameter has 5 predefined stages that can be set by the user.

**Period of pressure sensing (seconds)** - how often VaDia 'wakes up' and checks if vacuum crossed the threshold set in 'Autostart pressure threshold' parameter - occurs within 60 minutes since the last vacuum was detected above the 'Autostart pressure threshold' parameter value.

**Time of pressure recording (seconds)** - data recording time to file when vacuum drops below 'Autostart pressure threshold' parameter. If during this time vacuum will be higher than set in 'Autostart pressure threshold' parameter - recording will continue. Otherwise, the file will be closed.

**Time of pressure tracking (seconds)** - vacuum tracking time after closing last file/recording. If during this time vacuum will be higher than set in 'Autostart pressure threshold' parameter - file is reopened and recording to this file continues. Otherwise, new file will be created.

**Autostart pressure threshold (kPa)** - vacuum threshold after which VaDia begins recording data.

### 8.3. Save logs

1. Connect VaDia via USB to the PC
2. Go to **VADIA folder** (VaDia recognized as flash drive)
3. Go to **VADIA\_DATA folder**
4. Download files directly from the device (copy to your folder on hard drive)

Nazwa	Data modyfikacji	Typ	Rozmiar
VADIA_DATA	06.05.2022 12:00	Folder plików	
VADIA_SYS	01.06.2021 00:00	Folder plików	

Nazwa	Data modyfikacji	Typ	Rozmiar
2022_06_29_12_42_34	29.06.2022 12:44	VD6 File	103 KB
2022_07_05_10_06_41	05.07.2022 10:08	VD6 File	231 KB
2022_07_08_13_43_17	08.07.2022 13:44	VD6 File	114 KB
2022_07_12_11_16_43	12.07.2022 11:18	VD6 File	145 KB
2022_07_12_11_18_31	12.07.2022 11:19	VD6 File	138 KB
2022_07_12_14_14_04	12.07.2022 14:14	VD6 File	38 KB
2022_07_18_13_37_28	18.07.2022 13:37	VD6 File	24 KB

# 9. ONLINE AND OFFLINE TESTING

VaDia Suite offers both offline and online real time data viewing modes.

- Offline means that an existing vd6-file is loaded into VaDia Suite
- Online means that VaDia is connected to the PC via Bluetooth and that data is continuously streamed to VaDia Suite for real time presentation and online analysis.

To explain the working of VaDia Suite, the following vd6 demo files are used in this manual:

- **Milking Time Test, Milking Parlour Efficiency Test and Liner Compression Test:** 'Leppink 4A MTT demo' and 'Leppink 5A MTT demo'
- **Pulsator test:** 'VPT demo'
- **Falloff Test:** 'VPT fall-off demo'
- **Slug Test:** 'Slug demo'
- **Milk Flow Resistance Test:** 'Milk Resistance demo'

The explanations in the following chapters are valid for both online and offline mode; the only difference is the data entry method (vd6-file or Bluetooth streaming). To fully understand the functionality and potential of VaDia Suite software we recommend following this manual step by step (and not read loose chunks) and work with the demo files as explained in this manual.

These files can be downloaded from the Community Section on our website: <https://biocontrol.no/support/products-manuals/>

## Diagnostics - VaDia - Software section.

### Demo files, explained in VaDia Suite user manual

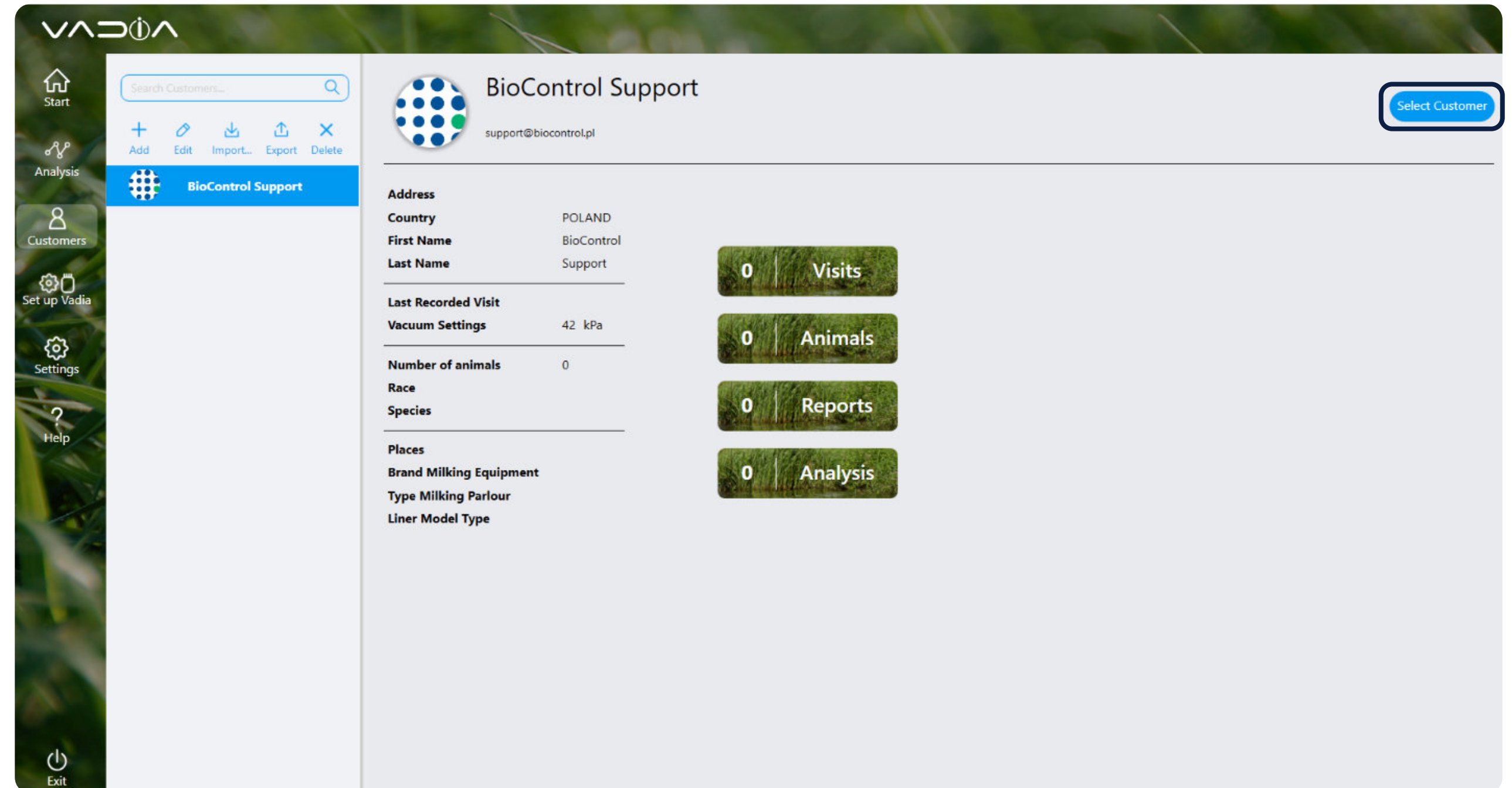
(right click/save as to save to your PC)

- Milking Time Testing: Leppink 4A MTT demo
- Milking Time Testing: Leppink 5A MTT demo
- Pulsator Testing small farm: VPT demo
- Pulsator Testing large farm: DeBoer PT demo
- Cluster Falloff Testing: VPT fall-off demo
- Milk Resistance Testing: MRT demo
- Slug testing: Slug demo

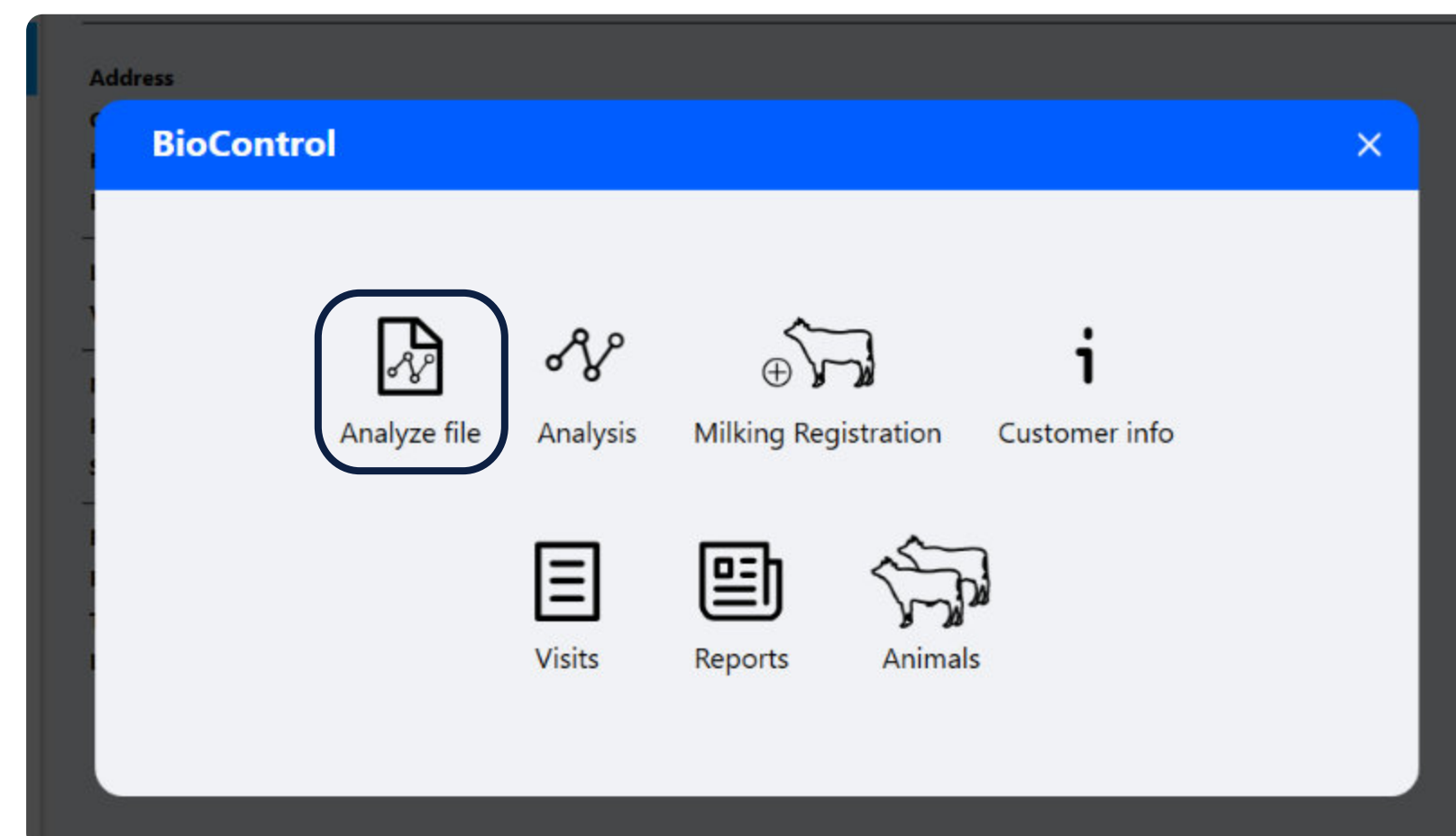
# 10. DATA ANALYSIS

Description of primary path from customer to analysis.

Select customer and click button 'Select Customer'.

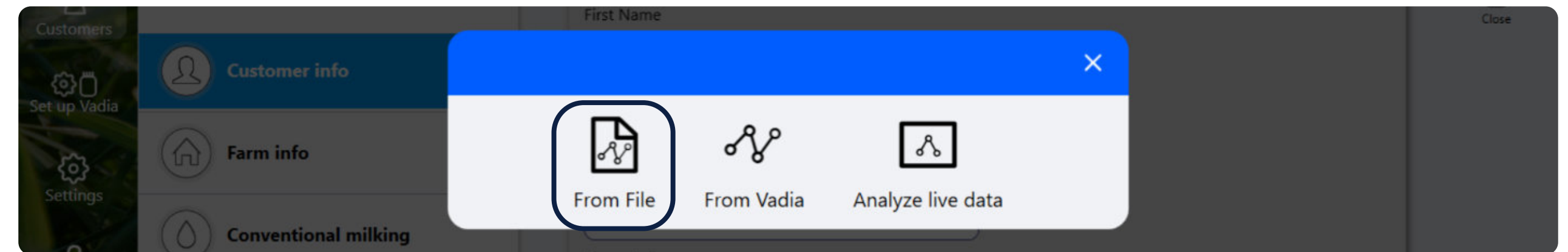


Click 'Analyze File'.



## Select From file.

If you want to receive and analyze data directly from VaDia choose **'Analyze live data'**. Remember that you need to have VaDia device connected via Bluetooth. If you already have a vd5 file saved on your device, choose file location and the rest of the path is described here. You can also analyze the vd5 file directly from the device by selecting From VaDia. Vadia must be connected via USB to use this method.

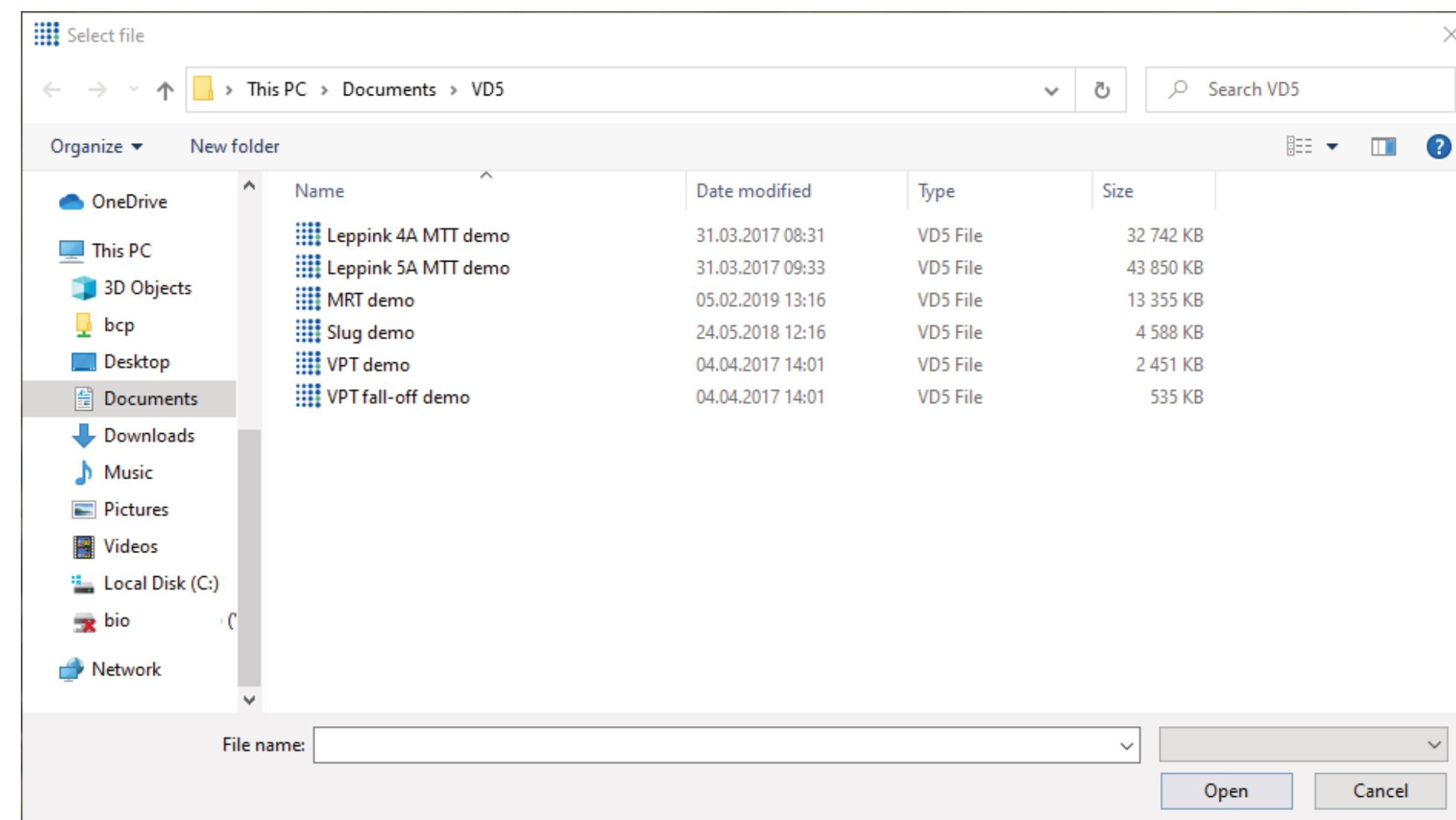


## Select From file and choose. vd5 file.

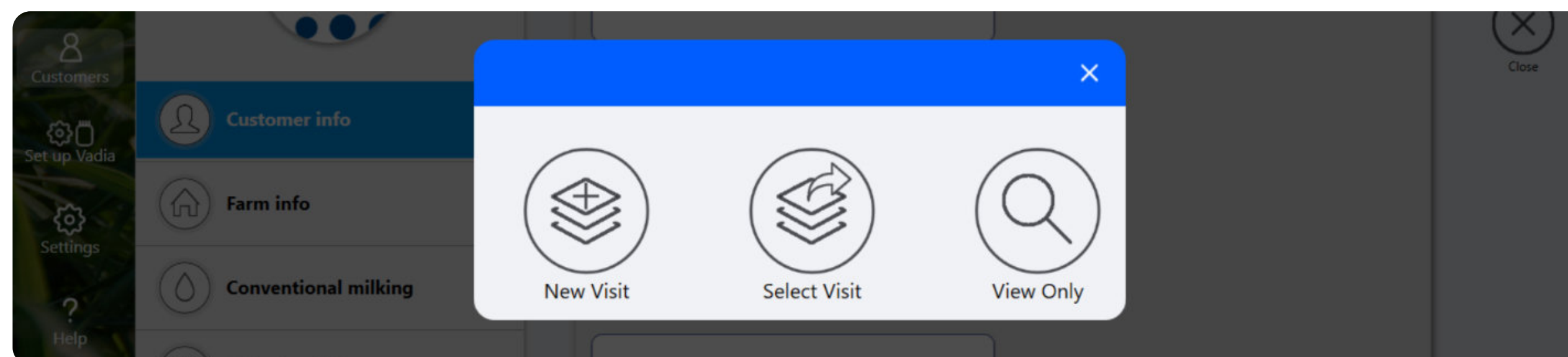
You can also analyze the vd5 file directly from the device by selecting From VaDia.

Vadia must be connected via USB to use this method.

Please keep in mind that it works with VaDia 1 only (the old VaDia device).

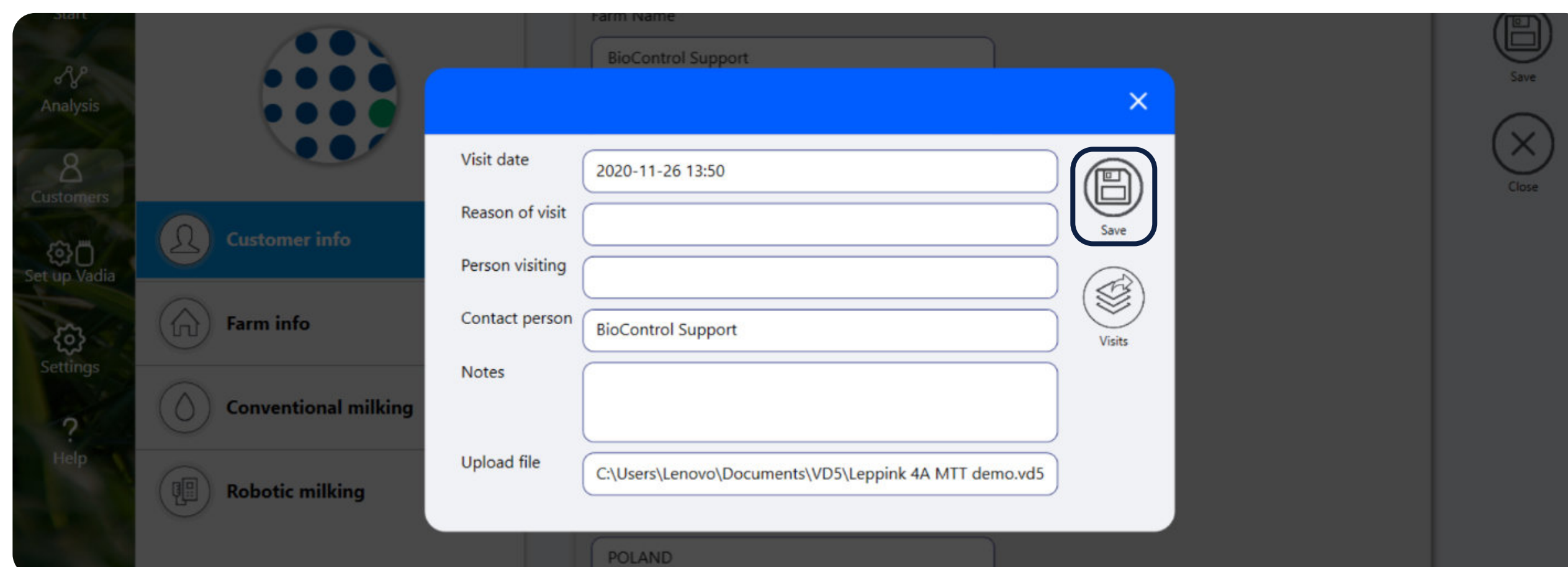


In this view, you can create a new visit. If you already have a visit, click **'Select Visit'** and choose a visit from the list. **'View Only'** option does not provide a possibility to test a file. It is used to overview the data.

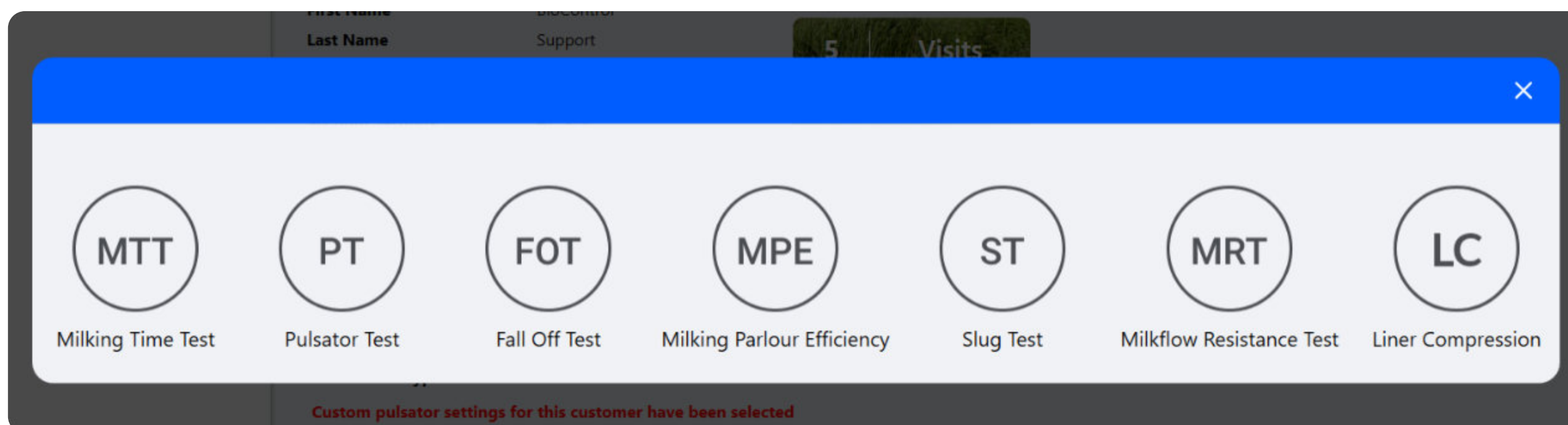


Fill in the information about your visit. Default contact person is a selected customer and Person Visiting is taken from your **'Settings'**. Upload file shows a path to the chosen file, **'Visits'** button will take you to visits list if you change your mind and want to select previously created visit.

After filling up all data tap **'Save'** button.

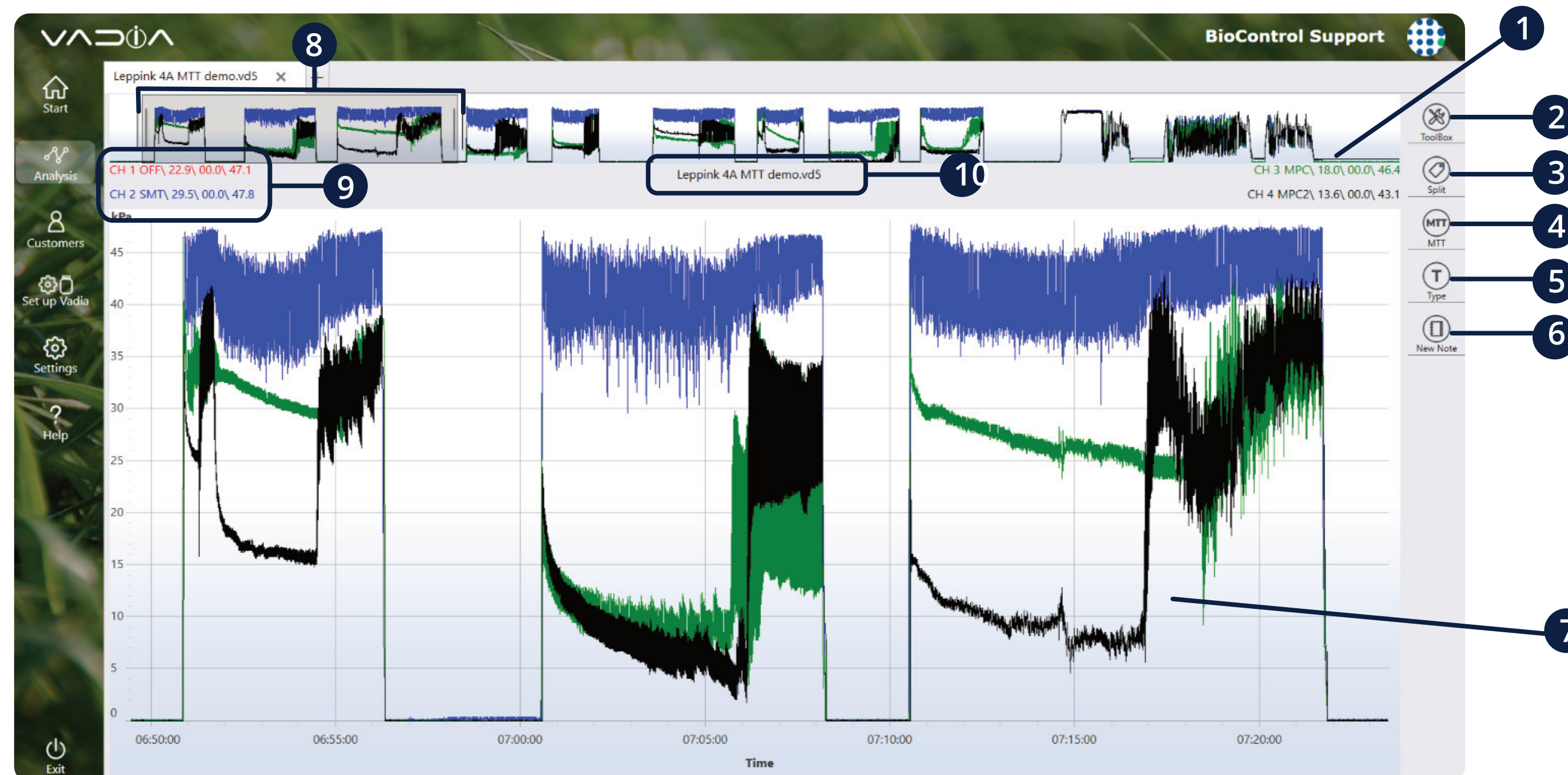


Choose what type of test you would like to create. Remember, if you chose a wrong one at the beginning, you can always change it in the analysis view.



## 10.1. Graph navigation

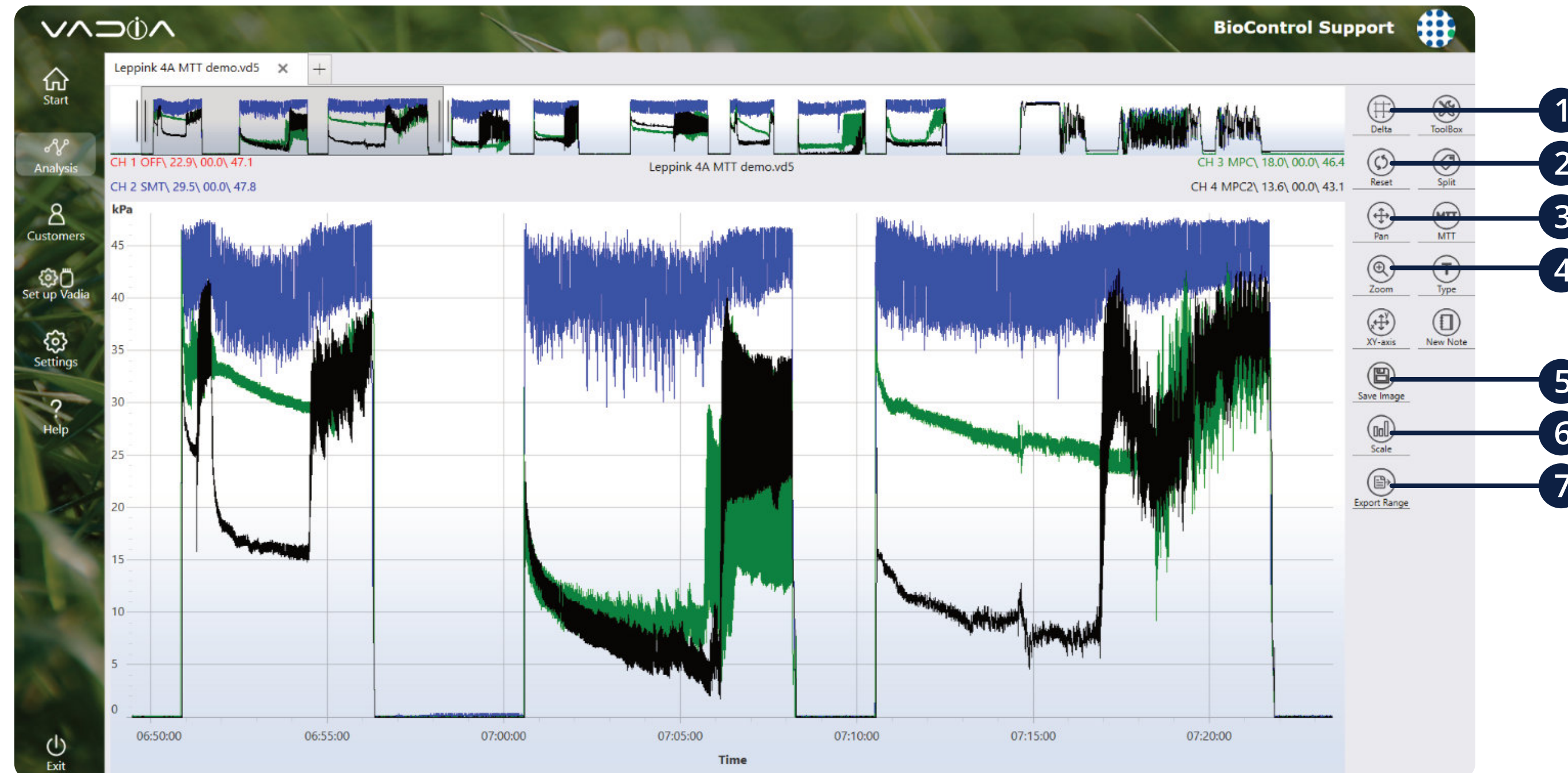
VaDia Suite has two graph windows: a smaller 'navigation' window (top) and a larger 'detail' window (bottom). The navigation window shows which part of the data is currently zoomed and displayed in the detail window. This helps to keep the overview of your logs.



- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>1 Navigation window</li> <li>2 Toolbox: opens menu bar with graph settings.</li> <li>3 Split markers - button shows up at Milking Time Test, Milk Resistance Test, Milking Parlour Efficiency Test and Liner Compression Test.</li> <li>4 MTT – Test button to create test. Depends on selected test type.</li> <li>5 Test type – change graph test type to: Milking Time Test, Pulsator Test, Fall of Test, Milking Parlour Efficiency, Slug Test, Milk Resistance or Liner Compression Test</li> <li>6 New Note - Add a note to the visit</li> </ul> | <ul style="list-style-type: none"> <li>7 Detail Window</li> <li>8 Half transparent rectangle in navigation window shows which part of data is presented in detail window. Resize by dragging one of the borders. Can be slid by holding finger on it and moving to either side (on touch screen only).</li> <li>9 Channel description: Shows the number of channel, Type (SMT, SPT, MPC, MPC2, NULL, LMC, LMS, ML), average value, minimum value and maximum value of channel from detail window. If delta markers are set, then it shows values between V1 and V2 markers.</li> <li>10 Loaded file name</li> </ul> |
|---|---|



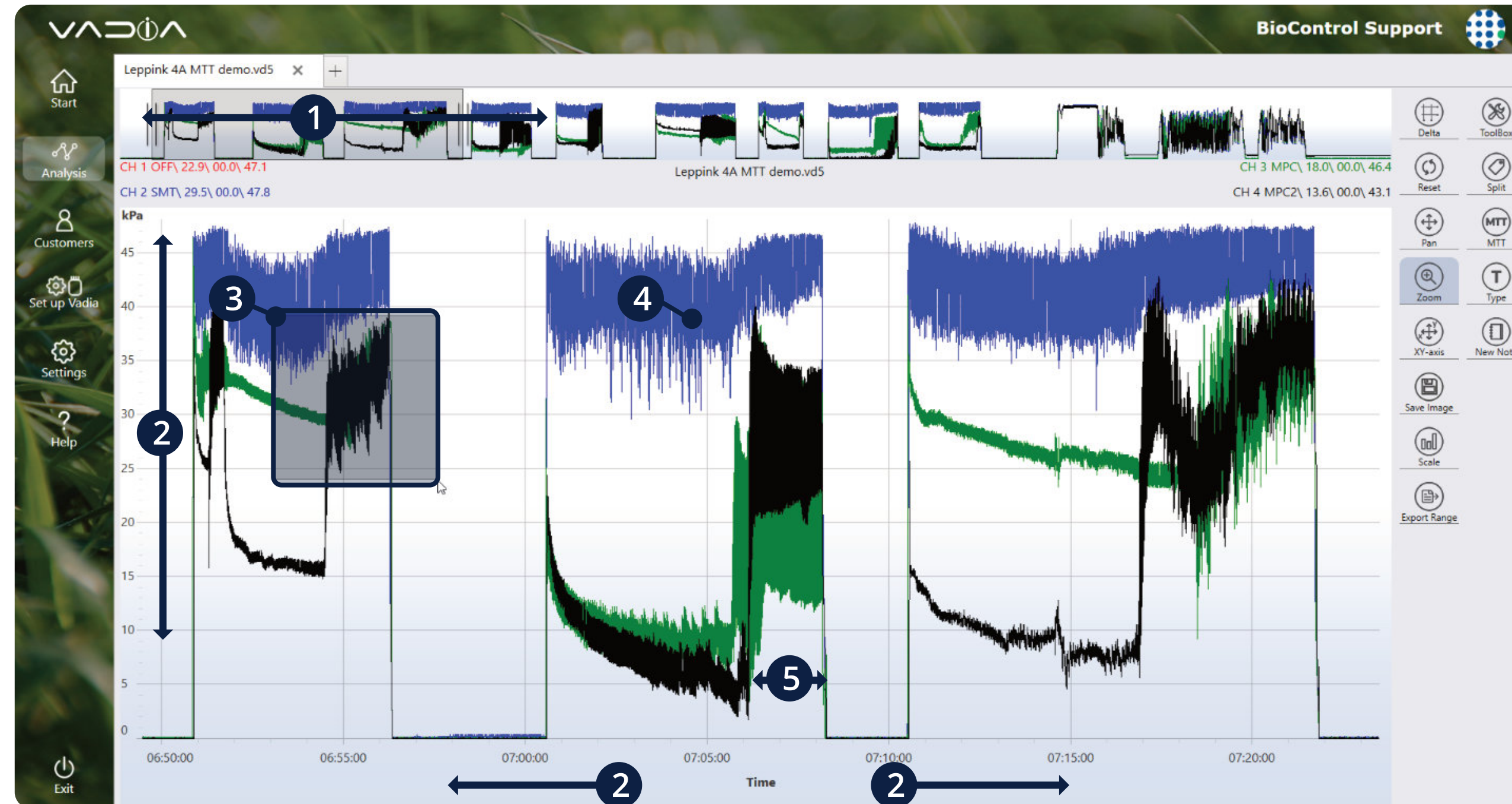
## 10.2. TOOLBOX



- 1 Delta markers – show delta value under the file name. User can set Time markers, Pressure markers or both at the same time. If markers are set, user can delete them from Delta menu. Also, if markers are set, channel values are calculated not from the detail graph, but from the space between markers.
- 2 Reset - deletes all markers and restores graph to default view
- 3 Pan – Enables panning in the detail graph. Panning by navigation window is enabled all the time
- 4 Zoom – disables panning and enables zooming to the selected part of view from navigation graph.
- 5 Save image – User can choose to save actual view from detail graph to file either to a specified directory on their PC or to attach it to a visit.
- 6 Scale – opens a menu, where user can switch between auto scale and manual scale to indicate data range.
- 7 Export range - Select range of data in navigation window and export it to separate vd5 file.

## 10.3. ZOOM

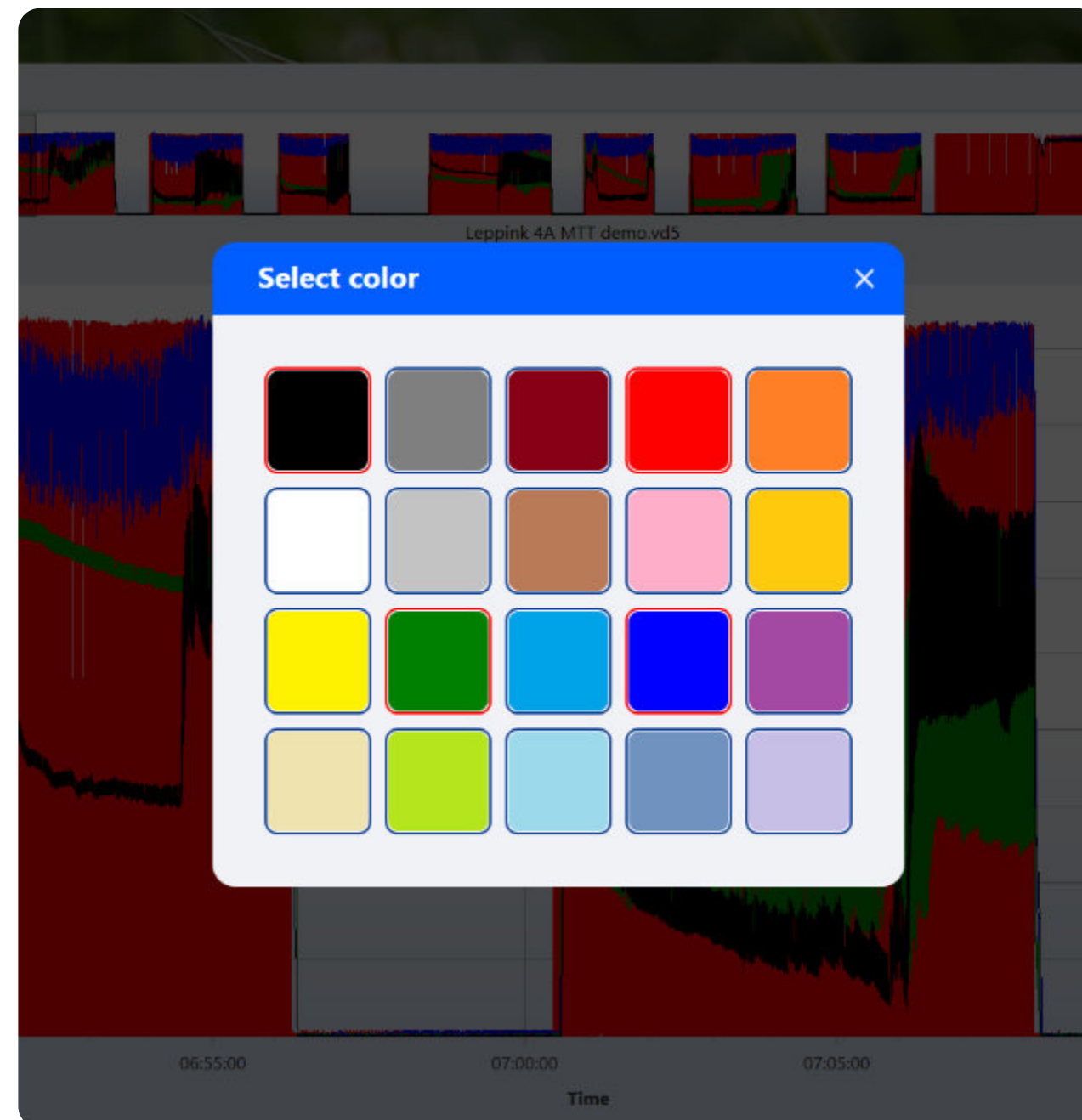
Besides number 3 all zoom options are enabled all the time.



- 1 Grab the border of rectangle at navigation window and stretch it to zoom out.
- 2 Zoom pressure or time by moving time and pressure axis.
- 3 Enabled ONLY in zoom mode. Hold your finger on a chart in detail window and mark the area you want to zoom in. (for touch screens)
- 4 Hold your finger for about 1 second at milking that you want to zoom (touch screens only) and it will fit data to detail window. For devices without touch screen, click with the Right Mouse Button on the test and the software will automatically fit to window size.
- 5 Pinch fingers to zoom for touch screen. For regular use, click and hold LMB to draw a rectangle to zoom.

## 10.4. CHANNEL DESCRIPTION

To open this view, simply click at channels description between navigation graph and detail graph. Press on channel color at the top right corner of the channel and change channel color displayed on the graph. Colors which are already selected cannot be used for other channels.



- 1 Click on any of the four channels to display channel settings view. Click to switch on or off. Channel that is switched off is not shown at navigation and detail graph but is taken to test calculations.

- 2 Click to select channel type. Null channel is shown in detail and navigation window but is not taken to test calculation.

**SPT** - Short pulsation tube, **SMT** - Short milk tube etc., **MPC** - Mouthpiece chamber, **MPC2** - Mouthpiece chamber 2, **LMC** - Long Milktube at cluster, **LMS** - Long Milktube at sensor, **ML** - Milk line

To completely switch off channel at view and calculation set channel to null and then switch it off.

## 10.5. Switch scale

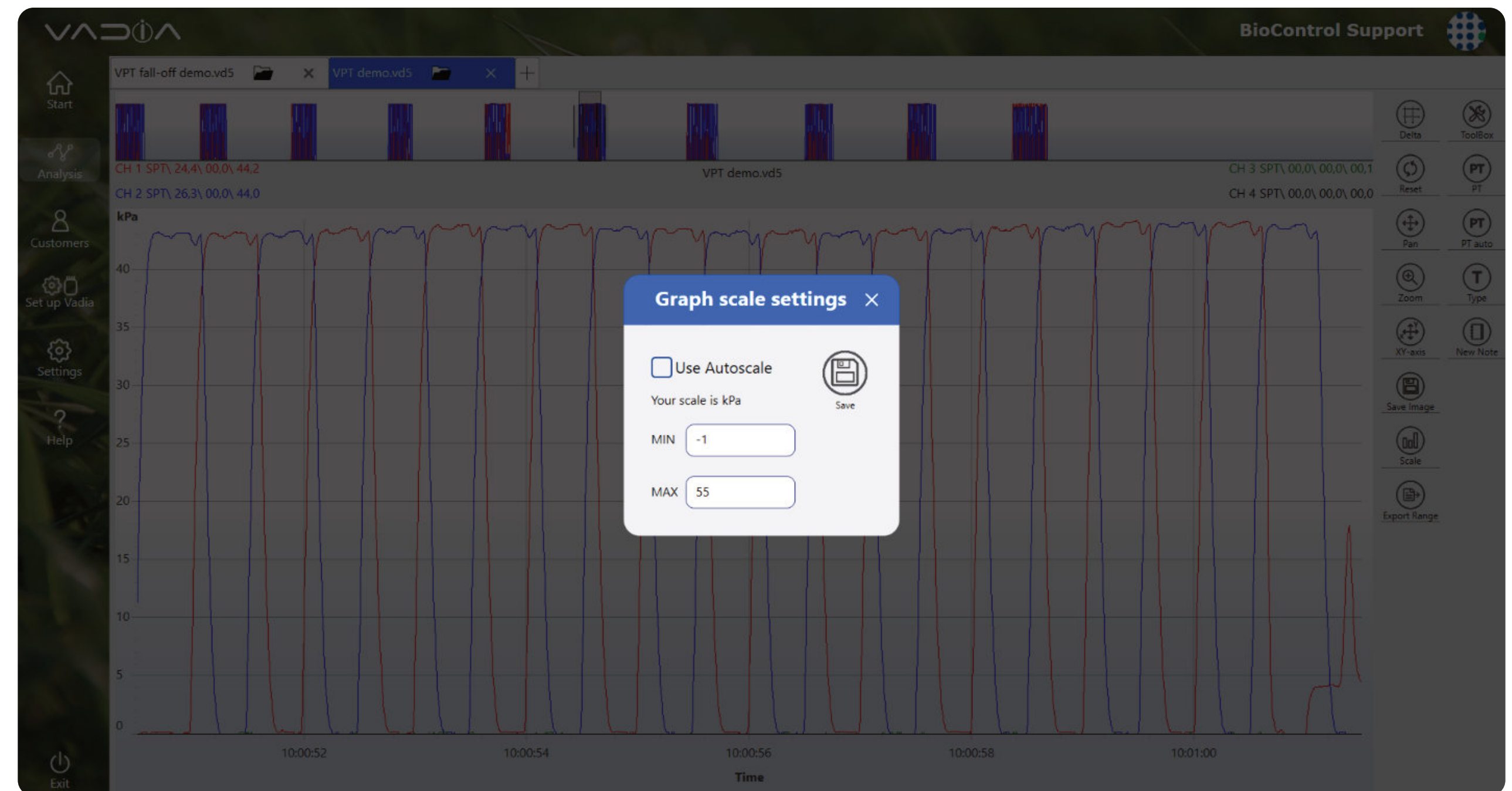
Click „Toolbox” and „Scale”

You will see the following screen.

Choose to use autoscale or enter your own scale values.

Click “Save” to store changes.

Please note if you want to change scale units, go to “Settings” – “Graph settings”



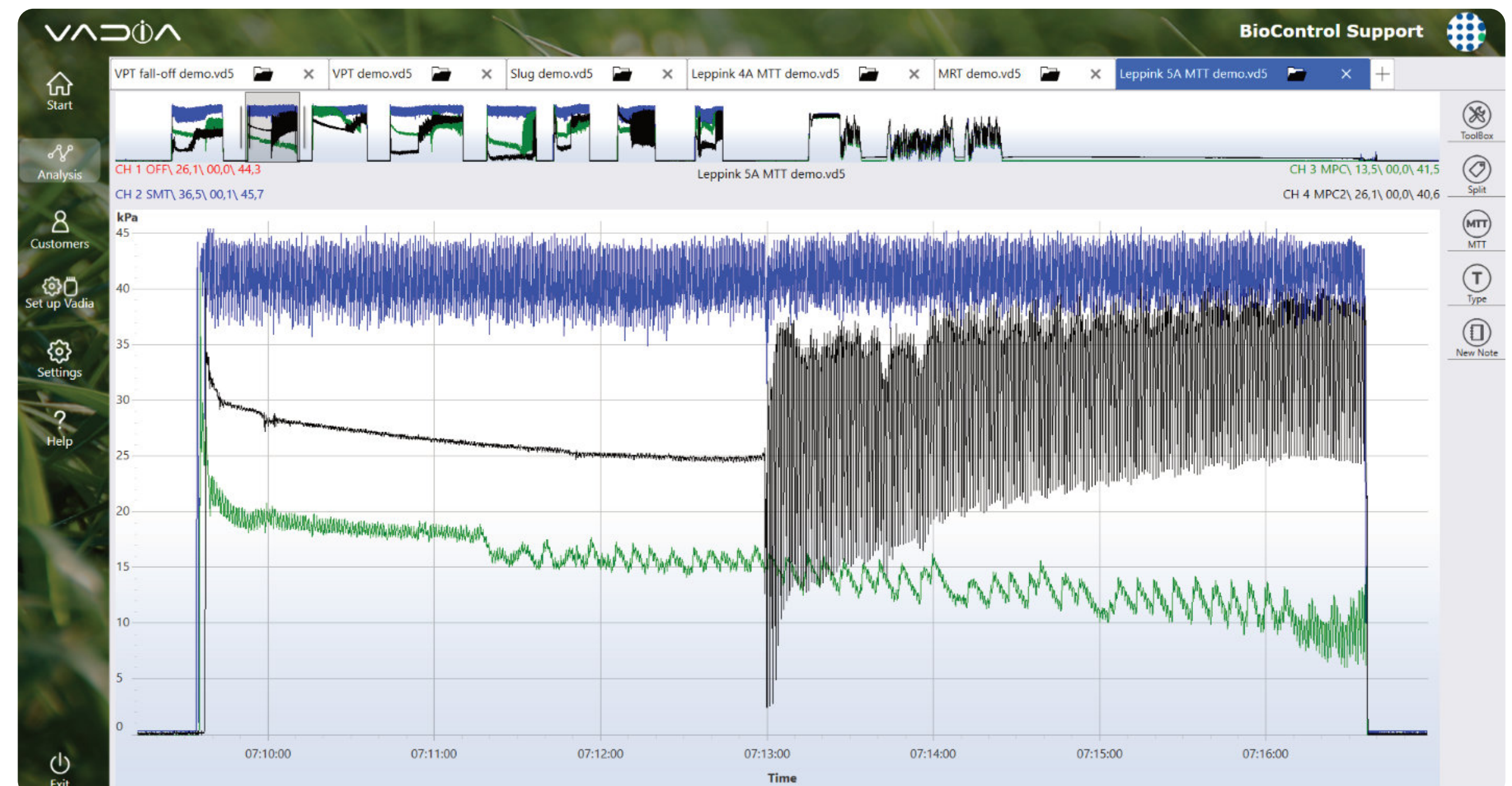
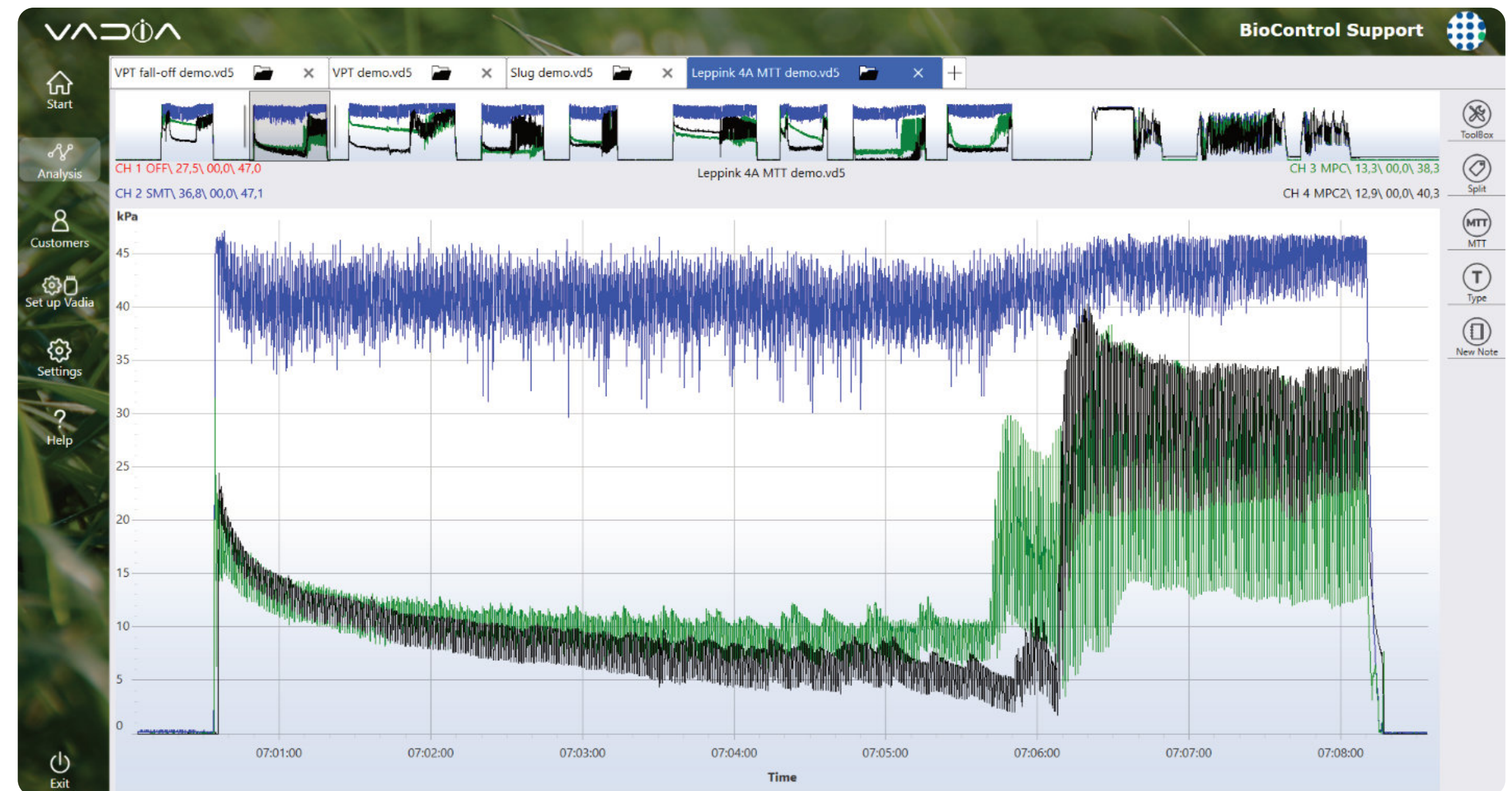
## 10.6. Multiple tabs

Multiple vd5 files as separate tabs

If you want to switch between two vd5 files to compare collected data, we added possibility to load vd5 files as tabs (up to six tabs open at the same time).

First vd5 file has to be loaded as usual, by choosing a customer and visit. Tests made on the vd5 files added as separate tabs will be assigned to previously selected customer and visit. You can change test type by clicking 'Test type' button in the menu on the right.

To load vd5 file in another tab, simply click on the '+' icon next to already open file.



# 11. MILKING TIME TEST (OFFLINE)

## 11.1. Attaching VaDia to the milking cluster

VaDia can be connected to any vacuum source in the milking equipment.

Note however that VaDia Suite uses the following test points for the analysis and reports:

Use PVC or duct tape to attach VaDia to the teat cup. Duct tape is often selected for fast working and to prevent water ingress.

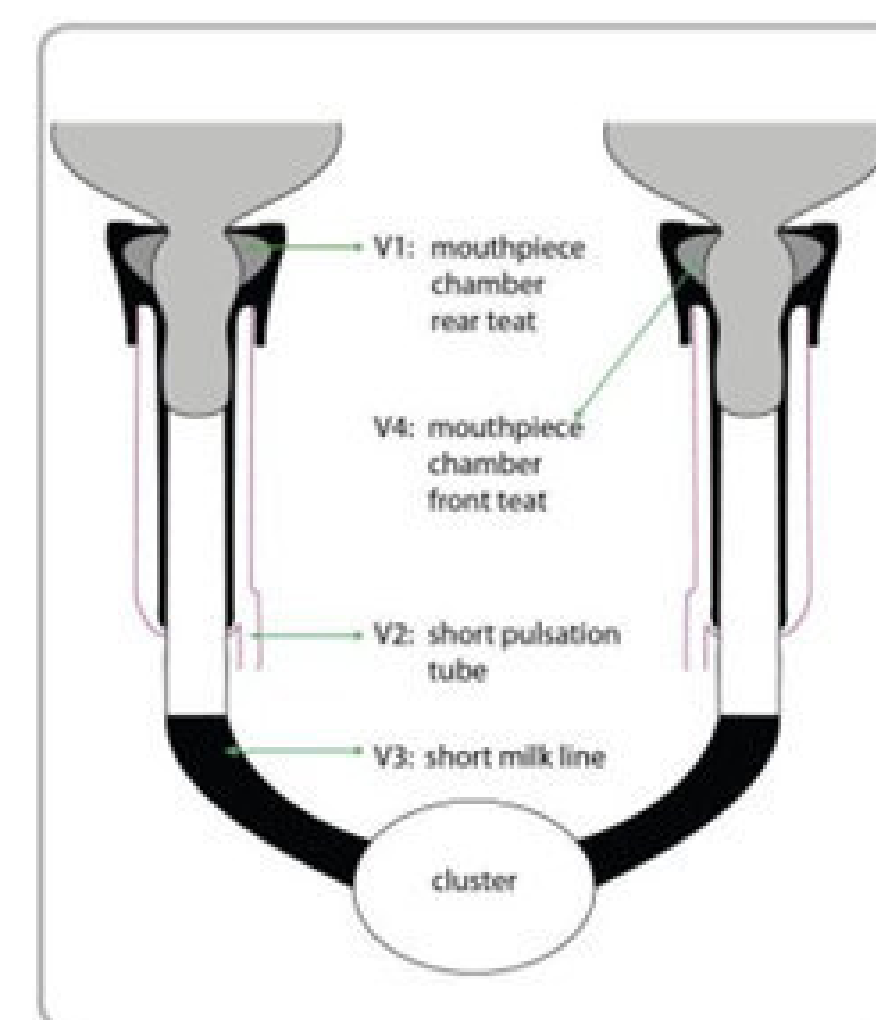
**Note:** It is recommended to install VaDia on the milking cluster as it is shown on the picture on the right (with nipples facing upwards).

Note however that VaDia Suite uses the following test points for the analysis and reports: (see picture at the bottom).

For VaDia 1 use PVC or duct tape to attach VaDia to the teat cup.

Duct tape is often selected for fast working and to prevent water ingress.

For VaDia 2 use the strap that comes with the device.



## 11.2. Connect VaDia to the test points

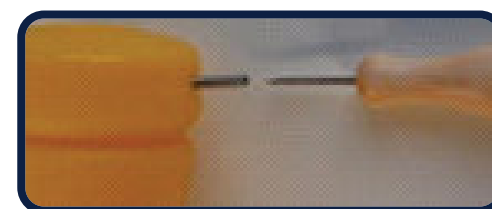
When VaDia is connected to the teat cup, the vacuum sensors (4-1) can be connected to vacuum sources by means of the supplied silicon tube (4-7) and stainless-steel tube (4-8).



Slide the stainless-steel tube (4-8) over the needle tool (4-6).



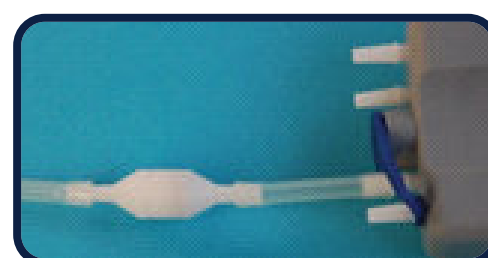
Find the test point and gently pierce the needle with the stainless-steel tube through the material until you feel it has gone through.



Slowly retract the needle; the stainless-steel tube is now in place. In case of mouthpiece: feel with your finger that it does not stick through too deep. If it does, retract it a bit to avoid teat-irritation.



Now attach the silicon tube to the stainless-steel tube. Cut it to length and connect the other end to the corresponding VaDia channel.



Always use the supplied Milk Filter (4-8) when connecting to the Short Milk Tube or other tubes with liquids and foams.



Use of the milk filter is necessary to prevent milk foam from reaching the VaDia sensor.



Check the milk filter for contamination or residues after milking. Replace the milk filter if necessary.

It doesn't matter which VaDia channel is connected to what vacuum source, but make sure to note it somewhere! Default settings in VaDia Suite:

CH1 = Short Pulsation Tube (SPT)

CH2 = Short Milk Tube (SMT)

CH3 = MouthPiece Chamber rear teat (MPC)

CH4 = MouthPiece Chamber front teat (MPC2)



Click 'Customer' and create a new customer (or select an existing one from the list).

Click 'Select Customer' and 'Analyze file'. Select the file 'Leppink 5A MTT demo'.

Create new visit (or select an existing one from the list).

Select MTT test type.

The data is now loaded and displayed in the active window.

For detailed description on how to load file to analyze, refer to chapter 5: Data analysis.

**CH1 is the pulsator recording. Define the Channels as follows:**

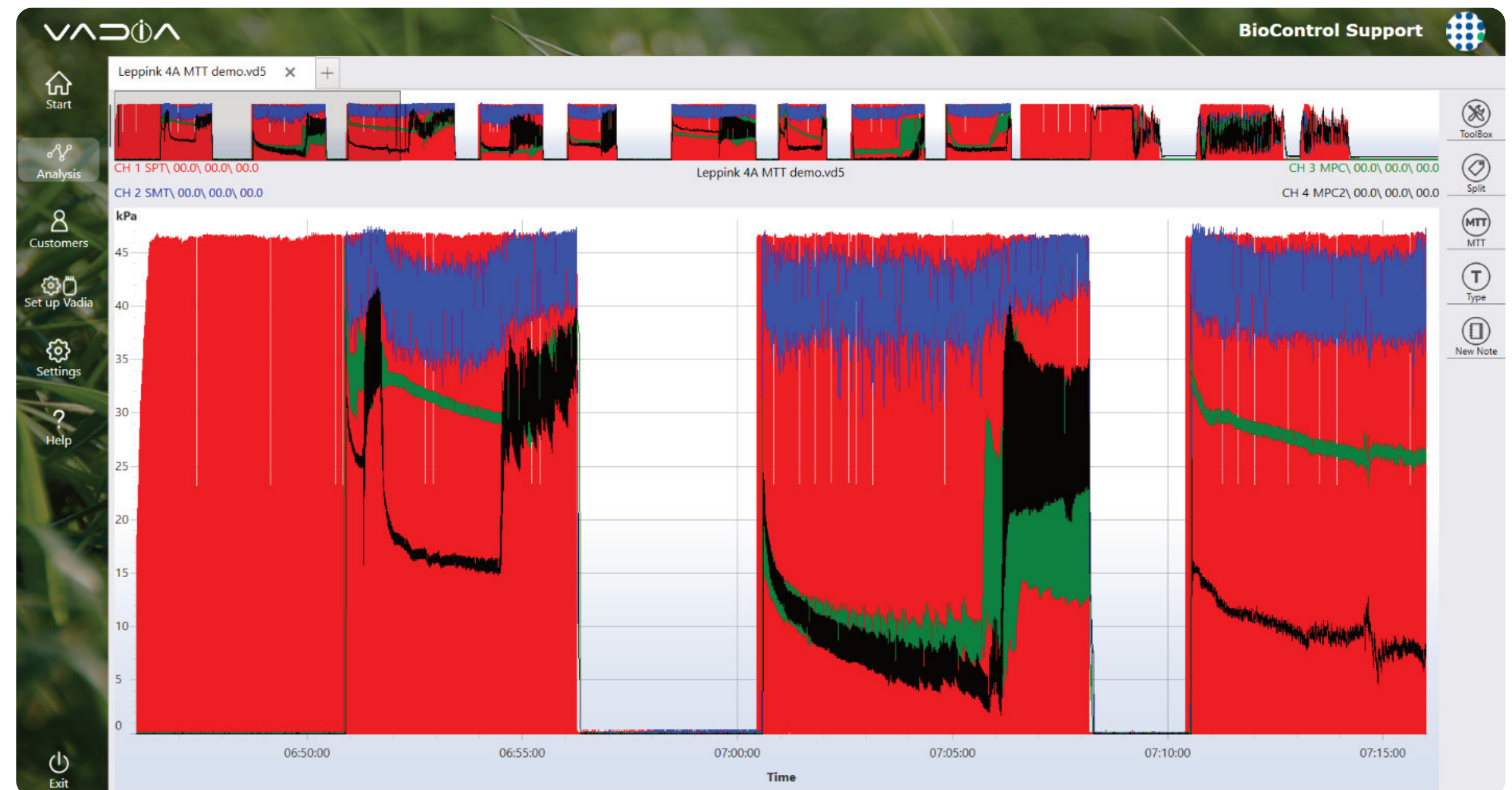
**CH1** = SPT (Short Pulsation Tube)

**CH2** = SMT (Short Milk Tube)

**CH3** = MPC (MouthPiece Chamber rear teat)

**CH4** = MPC2 (MouthPiece Chamber front teat)

In this zoom CH1 overlaps the relevant channels, therefore deselect CH1.



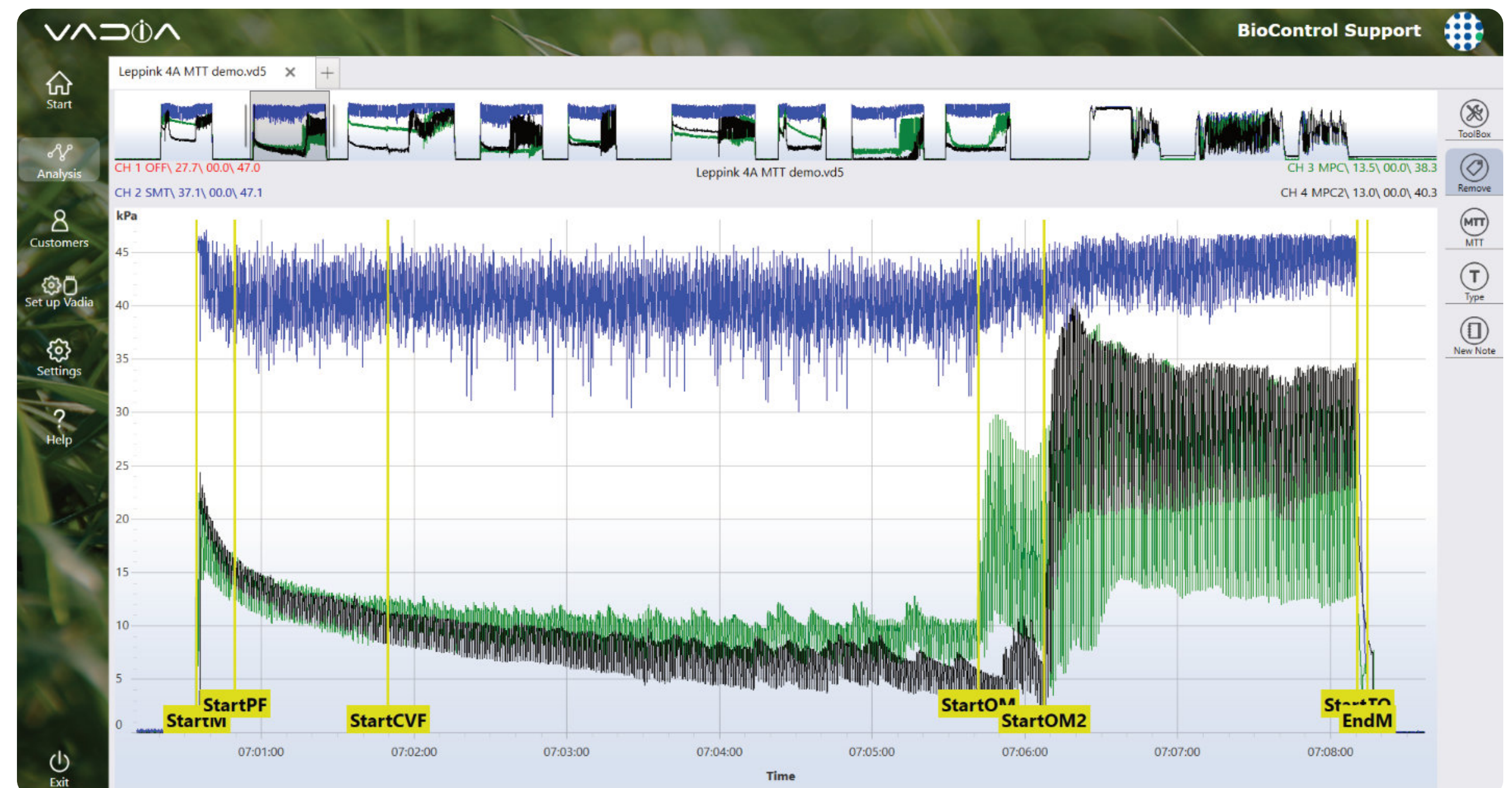
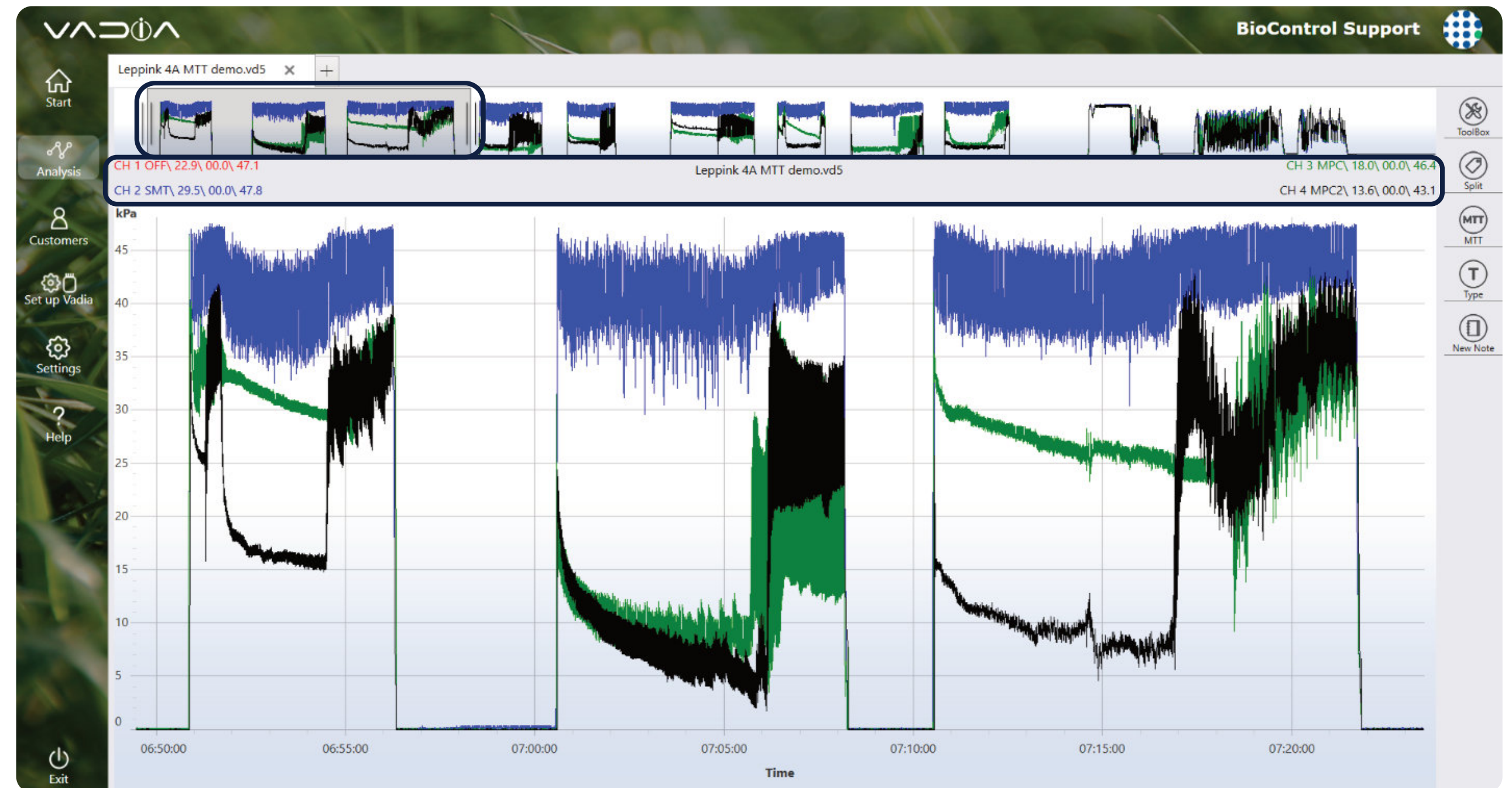
Zoom in the navigation window on the first milking, the following will show (recommended method to zoom milking is to hold finger for about 1 second at this milking) or click with right mouse button on the test.

Tap 'Split' button. The marker lines are now automatically set, manual correction is done by dragging the marker line to the correct position. You can drag marker by grabbing the label or line.

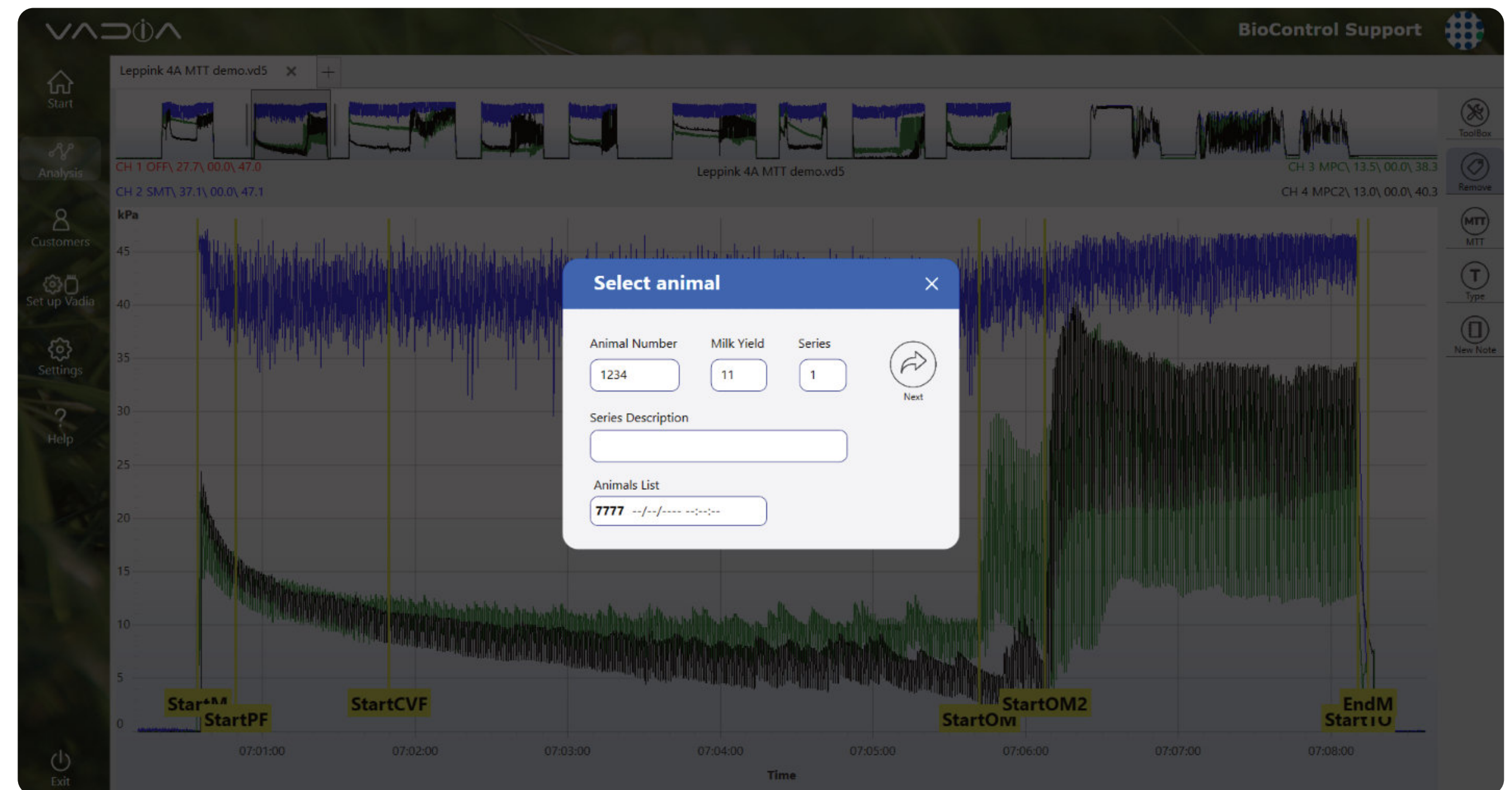
This will display 7 marker lines that split-up the milking into 5 milking phases:

- Start = Start of Milking
- StartPF = Start Peakflow
- StartCVF = Automatically set 60 seconds after "Start PF" marker
- StartOM = Start Overmilking MPC
- StartOM2 = Start Overmilking MPC2
- StartTO = Start Takeoff
- End = End of Milking

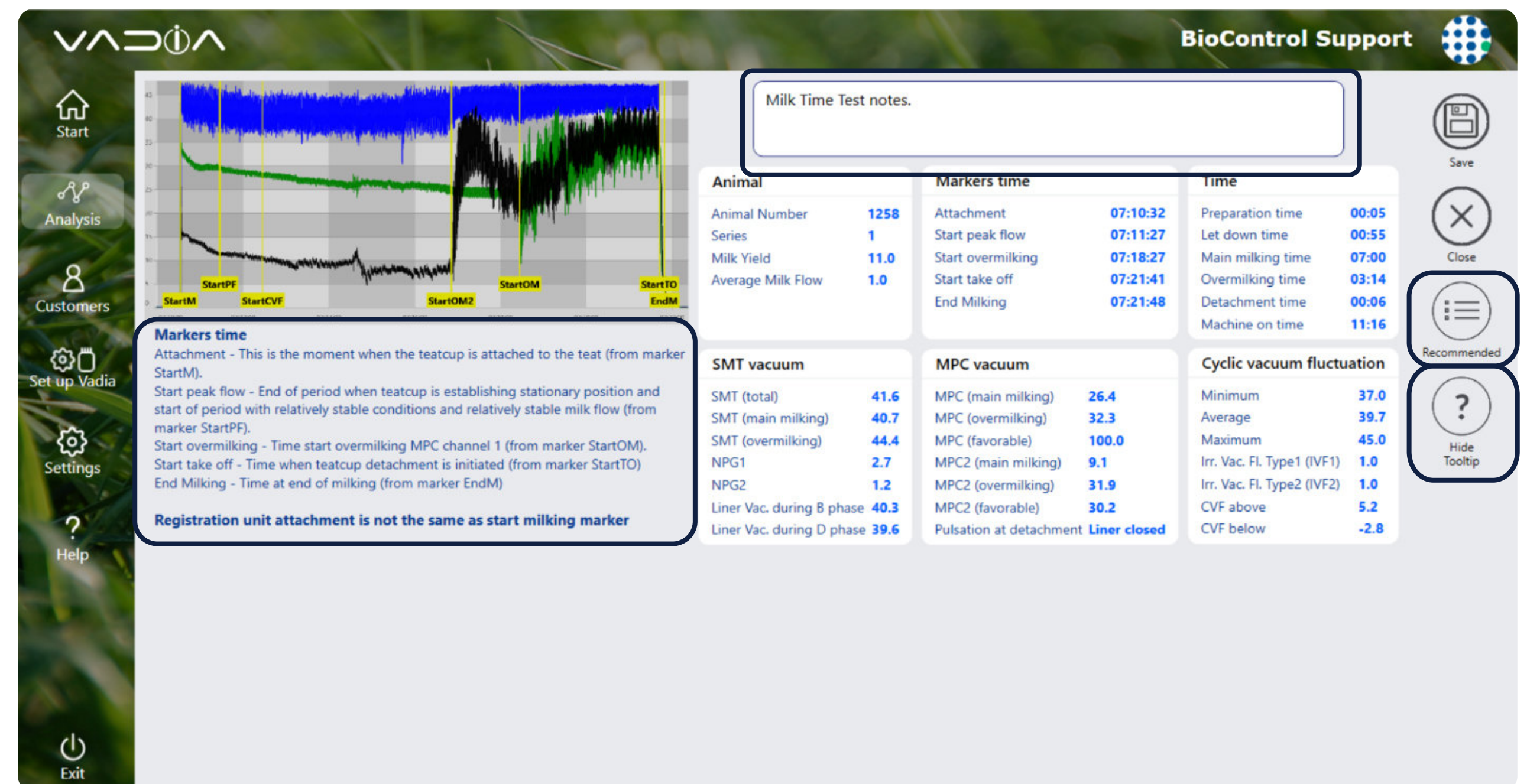
If you wish to remove just MTT markers tap 'Remove' from menu on the right.



Click 'MTT' button. The following information will show:



Choose animal from the list (list of animals registered with 'Milking Registration') or provide a new one at the boxes. Milk Yield can be set as decimal value. Click 'Next' to show test result view:

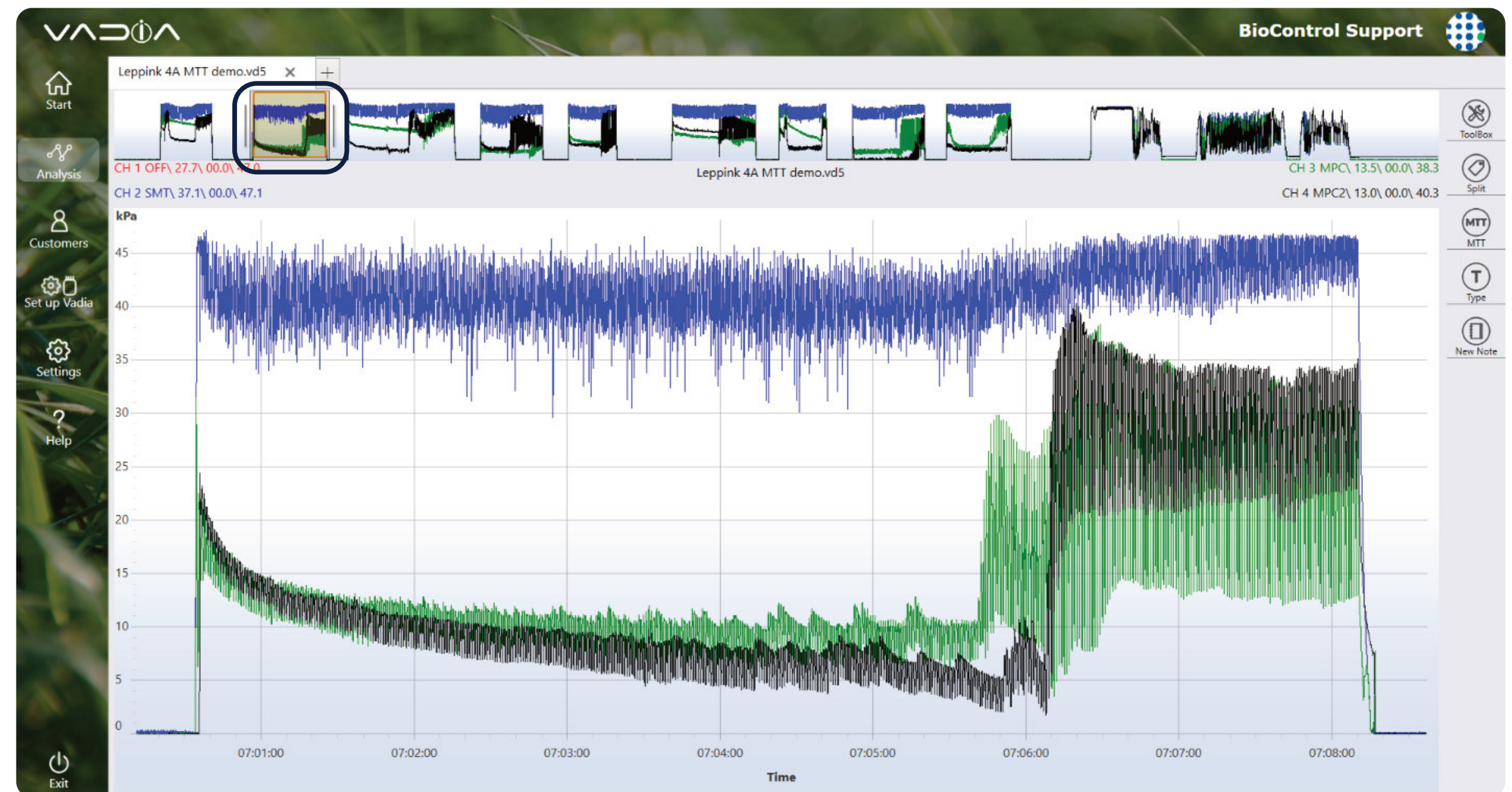


Show / Hide tooltip by tapping the button on the right. Tap individual tables to select which tooltips to show. Write test notes at box at the top.

Clicking on 'Recommended' pops up a window with recommended values.

After saving the test you will see this view:

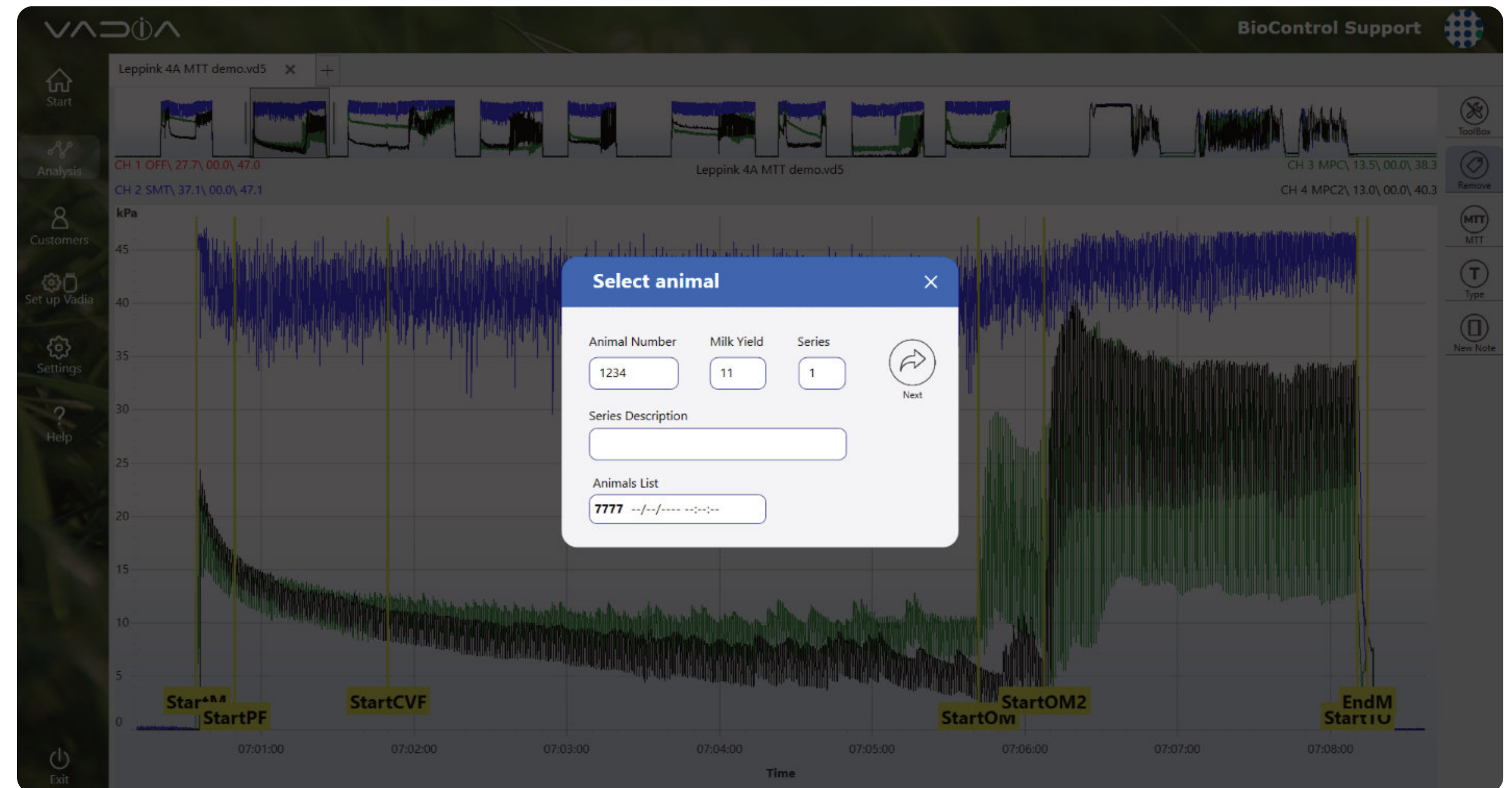
Milking which was already tested and saved is marked with an orange rectangle to distinguish which tests are already analyzed. Select next piece of data and continue testing.



### 11.3. Add another VaDia series

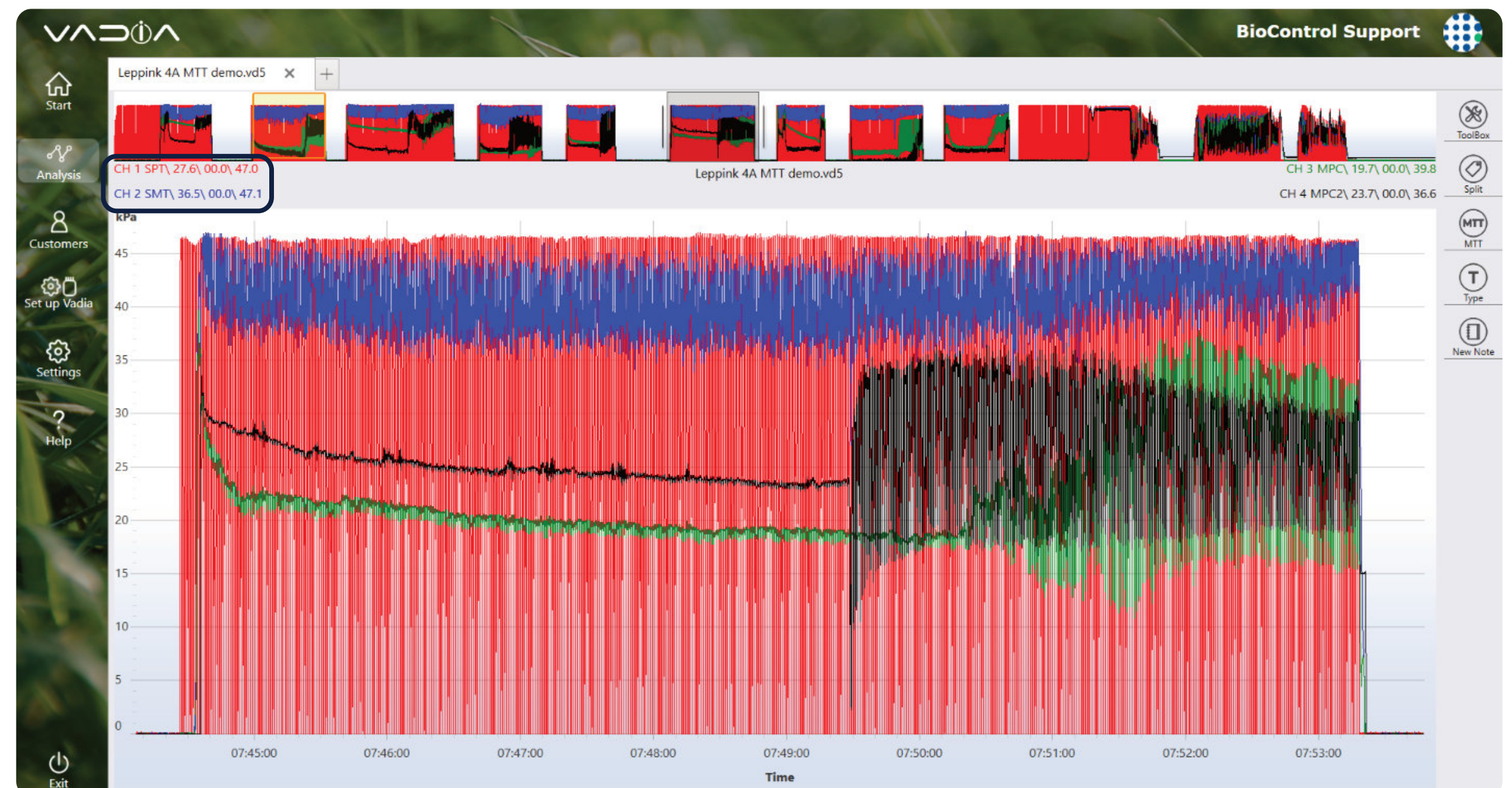
Another series from another VaDia can be added so that it is included in the same report. This can be convenient for recordings where e.g. different cluster/liner combinations are tested.

Click 'Customers' and select a customer. Then click 'Select customer' and 'Analyze file'. Choose file analysis, visit and test type. When test pop up appears, in 'Series' field type '2' to add another series to your report.



### 11.4. Teat-end vacuum during Peak flow (average/min/max)

The Channel information displays average/minimum/maximum vacuum of the data that is displayed in the detail window. This is very convenient for fast recording of teat-end vacuum in the peak flow period (here CH2 SMT = 36,5/ 00,0/ 47.1 kPa).



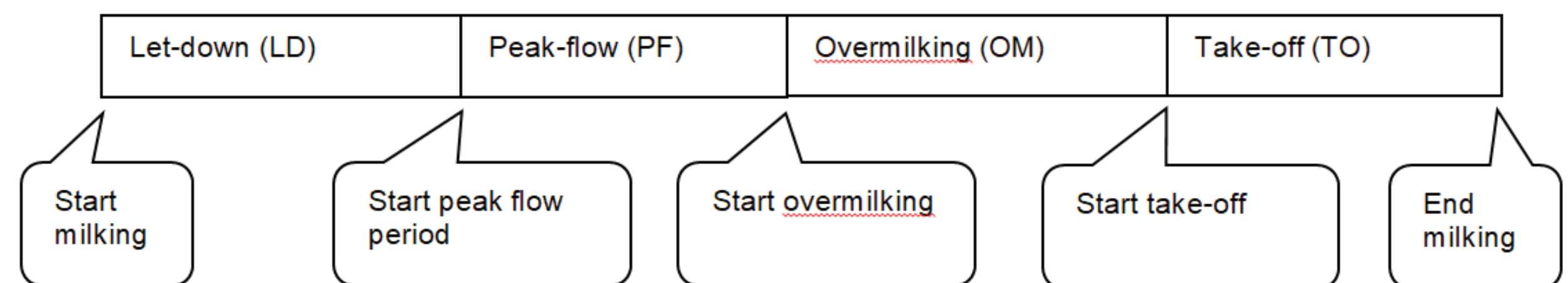
# 12. MTT CALCULATION METHODS AND ALGORITHMS

This content may change because of new theories and calculations. The latest version of this document can be found on our website.

## 12.1. General

To analyse the vacuum in the milking unit, individual milking must be split into various phases. For this program four phases are used, see figure 1. The peak-flow period includes the period with gradually decreasing milk flow (if present), contrary to some other systems for analysing milking.

VaDia Suite offers manual selection of the boundaries (marker lines), there is also an automatic function to “split” the milking into phases. The automatic function must be regarded to be of assistance for the manual adjustment. Results from the automatic splitting must always be checked before assessing vacuum conditions.



## 12.2. Determining boundaries

- **Start Milking**

This is the moment when the teat cup is attached to the teat.

**Automatic detection (Split)**

The moment when SMT vacuum rises above 25 kPa.

- **Start peak flow period**

This is the end of the period when the teat cup is establishing a stationary position on the teat, and milk flow is established. It is also the start of a period with relatively stable conditions and a relatively stable milk flow.

**Automatic detection (Split)**

Is based on the common mechanism that vacuum level declines when milk flow increase. The average SMT vacuum in 10 seconds' periods after attachment is monitored. When the average vacuum from one period to the next declines less than 0,15 kPa, the midpoint of the first (of the two) periods is indicated as start of peak flow period. The first 20 seconds' period is excluded from the calculations, so there will be a minimum value of 25 seconds.

- **Start take-off**

is the moment when teat cup detachment is initiated. It can be seen on the SMT vacuum as the start of a rapid decline towards zero, or it may be a shift in vacuum in some types of equipment.

**Automatic detection (Split)**

The program loops through all data points after the start of peak flow period and finds maximum vacuum. Then the program loops through backwards from the end of milking until the SMT vacuum is less than 5 kPa below maximum vacuum. This data point denotes the start of take-off.

- **Start overmilking**

Overmilking of the relevant teat can be detected by means of MPC vacuum. When the teat gets empty, there will ordinarily be a shift in the MPC vacuum level, or a marked change in the MPC vacuum fluctuations, or both. There are two markers for overmilking, one for each MPC channel.

**Automatic detection (Split)**

is based on an increase in MPC vacuum variation. When the current variation is equal to or above 1,3 times the preceding running average variation, start of overmilking is denoted. Current and running average variation is calculated every two seconds. Variation is the difference between maximum and minimum per two seconds. New running average is 0,7 times the old running average plus 0,3 times the current variation. so there will be a minimum value of 25 seconds.

- **End of milking**

Is when the SMT vacuum falls below a set value.

**Automatic detection (Split)**

The program loops through all data points after start of peak flow period. The first data point with SMT vacuum below 5 kPa denotes the End milking.

## 12.3. General Results

- **Machine on Time**  
Time in minutes and seconds from Start milking till End milking
- **Overmilking**  
Time in minutes and seconds in the Overmilking period (from Start Overmilking until Start Take-off)
- **SMT vacuum**  
Average vacuum in kPa of all data points of the short milk tube vacuum channel, given for various phases of milking:
  - **Total** – from Start milking till End milking
  - **PFperiod** – in the Peak-Flow period
  - **Overmilking** – in the Overmilking period
- **MPC vacuum**  
Average vacuum in kPa of all data points of the mouthpiece chamber in the Peak-Flow period and overmilking period.
- **Cyclic vacuum fluctuations**  
This value is assessed for ten pulsation cycles 60 seconds after the start of the Peak-Flow period. Average, maximum and minimum vacuum in each of the ten cycles are calculated. Finally, the averages of the ten individual values are formed. Results are presented as fluctuations Above (maximum) or Below (minimum) the average vacuum.
- **Irregular vacuum fluctuations Type 2**  
The irregular vacuum fluctuation is a rapid drop of a certain magnitude in SMT vacuum. A vacuum change of 56 kPa/second and a magnitude of 14 kPa is set as limits to qualify for an event of Irregular vacuum fluctuations type 2. Results are given in events of Irregular fluctuations per milking.
- **Average B-Phase Vacuum**  
Analyzes average vacuum from B-phase during



## 12.3. General Results

- **MPC Favourable**

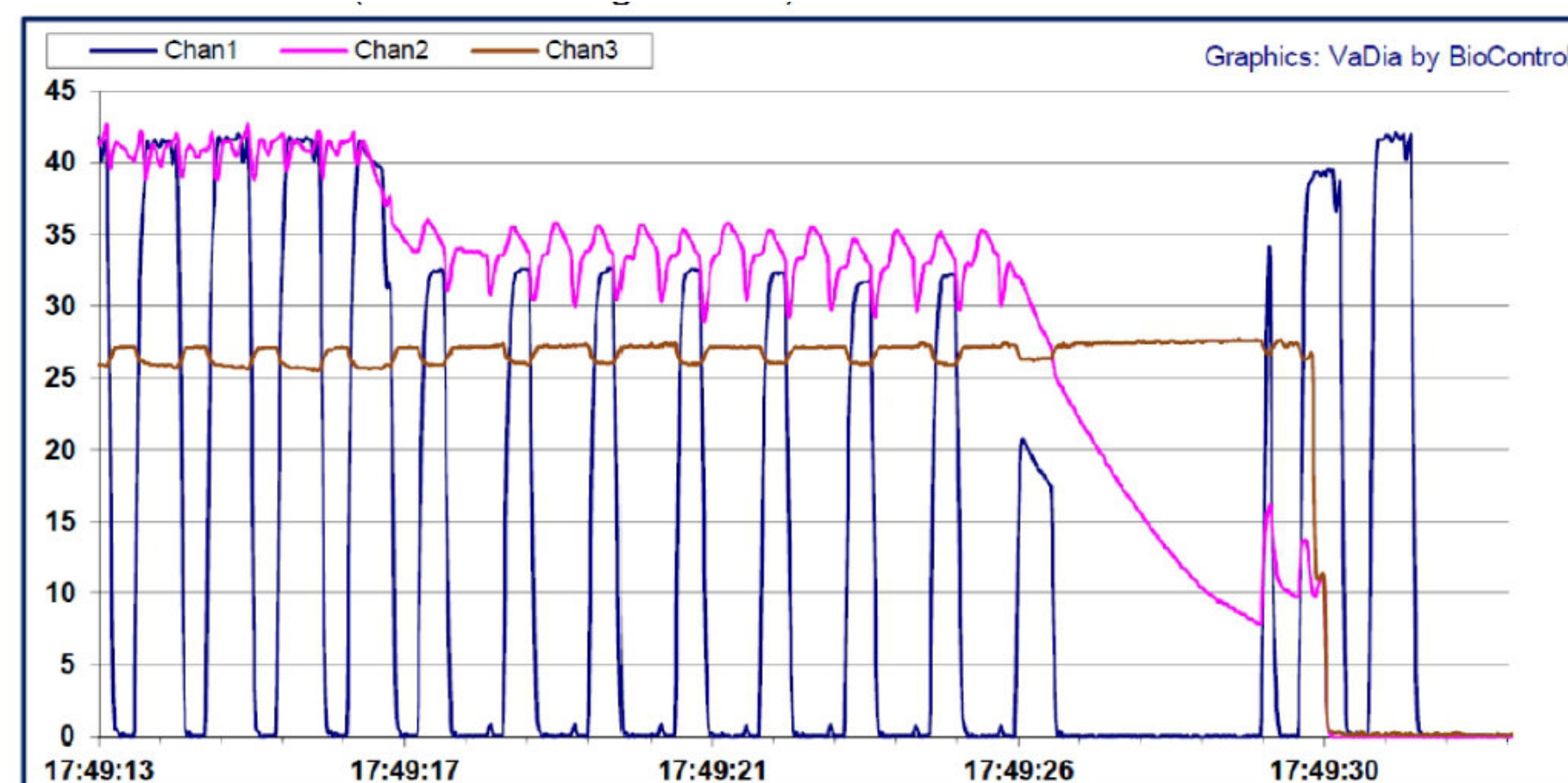
This value shows the percentage of recordings during the peak flow period within the range 10-30kPa. The value is shown for the two mouthpiece chamber channels.

- **MPC vacuum in Peak-Flow period**

Average vacuum in kPa of all datapoints of the mouthpiece chamber in the Peak-Flow period.

- **NPG, Negative Pressure Gradient**

Short milk tube vacuum declines due to vacuum shut-off, while MPC vacuum stays high. "NPG" calculates the area for where the SMT vacuum (pink in image below) is lower than the MPC vacuum (brown in image below). Calculated for both MPC channels.



- **Irregular vacuum fluctuations Type 1**

The irregular vacuum fluctuation is a rapid drop of a certain magnitude in SMT vacuum. A vacuum change of 100 kPa/second and a magnitude of 21 kPa is set as limits to qualify for an event of Irregular vacuum fluctuations type 1. Results are given in events of Irregular fluctuations per milking.

- **Detachment Time**

Time from start take-off to end milking (End milking - Start take off).

- **Main Milking Time**

Time of Peak Flow Period (Start overmilking - Start peak flow).

- **Let Down Time**

Time from attachment to start Peak Flow Period.

- **Preparation Time**

Time from start to end preparation. Recorded with "Milking Registration".

# 13. PULSATOR TEST (OFFLINE)

## 13.1. Pulsator Test with VaDia (ISO 6690)

The milking equipment must be working and in the 'dry' position (so not milking cows).

A possible connection of VaDia for the Pulsator test is shown on the right:



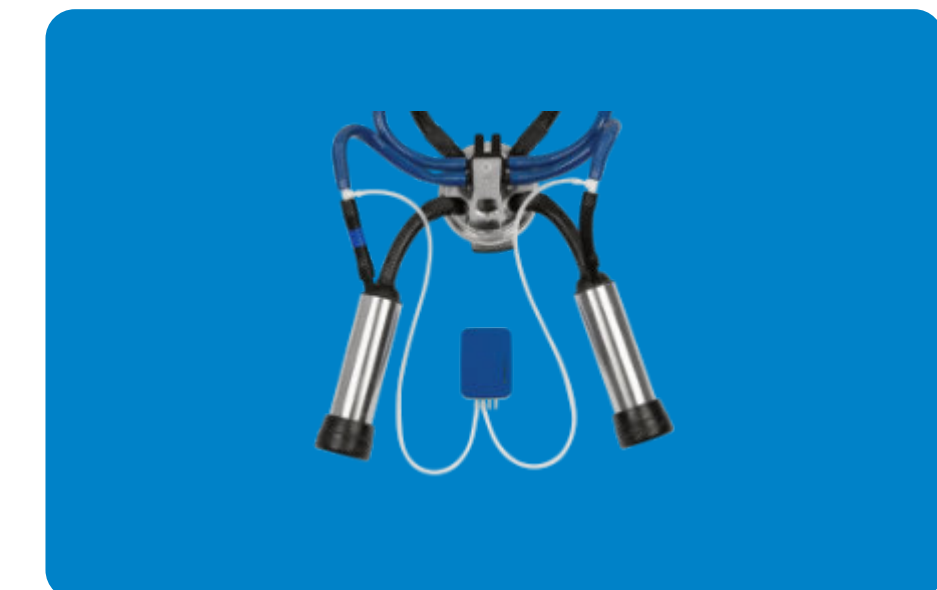
*Milking parlour ready for dry-test*



T-pieces (4-8) prepared for the pulsator test  
(Short Pulsator Tube not supplied in VaDia kit)



*VaDia ready for pulsator testing*



*VaDia connected to the pulsator tubes*

Click 'Customer' and create a new customer (or select an existing one from the list).

Click 'Select Customer' and 'Analyze file'. Select the file 'VPT demo'.

Create new visit (or select existing from the list).

Select PT test type.

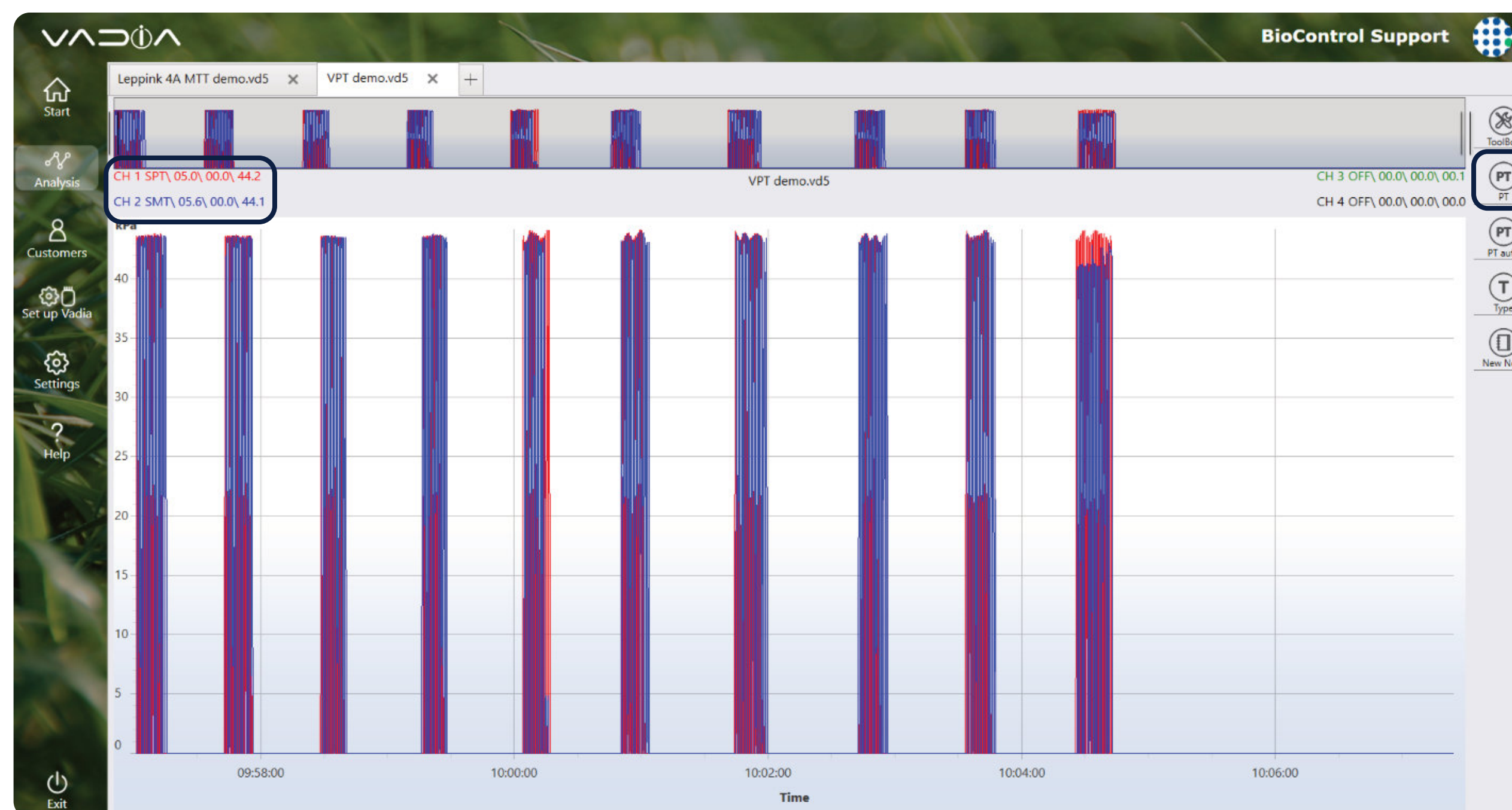
Data is now loaded and displayed in the active window.

For detailed description on how to load file to analyze, refer to chapter 10: Data analysis.

Set active channels to SPT type. Minimum time to create a test is **7 seconds**.

Tap PT button to create test.

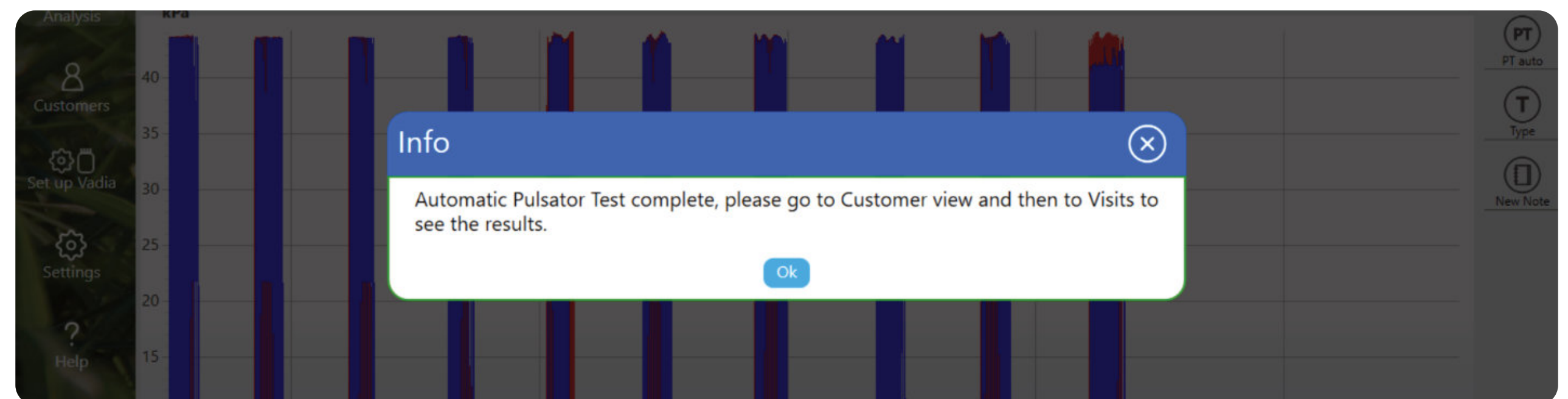
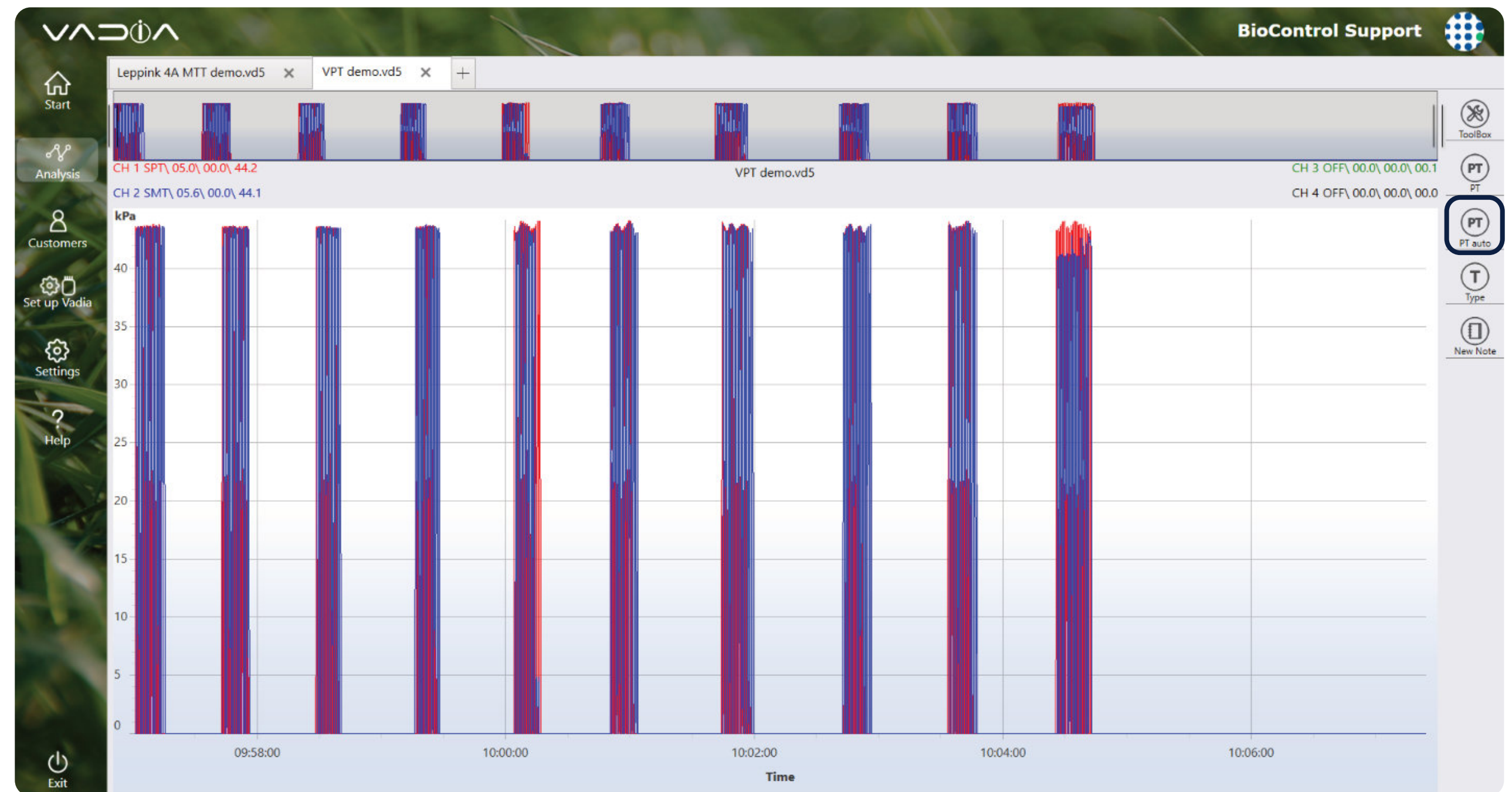
Activate the channel selectors to only display the relevant channels. The average/minimum/ maximum value of each channel is displayed in the top of the frame. These values are calculated from the data displayed in the current window.



## 13.2. Automatic Pulsator Test

To perform Automatic Pulsator Test, simply load your vd5 file with pulsators, select appropriate channel settings and click “PT auto”.

After a moment, you should see a pop-up message saying that the tests are now saved in visits view. You can browse through the tests in “Visits” view. The test works on the selected range of data and up to 30 selected tests at the same time.



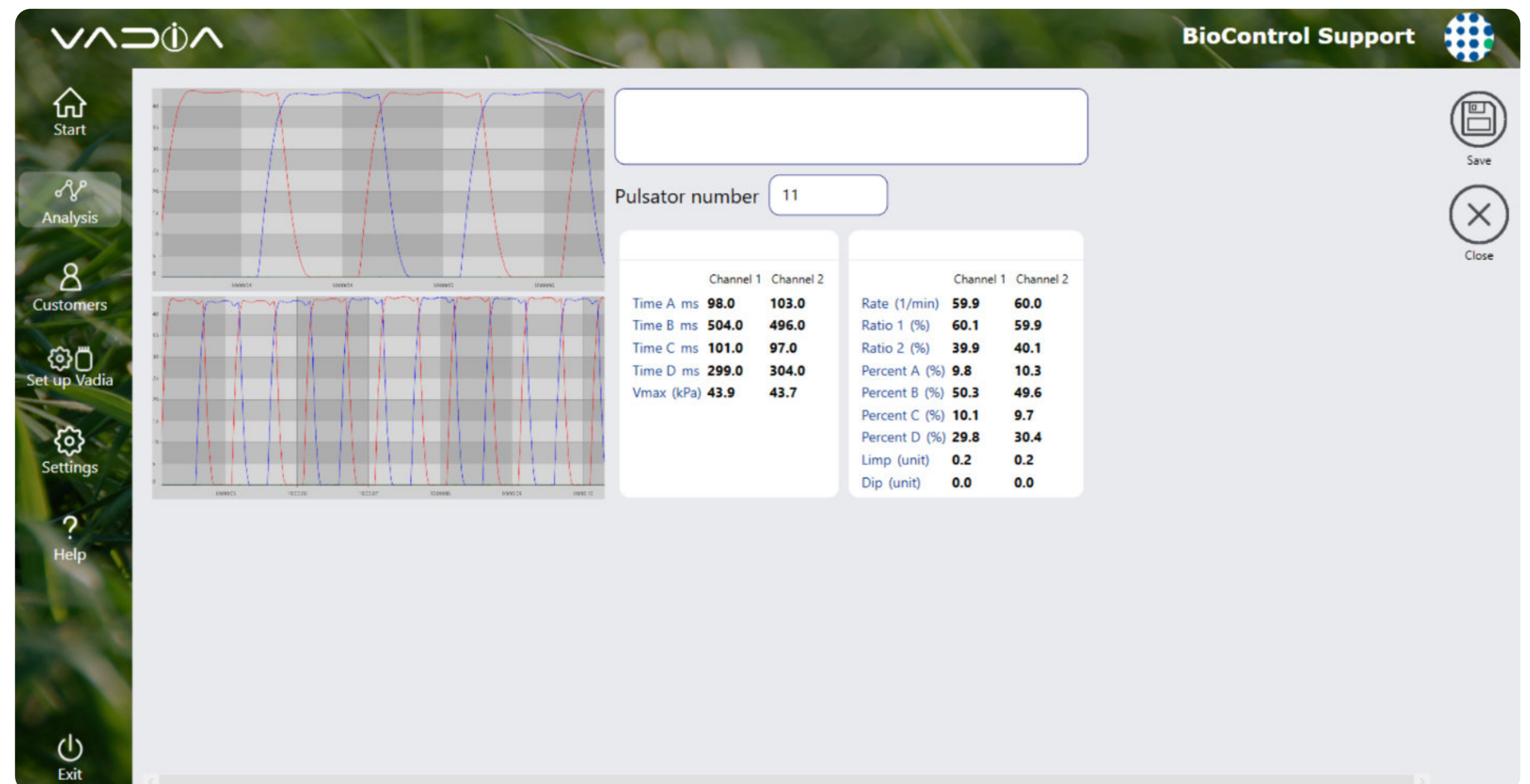
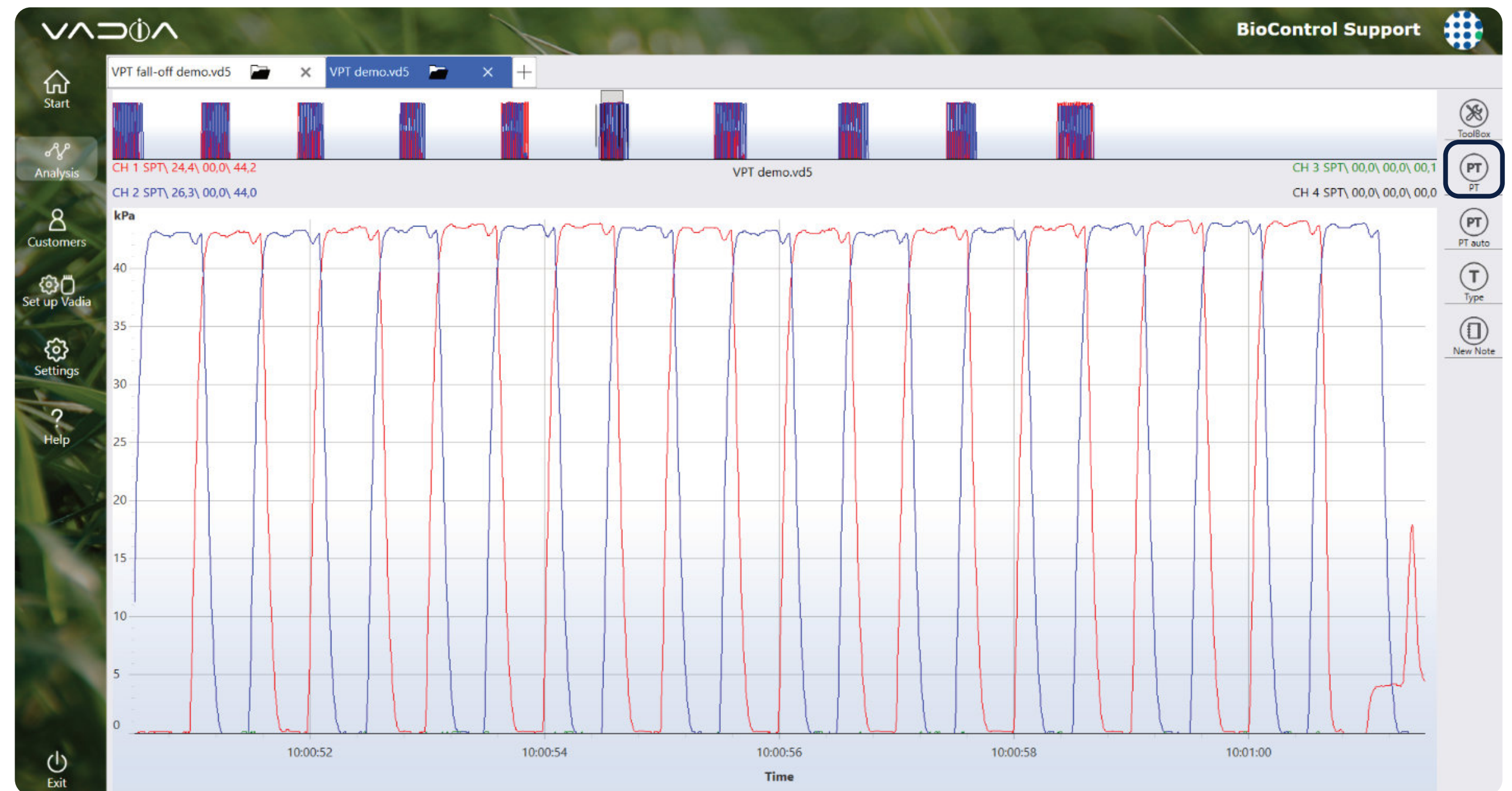
### 13.3. Analyzing the pulsation data

Select a representative part of the pulsator data that you want to analyze (approx. 10-20 pulsation cycles in the detail window).

Press 'PT' in the right navigation column to analyze the pulsation data according to ISO 6690.

Data Summary lists the values of the analysis according to ISO 6690. The bottom graph displays the analyzed cycles, the top graph only a few to make details visible.

Enter the pulsator nr. and press 'Save'. The data is now stored in the customer database and can be found in 'Visits'. Pulsator number is automatically incremented for fast recording.



# 14. FALLOFF TEST (OFFLINE)

## 14.1. Falloff Test with VaDia (ISO 6690)

The milking equipment must be working and in the 'dry' position (so not milking cows). Connect VaDia to the appropriate test point at the receiver.

A possible connection of VaDia for the Falloff test is shown below:



*VaDia connected to the milk receiver at point Vm  
(exact test point may vary due to local legislation)*



*Close-up of Vm  
(exavct test point may vary due to local legislation)*



*VaDia connected to Vm*



*VaDia prepared for Falloff recording  
(measurement tube closed on one end)*



*Milking parlor must be in 'dry test' during falloff test*

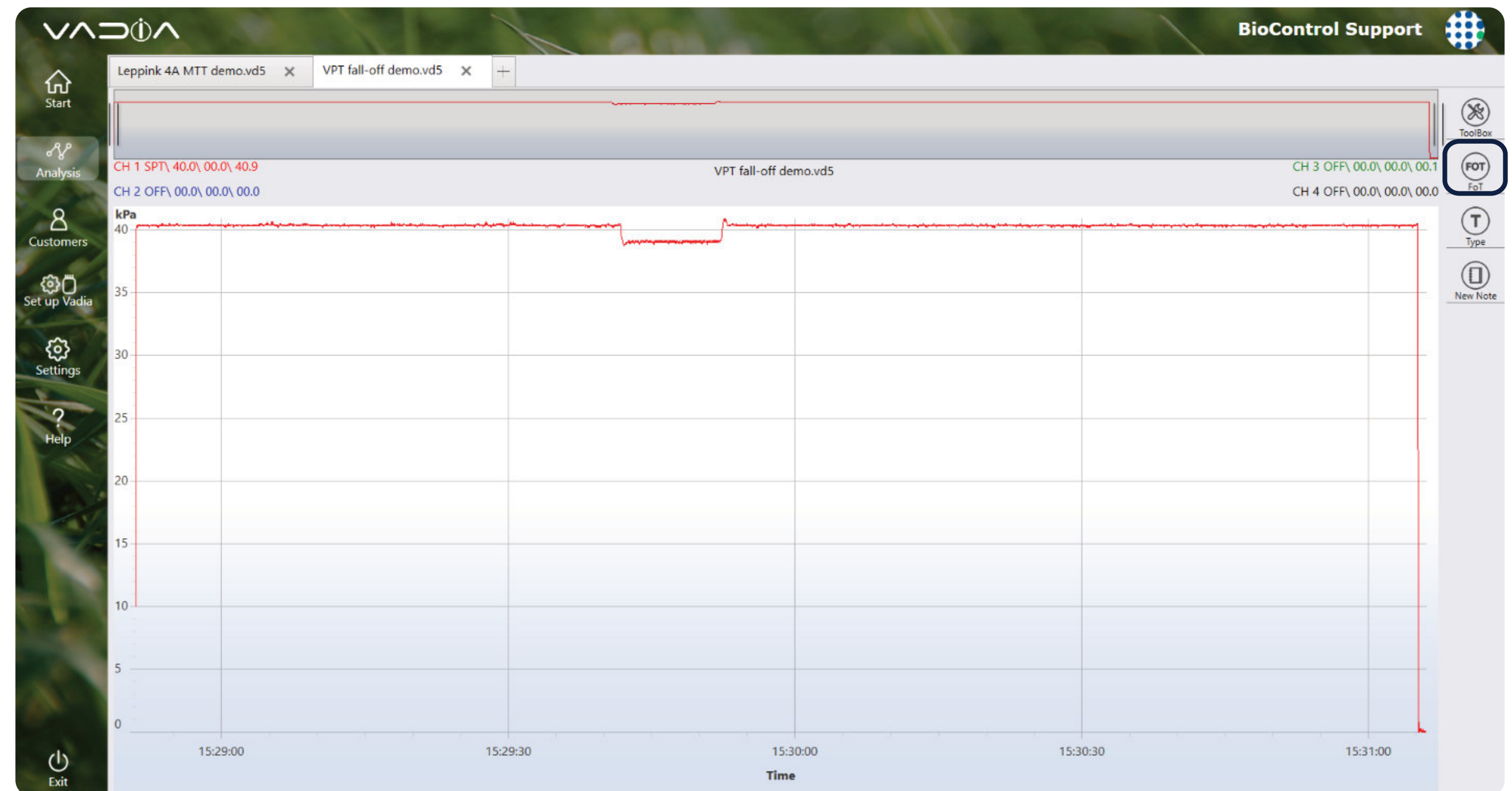
VaDia Suite module '**Falloff Test**' tests vacuum recovery response when a cluster falls-off and is attached, refer to ISO 5707 for details.

To explain the working of this module, data from a vd5-file called '**VPT Fall-off demo**' is used. This file can be downloaded from our website. For the test to be made, at least 5 seconds before the drop have to be '**Zoomed**' in.

For detailed description on how to load file to analyze, refer to chapter 10: Data analysis.

After the file is loaded press FoT button from menu on the right.

**Note:** Remember to correctly set channels (channels with data are set as SPT)



## 14.2. Falloff test results

Click 'Start Test', the test result is now shown together with the ISO 5707 boundaries.

Press 'Save' to store the test result. The test is now listed in 'Reports' - Fall off test report' tab.





# 15. MILKING PARLOUR EFFICIENCY (OFFLINE)

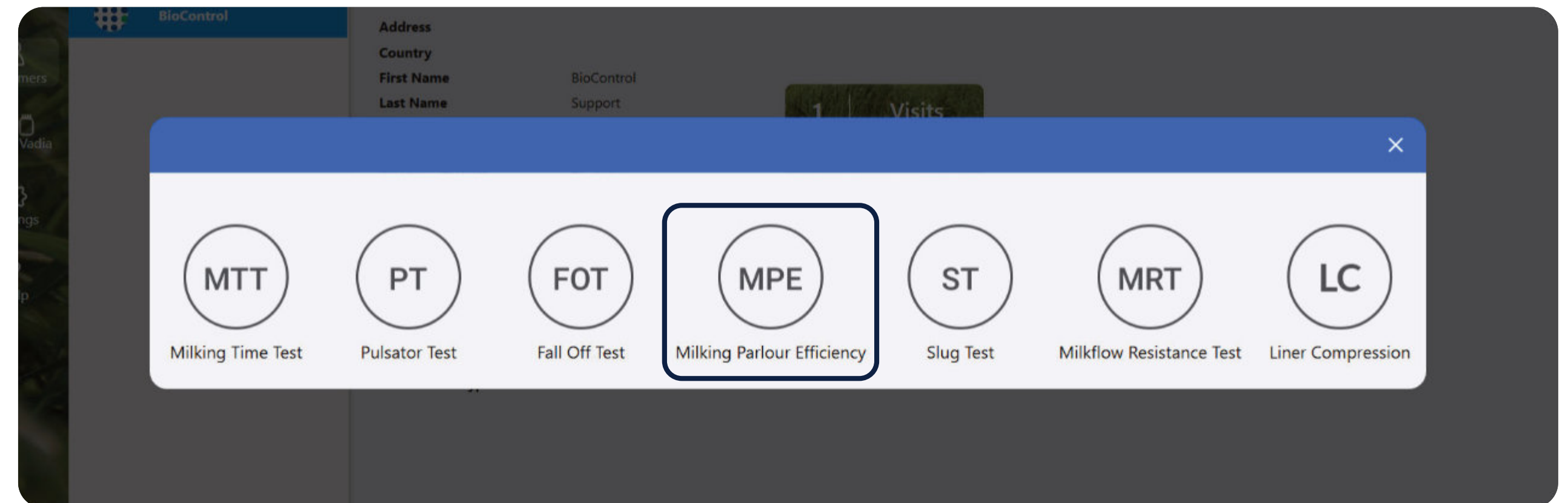
Milking Parlour Efficiency helps optimize labour in parlour.

Please follow the steps described in chapter 5 (Data analysis) up until you reach this moment.

Click on “MPE” button which stands for Milking Parlour Efficiency.

When the graph is loaded, zoom in the section you want to test.

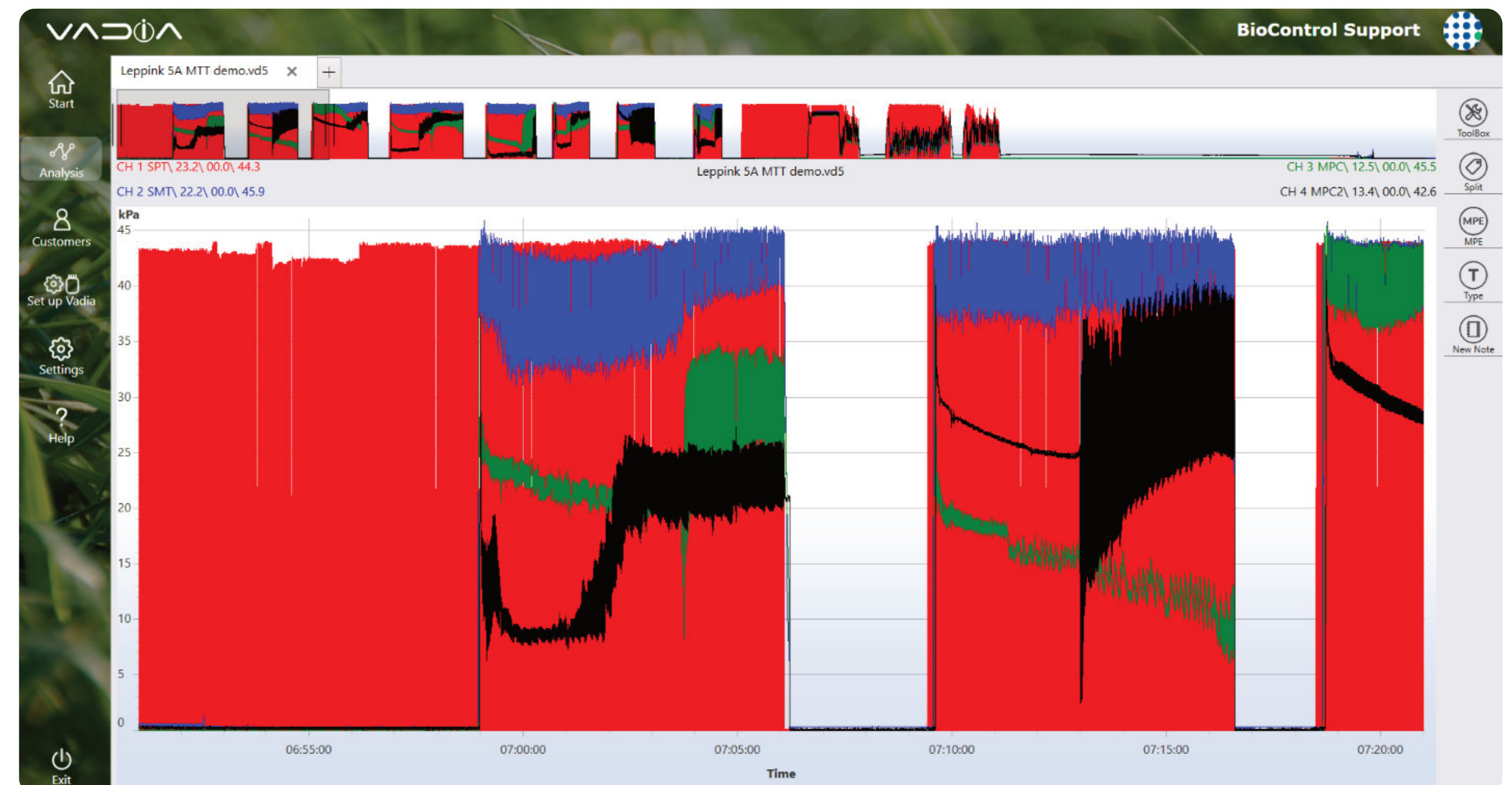
(At least 2 milkings need to be included to perform the measurement).



Set your channel settings and click “MPE” when you are ready to perform a test.

- Channel 1 – SPT – Short Pulsation Tube
- Channel 2 – SMT – Short Milk Tube
- Channel 3 – MPC – Mouth Piece Chamber
- Channel 4 – MPC2 – Mouth Piece Chamber 2

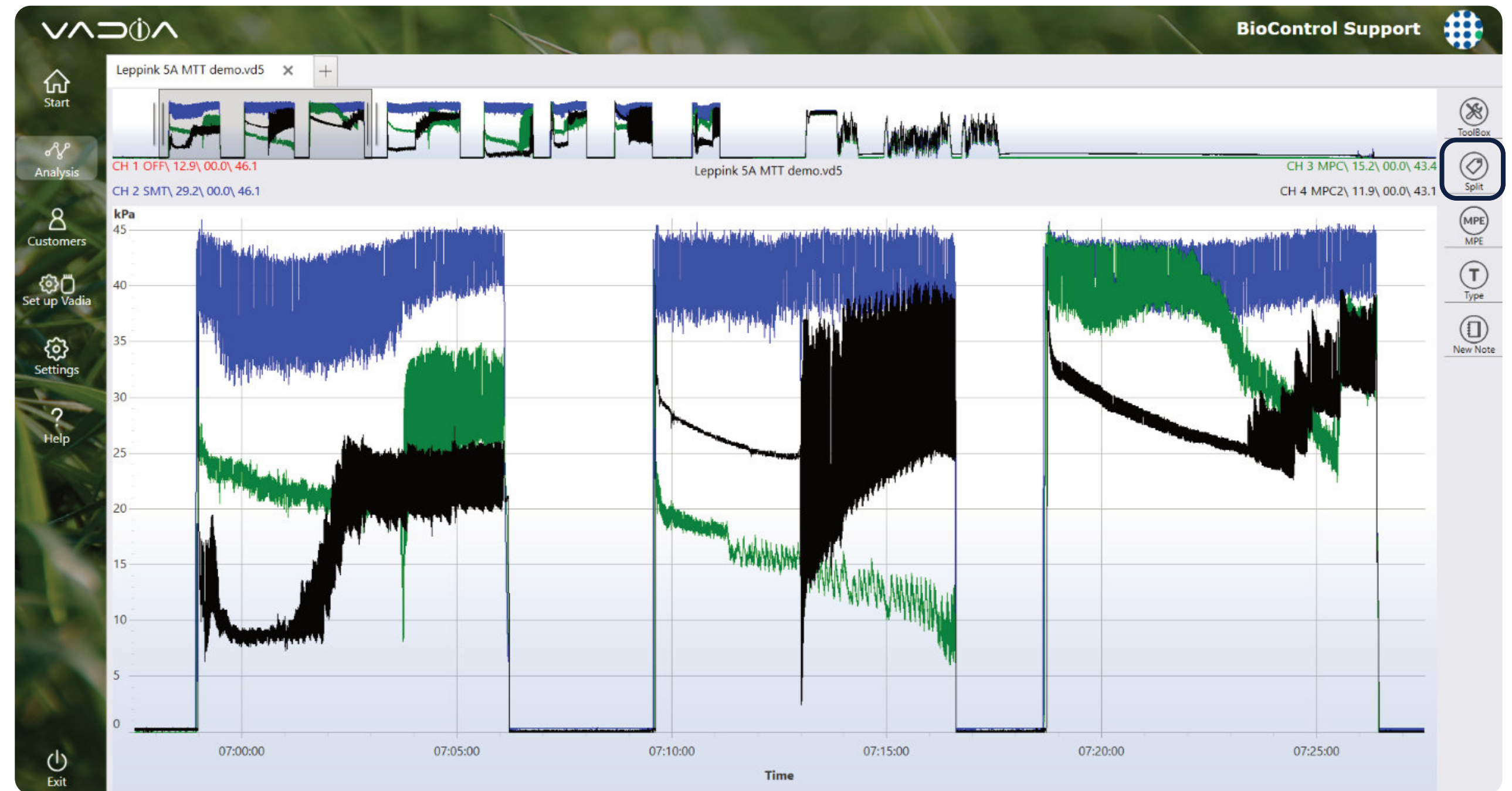
These are default and recommended channel settings. SMT required to perform the measurement.



Select desired test range in the navigation window.

Tap **'Split'** button. The marker lines are now automatically set, manual correction is done by dragging the marker line to the correct position.

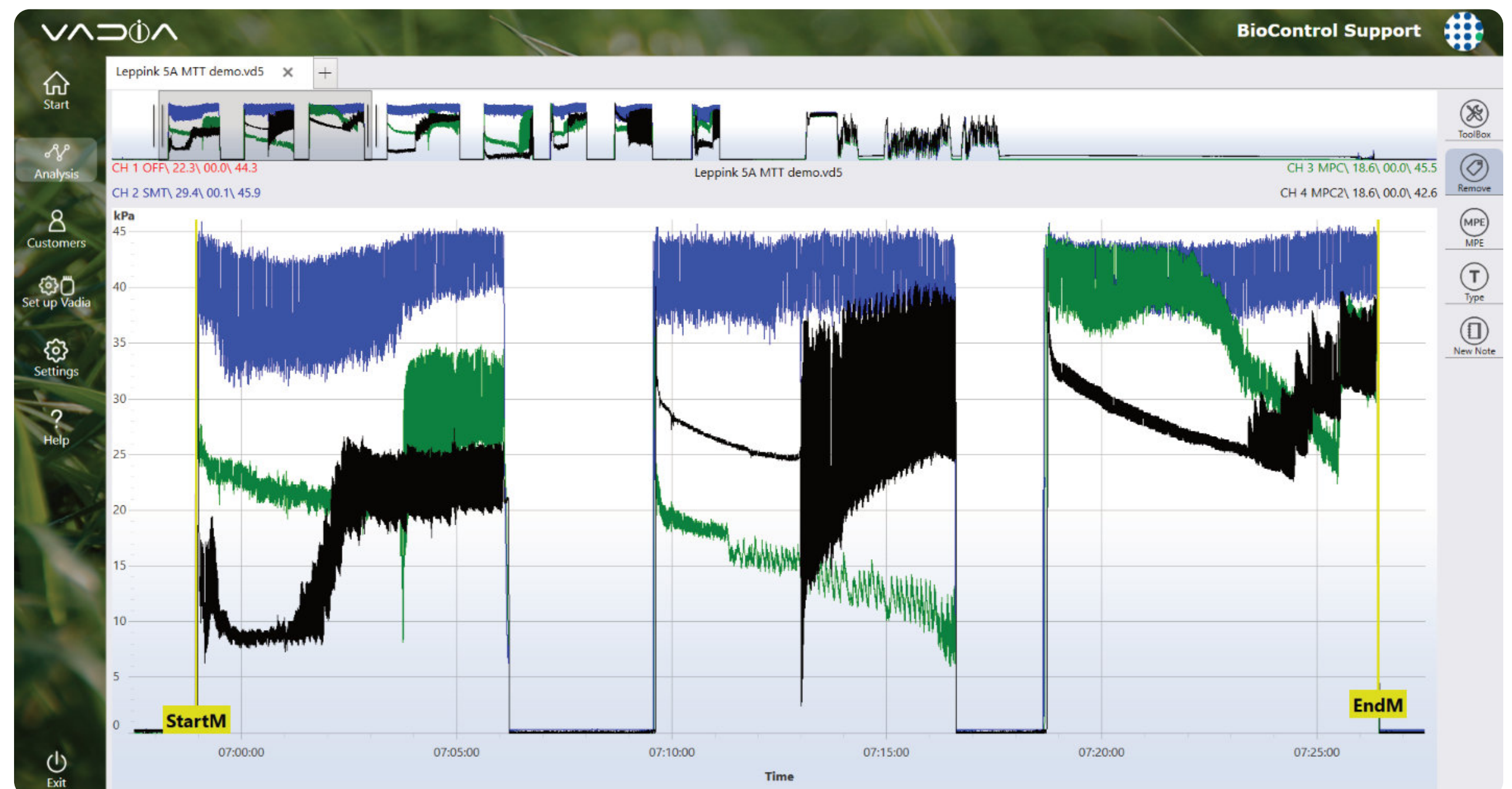
You can drag marker by grabbing the label or line.



This will display 2 marker lines:

**StartM** = Start of Milking  
**EndM** = End of Milking

If you wish to remove just MPE markers tap **'Remove'** from menu on the right.



Click “MPE” button and the test results view will be displayed.

**The following information is displayed:**

**Source** – name of the vd5 file used for analysis

**Duration** – total duration of all selected tests

**Number of milkings** – how many milkings were included in calculations

**Turns per hour** – number of times each side is filled in an hour

**Time per turn** – average time for each milking (milking + loading)

**Milking time** – average, minimum and maximum milking time from selected milkings

**Loading time** – average, minimum and maximum time in between milkings

In the table below, each milking is presented separately with information about milking time and loading time.

Parlour efficiency is very important to the profitability of all dairies regardless of their size.

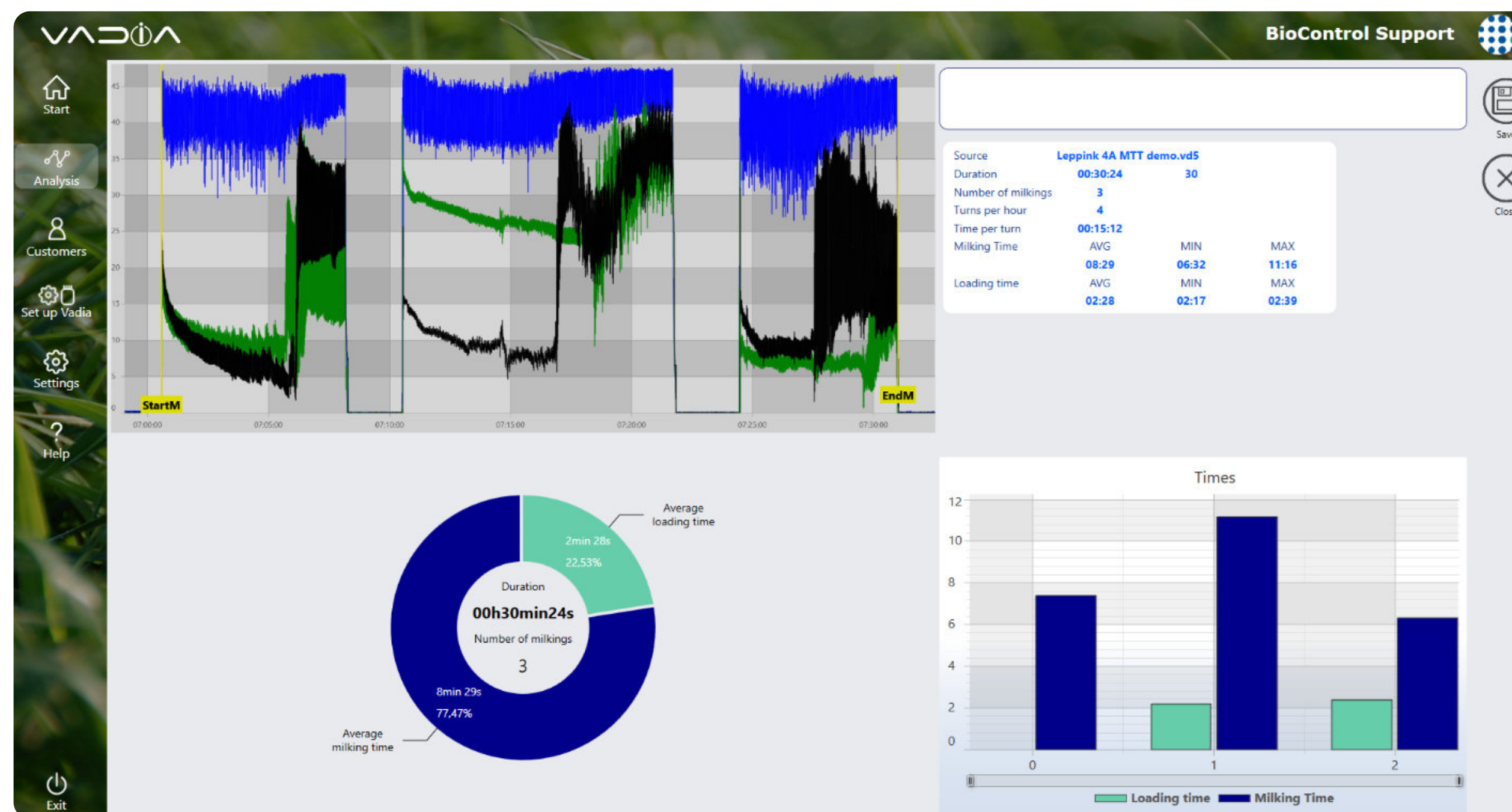
The major factor in parlour efficiency in milking parlours is determined by the number of times each side is filled and milked in an hour. This is called the number of turns per hour.

**This is affected by the following factors:**

- transfer of cows to and from the milking parlour,
- milking tasks / work routines
- milking times of the cow,

A great goal for any parlour is to turn the parlor 4 to 6 times per hour.

Based on data collected during Milking Time Test, VaDia can provide valuable information, such as, number of turns per hour, average milking and loading time.



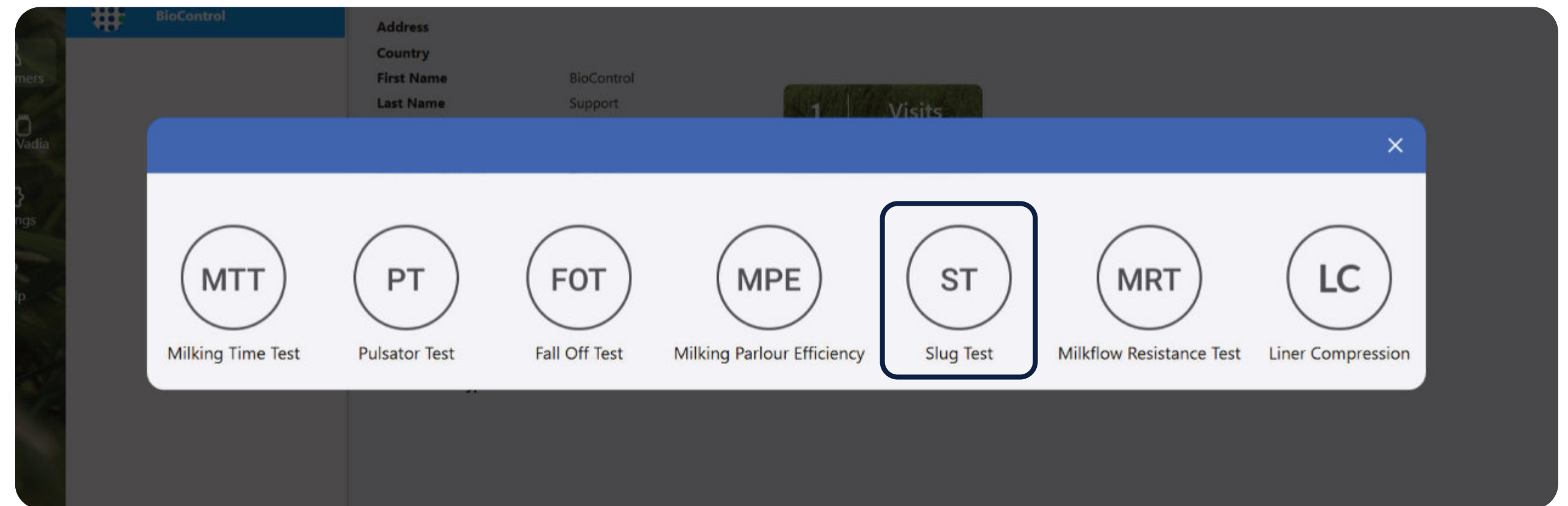
# 16. SLUG TEST (OFFLINE)

Please follow the steps described in chapter 10 (Data analysis) up until you reach this moment.

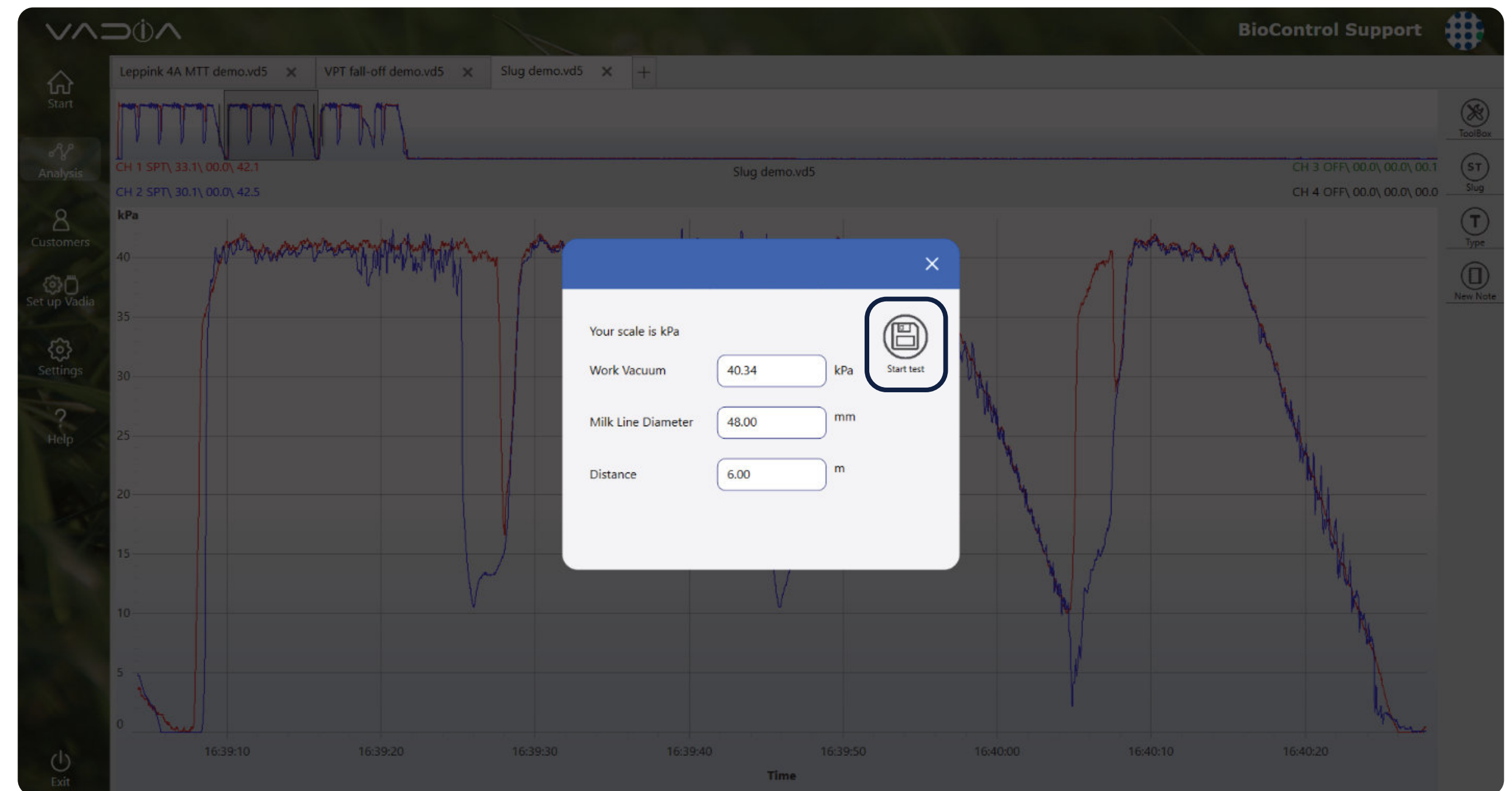
Click on “ST” button which stands for Slug Test. When the graph is loaded, zoom in the section you want to test. (Hold finger on the screen or click on the detailed graph with the right mouse button, the graph will zoom in automatically).

Set your channel settings and click “ST” – Slug when you are ready to perform a test.

You will be asked to fill the following details regarding the test: Work Vacuum, Milk Line Diameter and Distance.

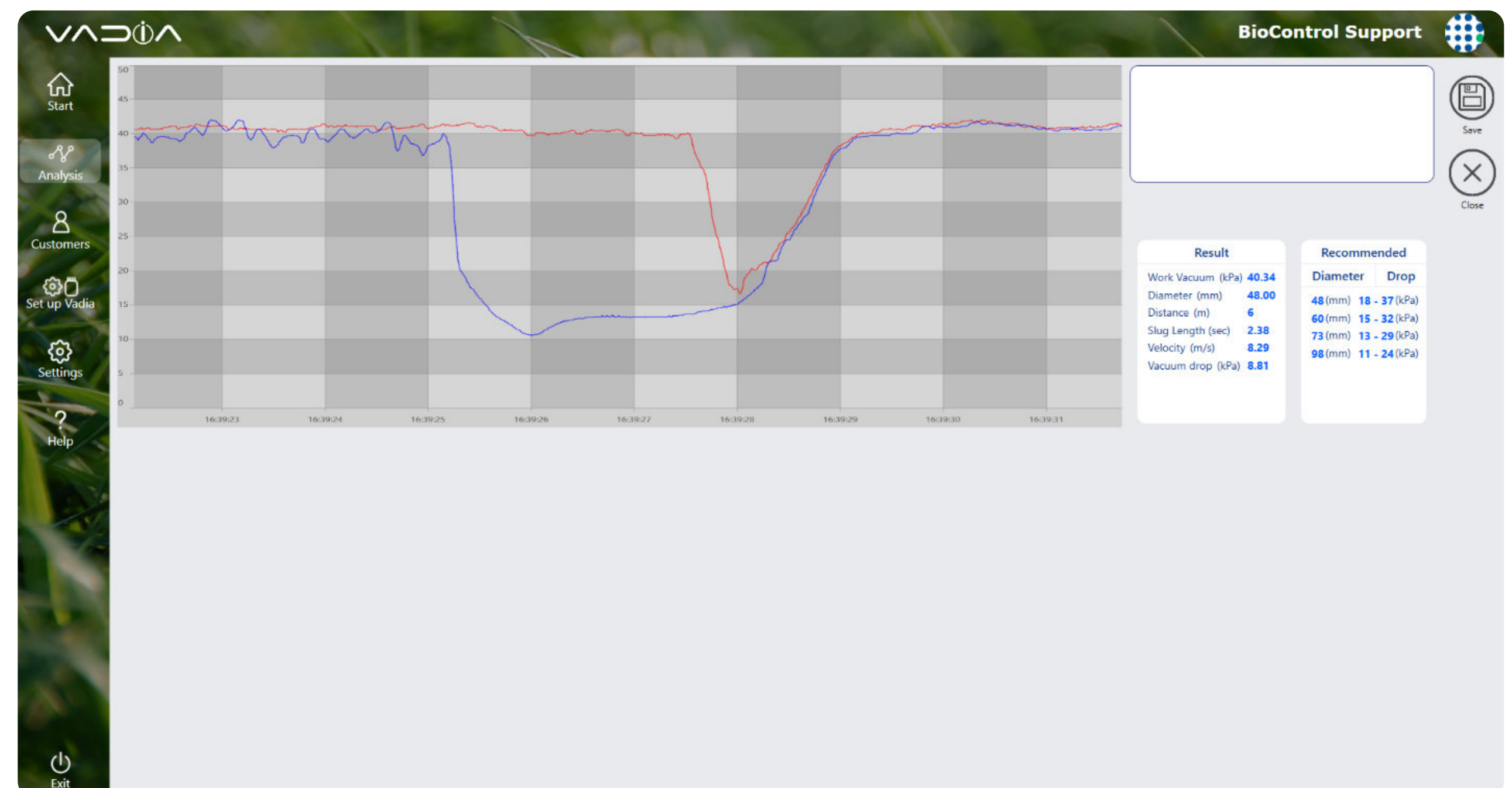


When the details are filled, click “Start test” button and perform a Slug Test.



The results and recommended values taken from ISO documentation are shown on the test results view. You can also add notes to your test.

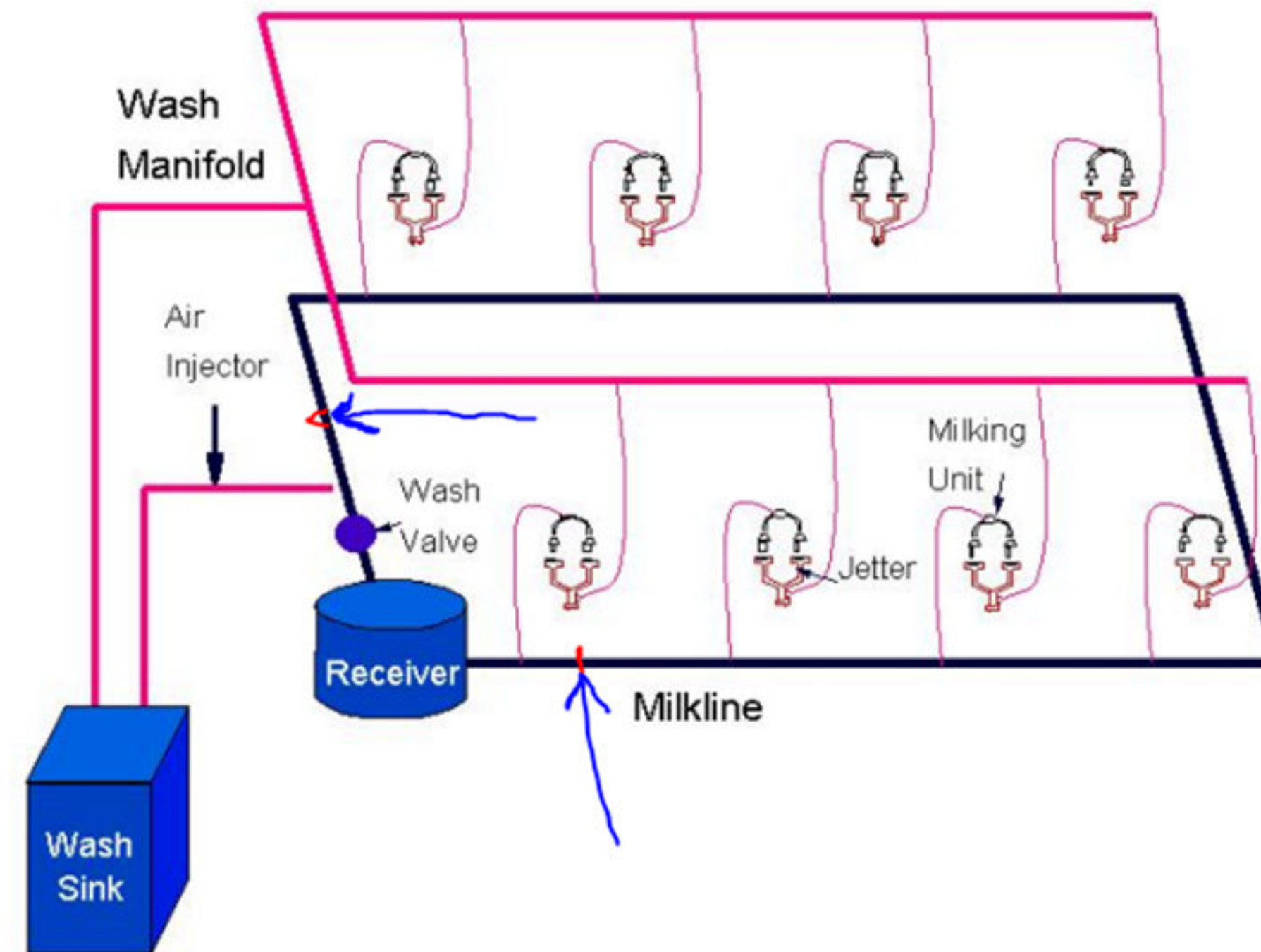
Click “Save” to save the test, click “Close” to discard the results and go back to Analysis view.



## 16.1. What is Slug Test and how to make it?

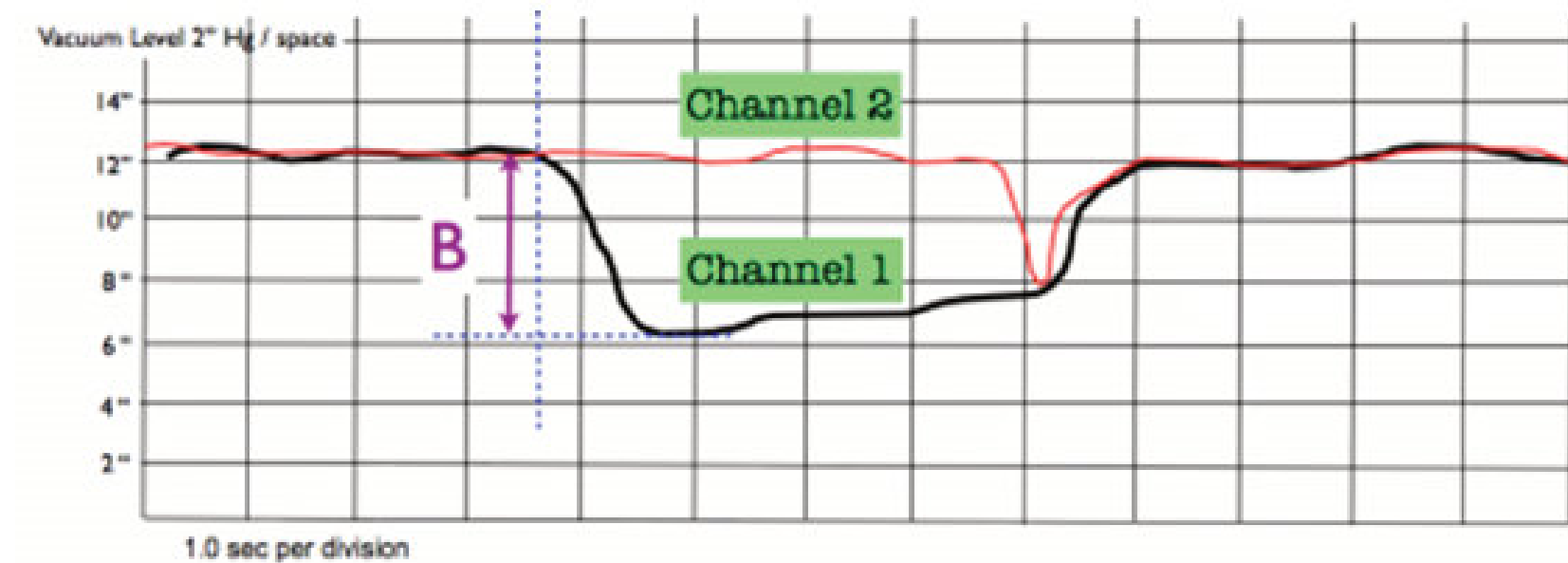
The cleaning of the milk line is assured through a few different processes. Here we are analyzing the physical aspect of the slug that is being sent through the milk line. To create this slug we will be adjusting the air injection rate and volume of water being sent through the milk line. The desired outcome will be a full column of water for the entirety of the tube. Too much force behind the slug will cause it to become turbulent and fall apart, too little and the column of water will not hold itself together. Both results are inadequate and will end up not properly cleaning the equipment.

To perform the test we will insert 2 test port that will need to be at the beginning of the milk line after the air injector and the next will be again on the milk line before the receiver jar. They ports should be 30 ft. apart at minimum (never drill into stainless steel milk lines – use provided test ports)



Start by testing the system with the specifications the machine equipment dealer has given for air injection as well as water volume and proceed to adjust these factors to produce good results. Then adjust the air injection open time as well as the air injection closed time to get a proper slug velocity and vacuum drop. The velocity of the slug should be 7-10 m/s (23-33 ft/sec).

Recommended range of vacuum drop across the slug:



**B** = vacuum drop across the slug

Recommended Vacuum Drop Across Slug	
Milk Line Diameter mm (inches)	Vacuum Drop KPa ("Hg)
48 (2)	18 - 37 (5.3 - 11)
60 (2.5)	15 - 32 (4.4 - 9.5)
73 (3)	13 - 29 (3.8 - 8.6)
98 (4)	11- 24 (3.2 - 7.1)

# 17. MILK FLOW RESISTANCE TEST (OFFLINE)

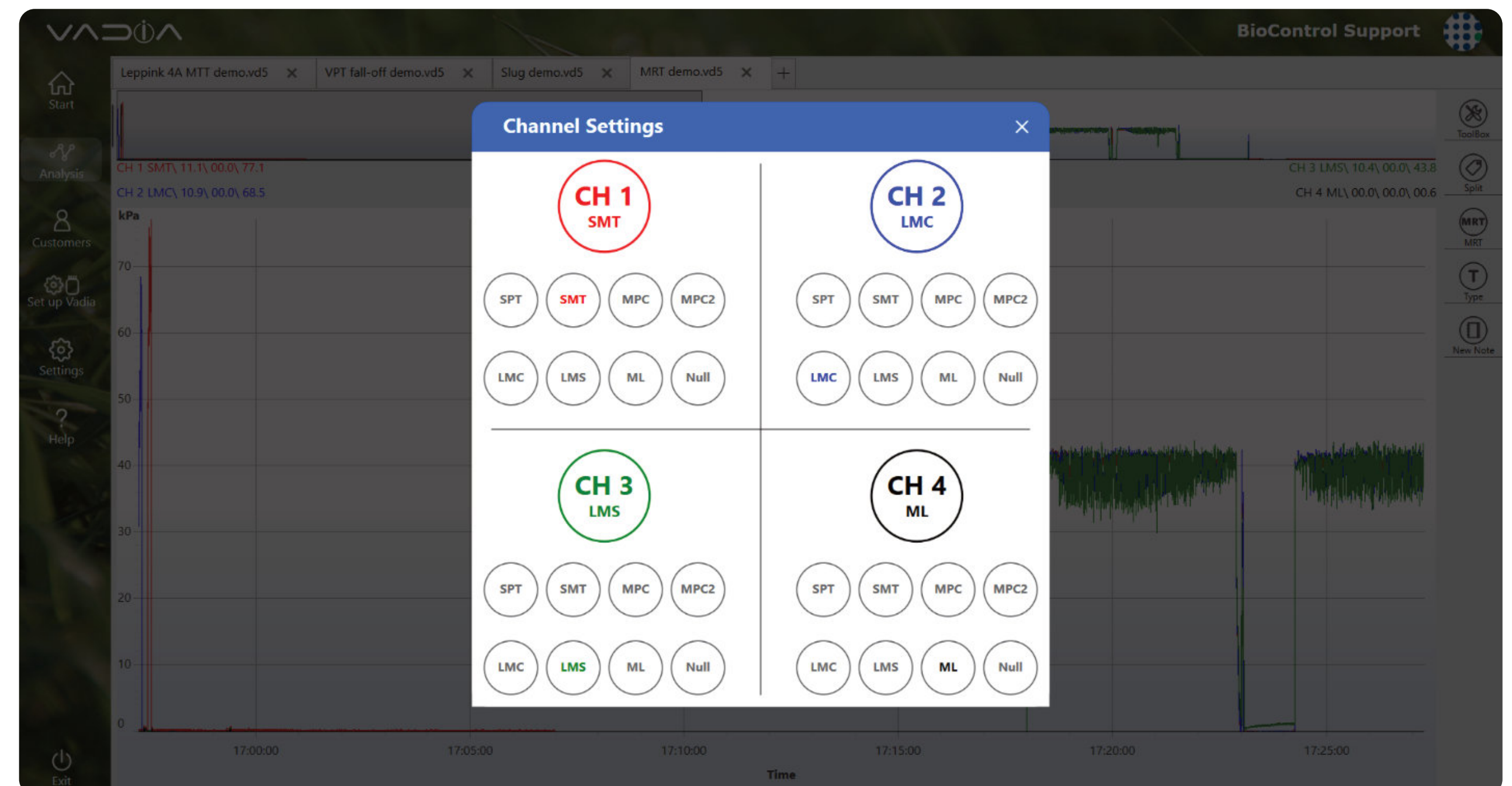
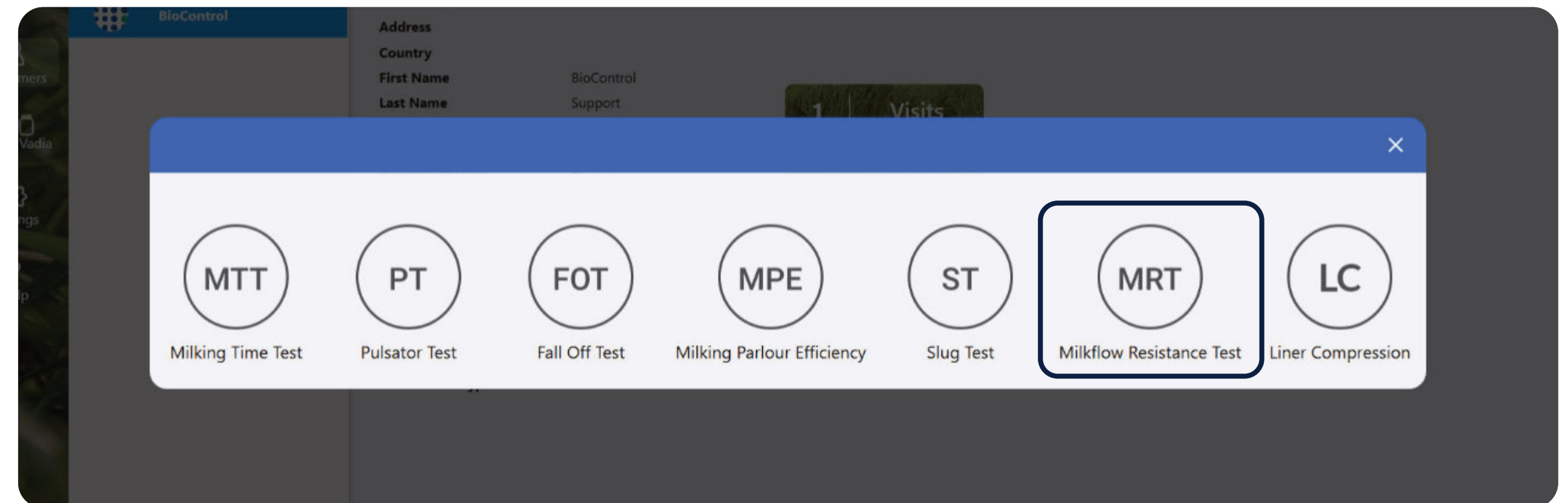
Please follow the steps described in chapter 10 (Data analysis) up until you reach this moment.

Click on “MRT” button which stands for Milk Resistance Test. When the graph is loaded, zoom in the section you want to test. (Hold finger on the screen or click on the detailed graph with the right mouse button, the graph will zoom in automatically)

Set your channel settings and click “MRT” when you are ready to perform a test.

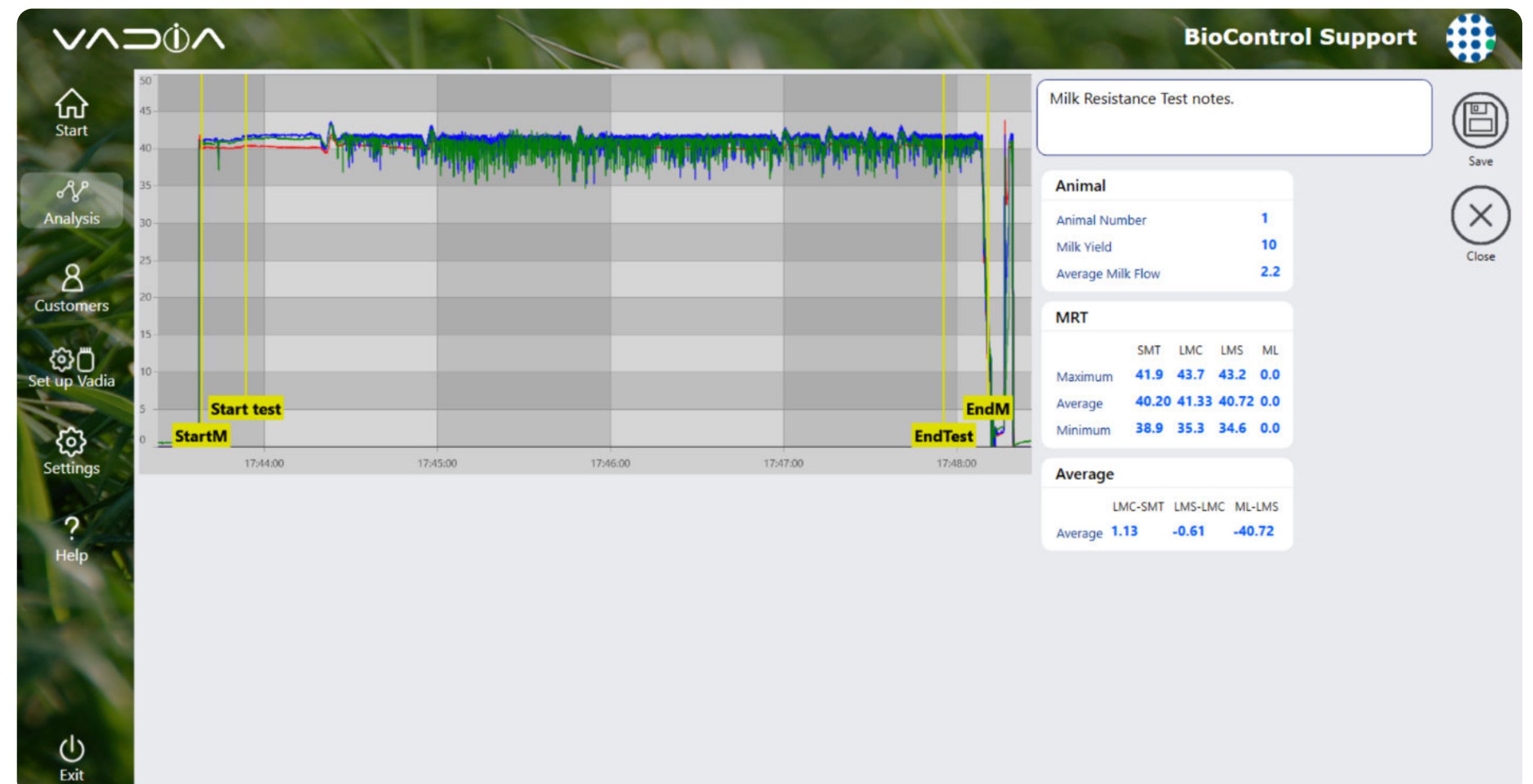
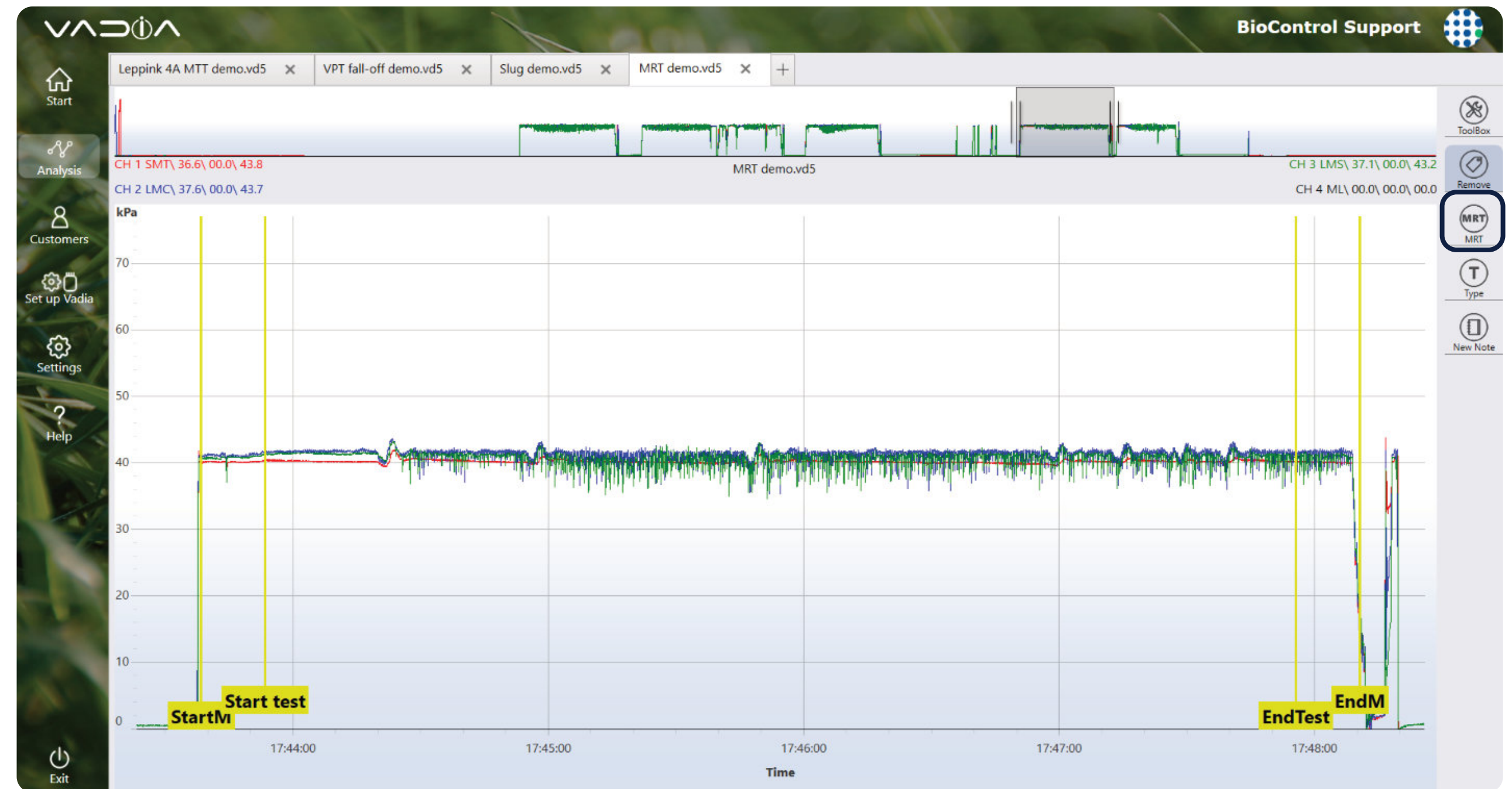
- Channel 1 – SMT – Short Milk Tube
- Channel 2 – LMC – Long Milktube at cluster
- Channel 3 – LMS – Long Milktube at sensor (detach sensor/milkmeter etc.)
- Channel 4 – ML – Milk Line

These are default and recommended channel settings.



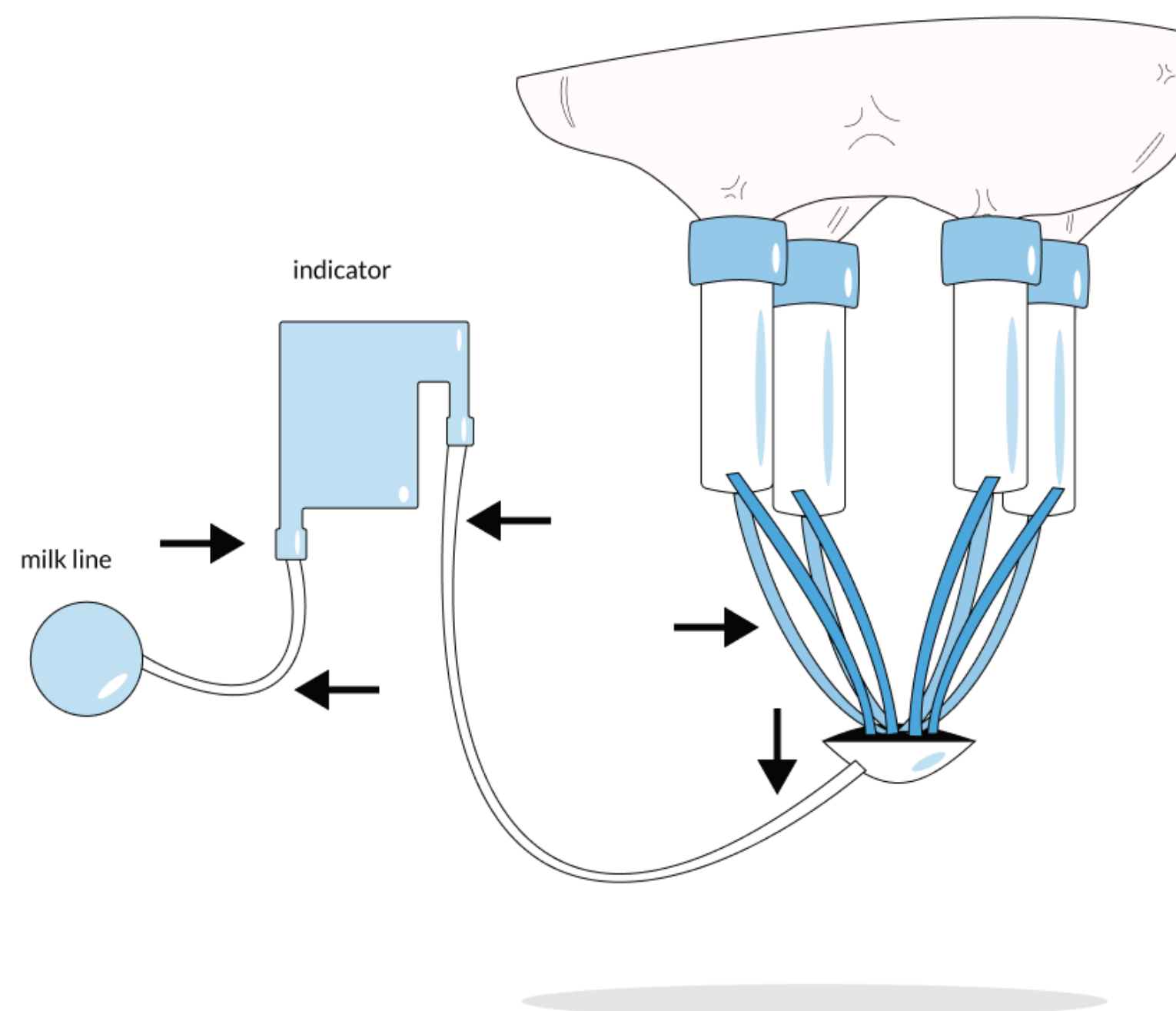


Start by testing the system with the specifications the machine equipment dealer has given for air injection as well as water volume and proceed to adjust these factors to produce good results. Then adjust the air injection open time as well as the air injection closed time to get a proper slug velocity and vacuThe difference between average values of LMC-SMT, LMS-LMC and ML-LMS are calculated. The test can be used to analyze the main resistance in milkflow between teat and milkline. Maximum, Average and Minimum vacuum and the differences (2-1, 3-2 and 4-3) are taken into consideration, so you know in which stage of the milk transport there is the most resistance.



## Gathering data for the test

Connect your device to the following test points in the milking line to gather data for the test. The arrows indicate test points. There are two arrows for the milk line, choose one of the two.



Milkflow Resistance Test

# 18. LINER COMPRESSION TEST (OFFLINE)

Click **'Customer'** and create a new customer (or select an existing one from the list).  
Click **'Select Customer'** and **'Analyze file'**.

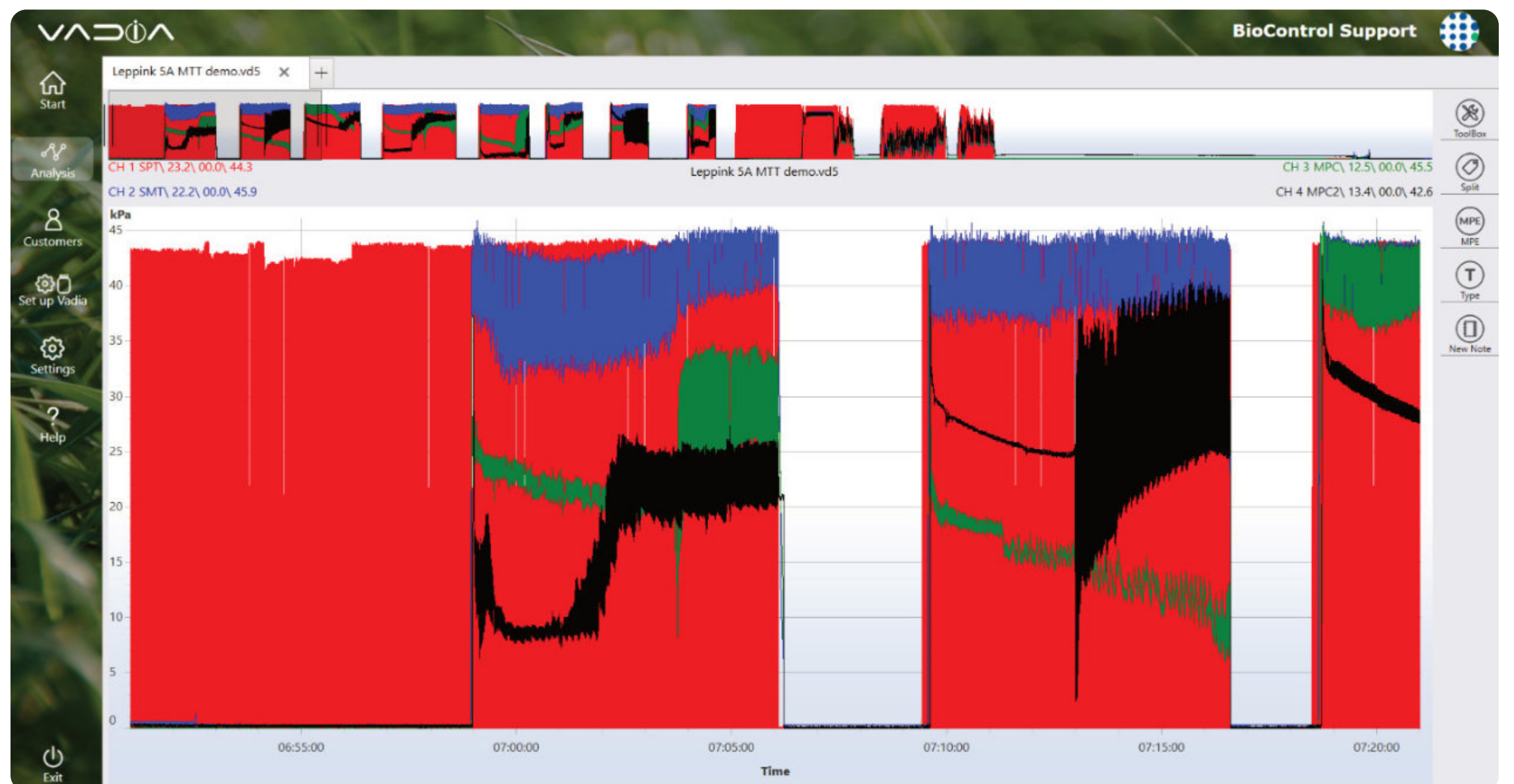
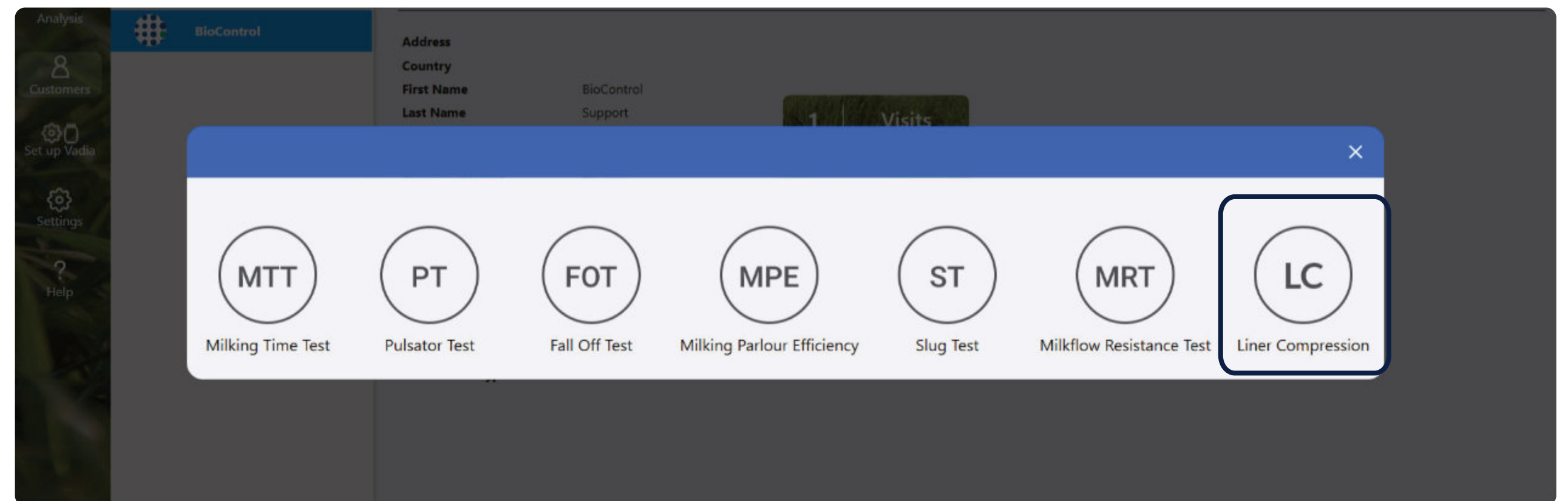
Select the file **'Leppink 4A MTT'**.

Create new visit (or select existing from the list).  
Select LC test type.

Data is now loaded and displayed in the active window.

For detailed description on how to load file to analyze, refer to chapter 5: Data analysis.

Set active channels similar to Milking Time Test (CH1 = SPT, CH2 = SMT, CH3 = MPC, CH4 = MPC2).

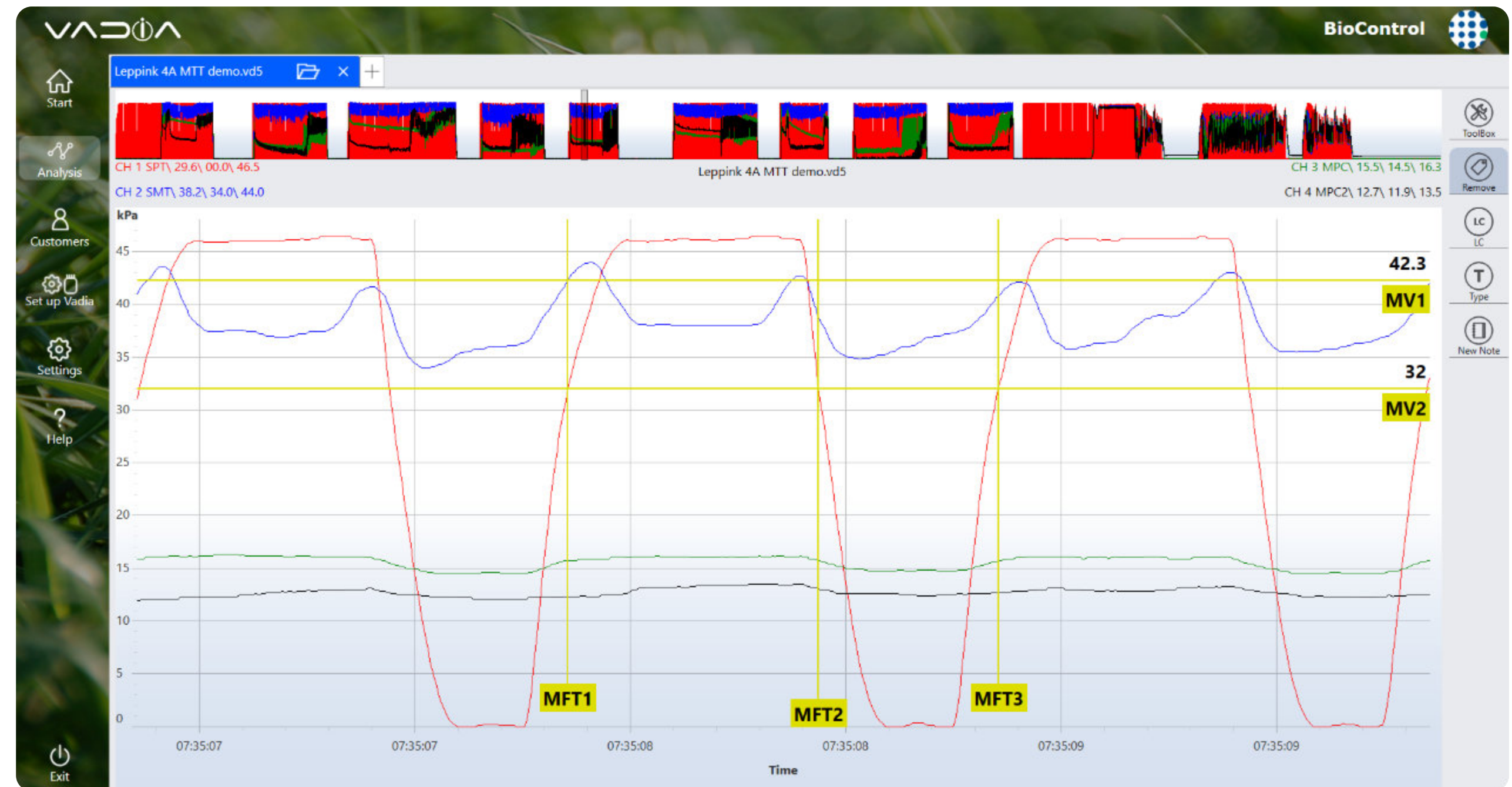


Zoom in the navigation window on the first milking, the following will show (recommended method to zoom milking is to hold finger for about 1 second at this milking) or click with right mouse button on the test.

Tap 'Split' button. The marker lines are now automatically set, manual correction is done by dragging the marker line to the correct position. You can drag marker by grabbing the label or line.

This will display 5 marker lines:

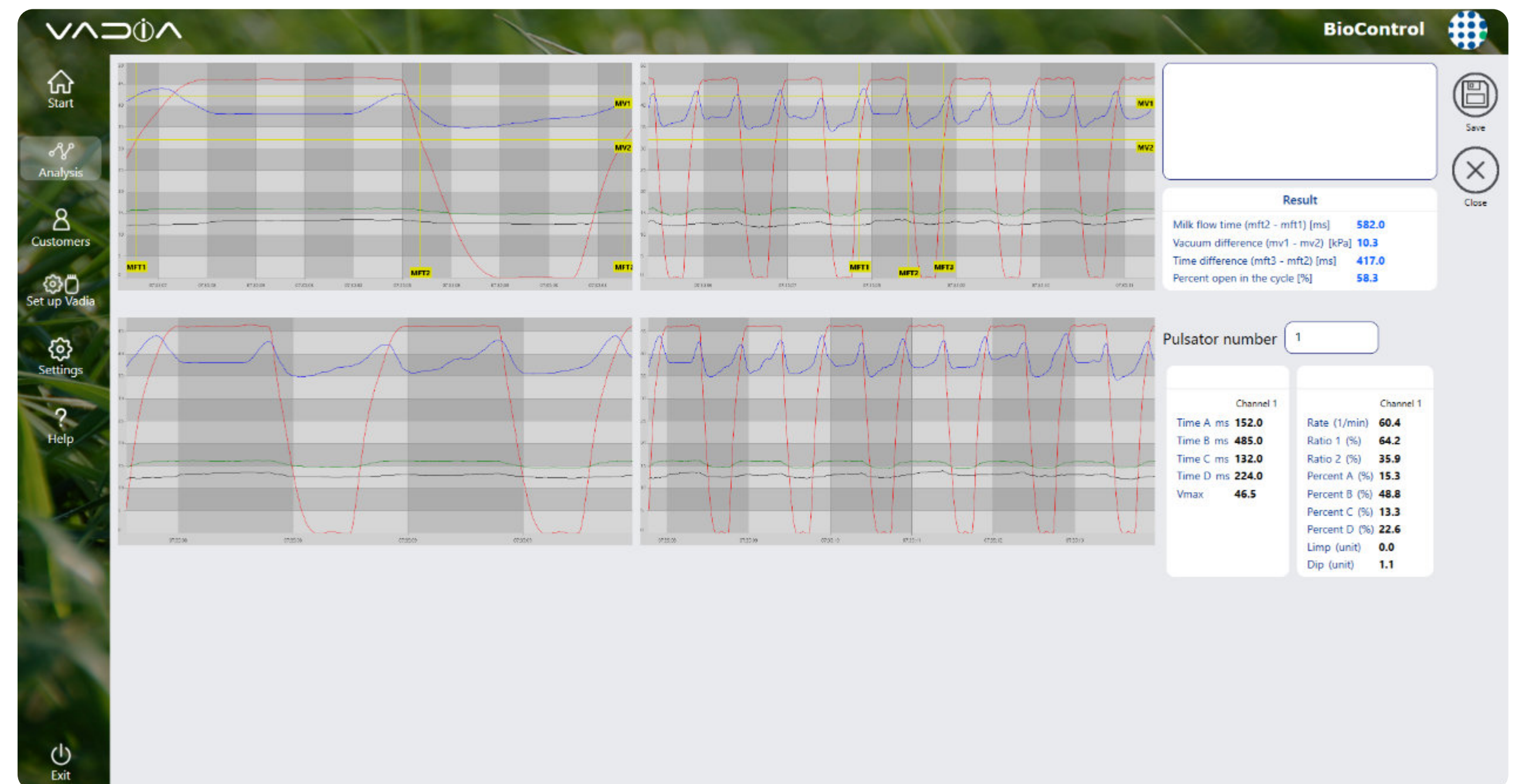
- MFT1 - MilkFlowTime1 (taken from SPT)
- MFT2 - MilkFlowTime2 (taken from SPT)
- MFT3 - MilkFlowTime3 (taken from SPT)
- MV1 - Milking Vacuum 1 (taken from SMT)
- MV2 - Milking Vacuum 2 (taken from SMT)



Thanks to Liner Compression test, you could get a better insight into the actual milk flow time and vacuum during liner opening and closing. The calculations have to be done during peak milk flow. The test can be used to assess the rubber and elasticity of the liner.

In the results view, you are presented with typical Pulsator Test results for CH1 (SPT), as well as, additional parameters, such as:

- Milk flow time (mft2 - mft1) [ms] – this is the actual milk flow time
- Vacuum difference (mv1 – mv2) [kPa] – this is the difference between milk vacuum at the time the nipple lining is open and the vacuum at that time in the pulsation curve
- Time difference (mft3 – mft2) [ms] – this is the time when nipple lining is closed and the teat massages
- Percent open in the cycle [%]

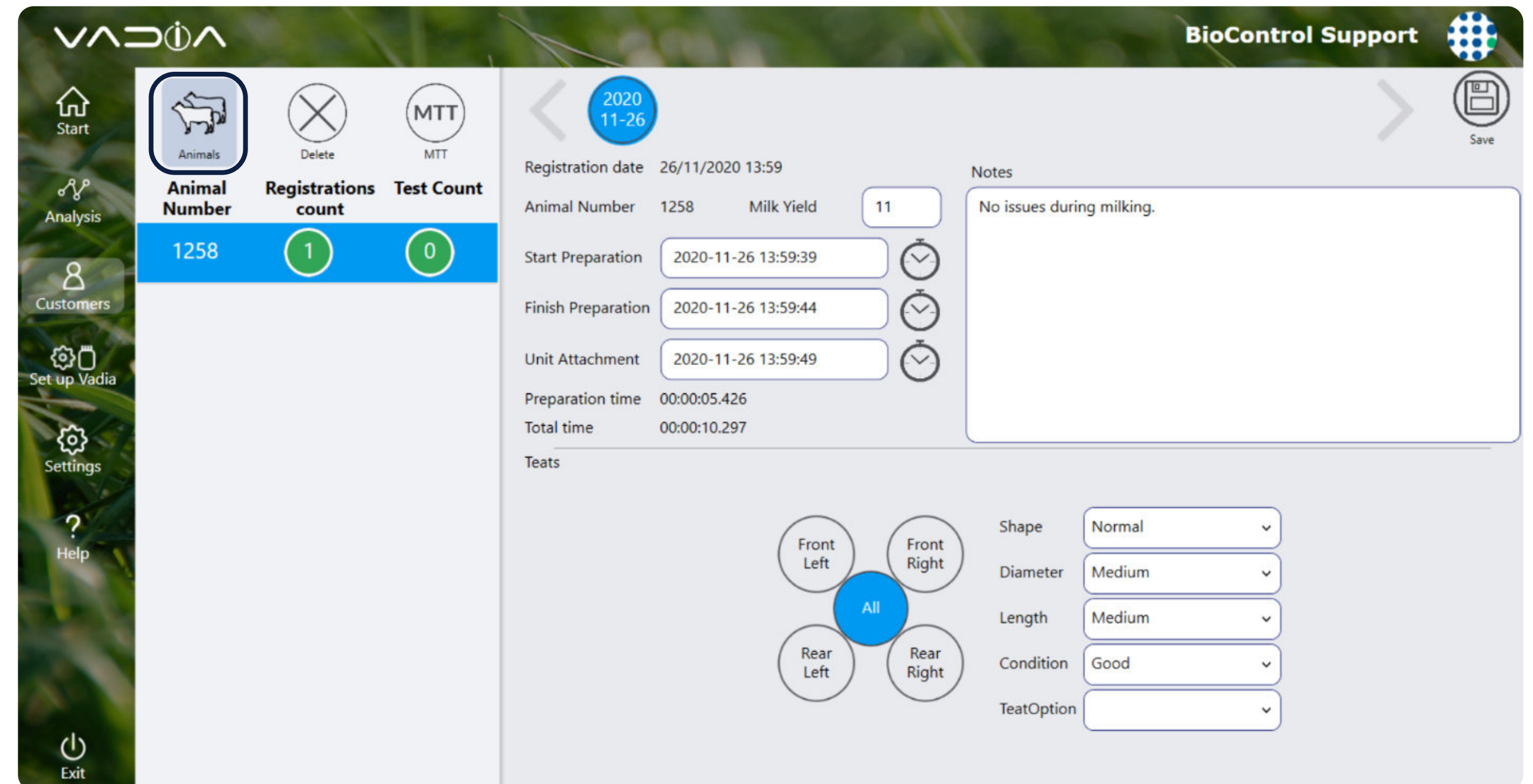


# 19. ANIMALS

Go to customer's menu and click **Animals**. You will see this view:

View looks like 'Milking Registration' view. Here is a list of all registered animals. Check all settings form any animal registration, edit them and see all tests done for the animals. Switch between registrations or tests using the queue at the top.

You can also delete an animal by selecting the desired animal and then clicking on '**Delete**' button.

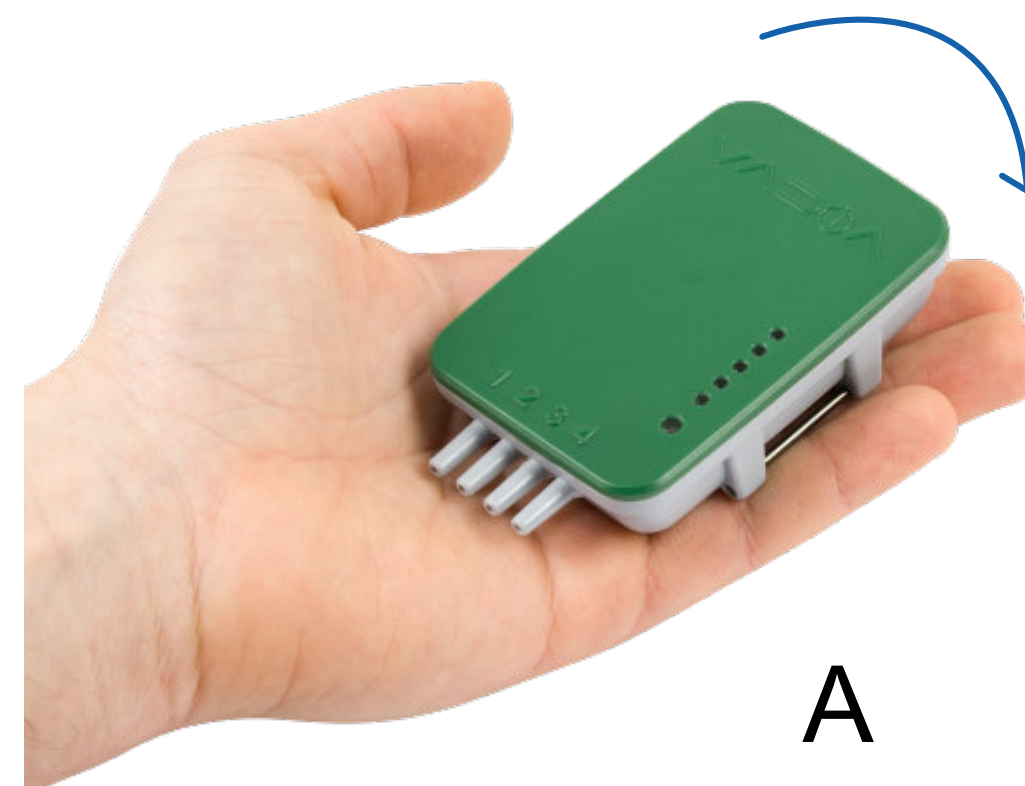
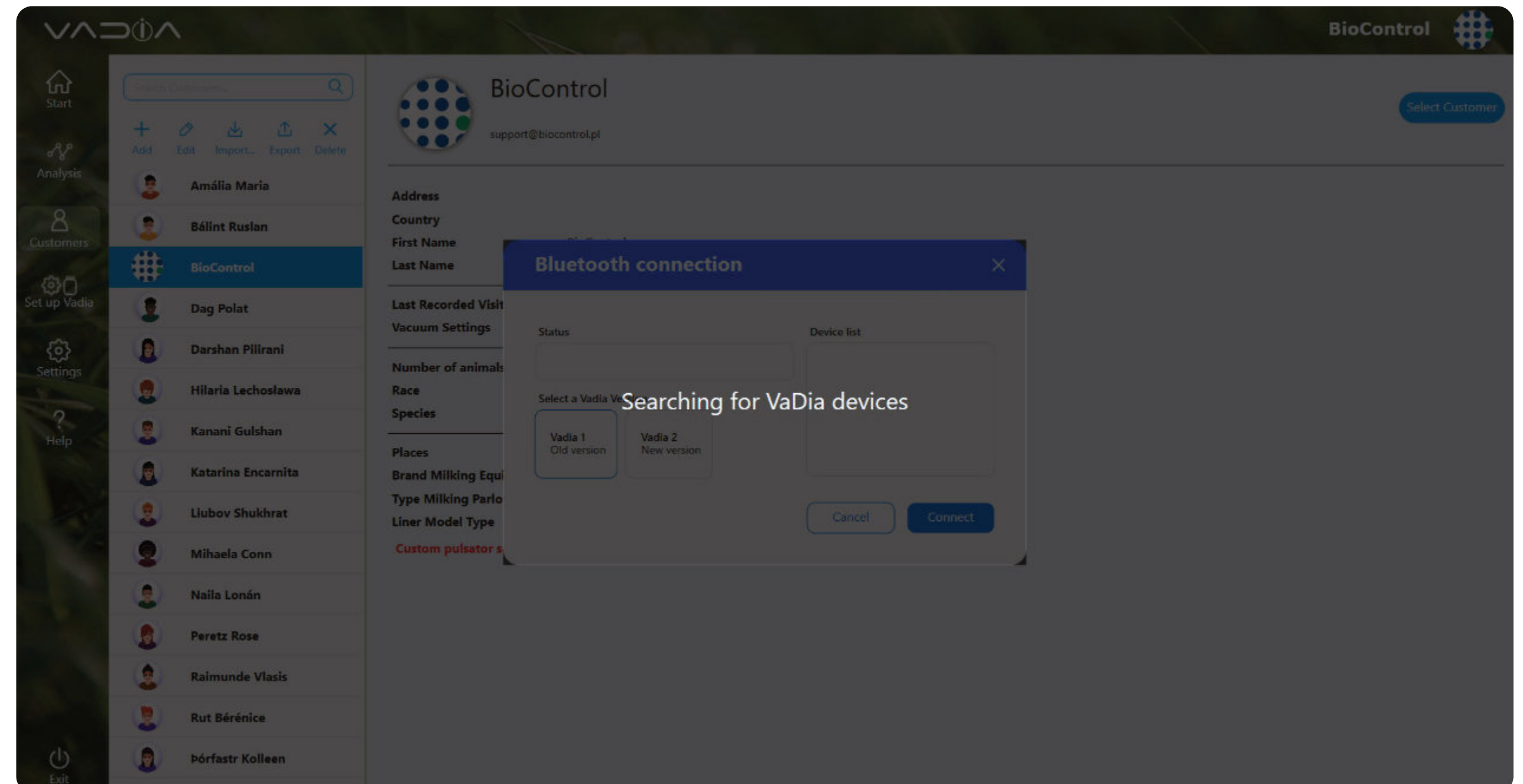


# 20. VADIA SUITE ONLINE ANALYSIS

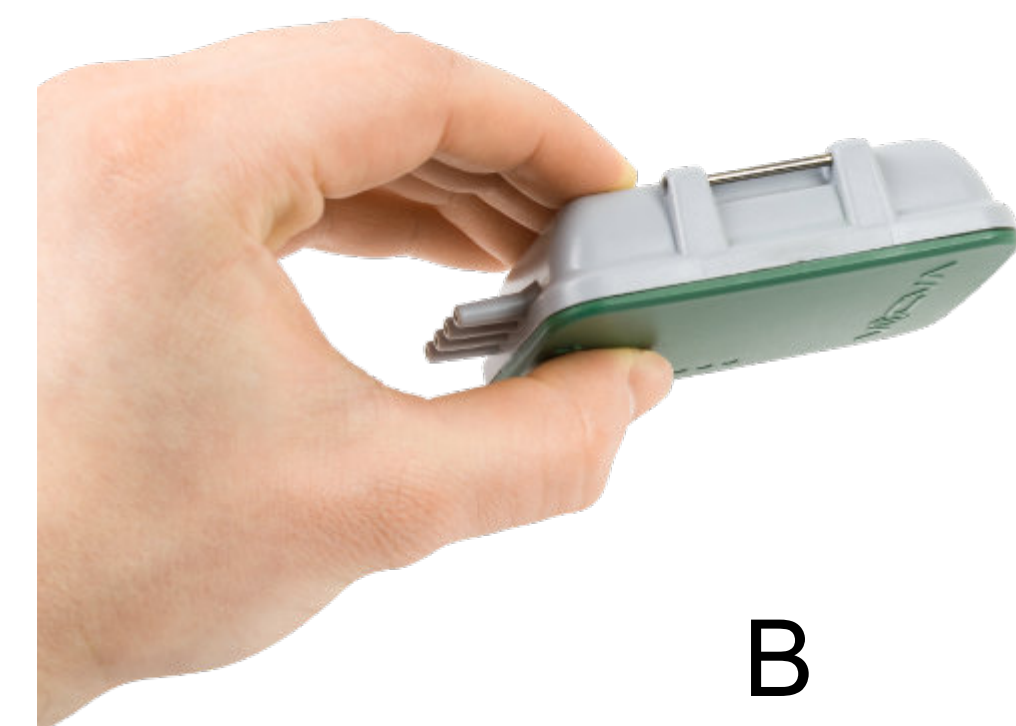
## 20.1. VaDia Suite Bluetooth Connection

Hold the Vadia as in **picture A** and rotate the Vadia as in **picture B** to enable BT.

Go to 'Customers' menu, click on 'Select customer' and then on 'Analyze' and 'Analyze live data'. A message "Searching for Vadias" will be displayed.



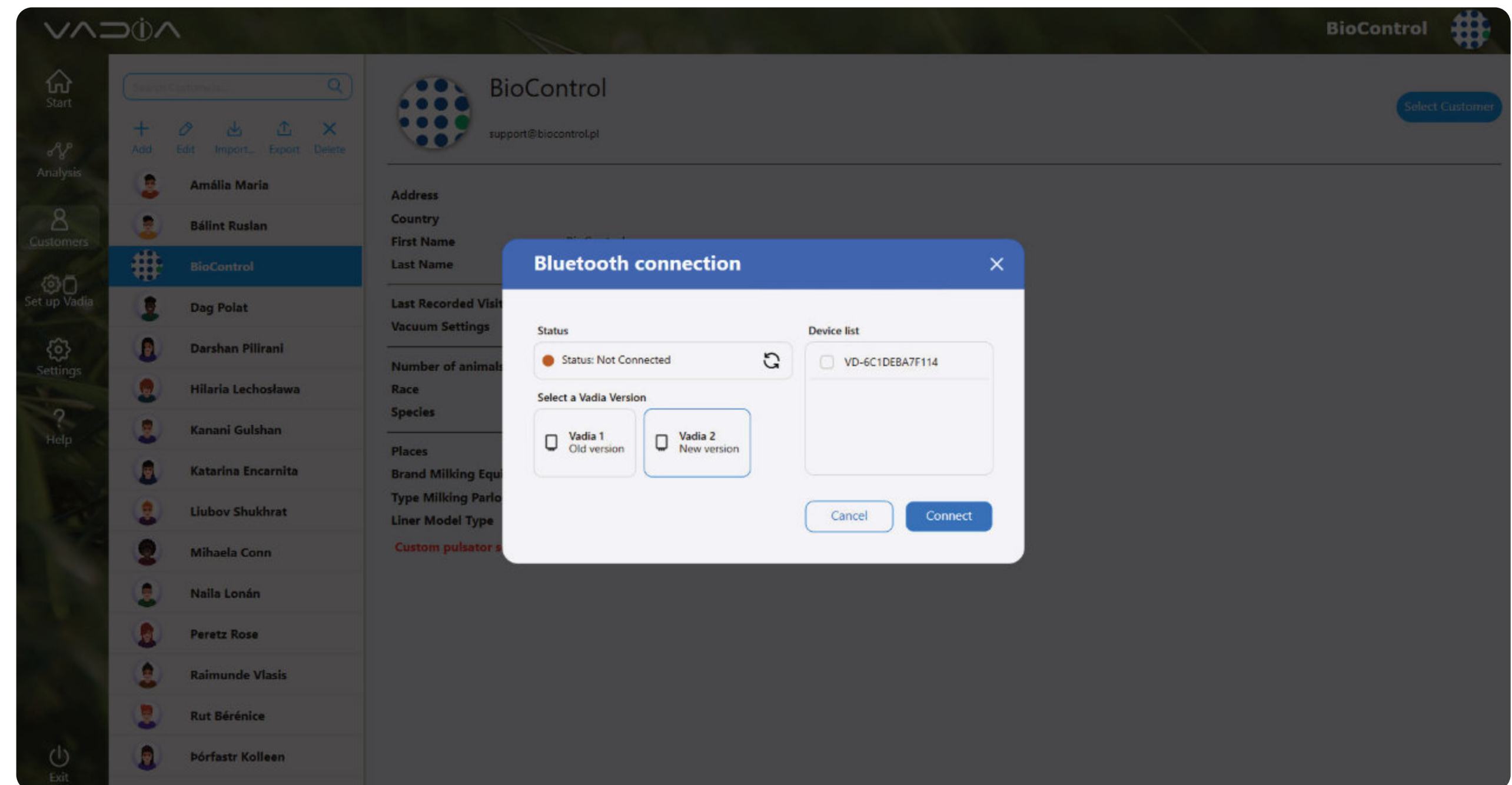
A



B

If your VaDia device is in range, then after a while, it will appear on the list:

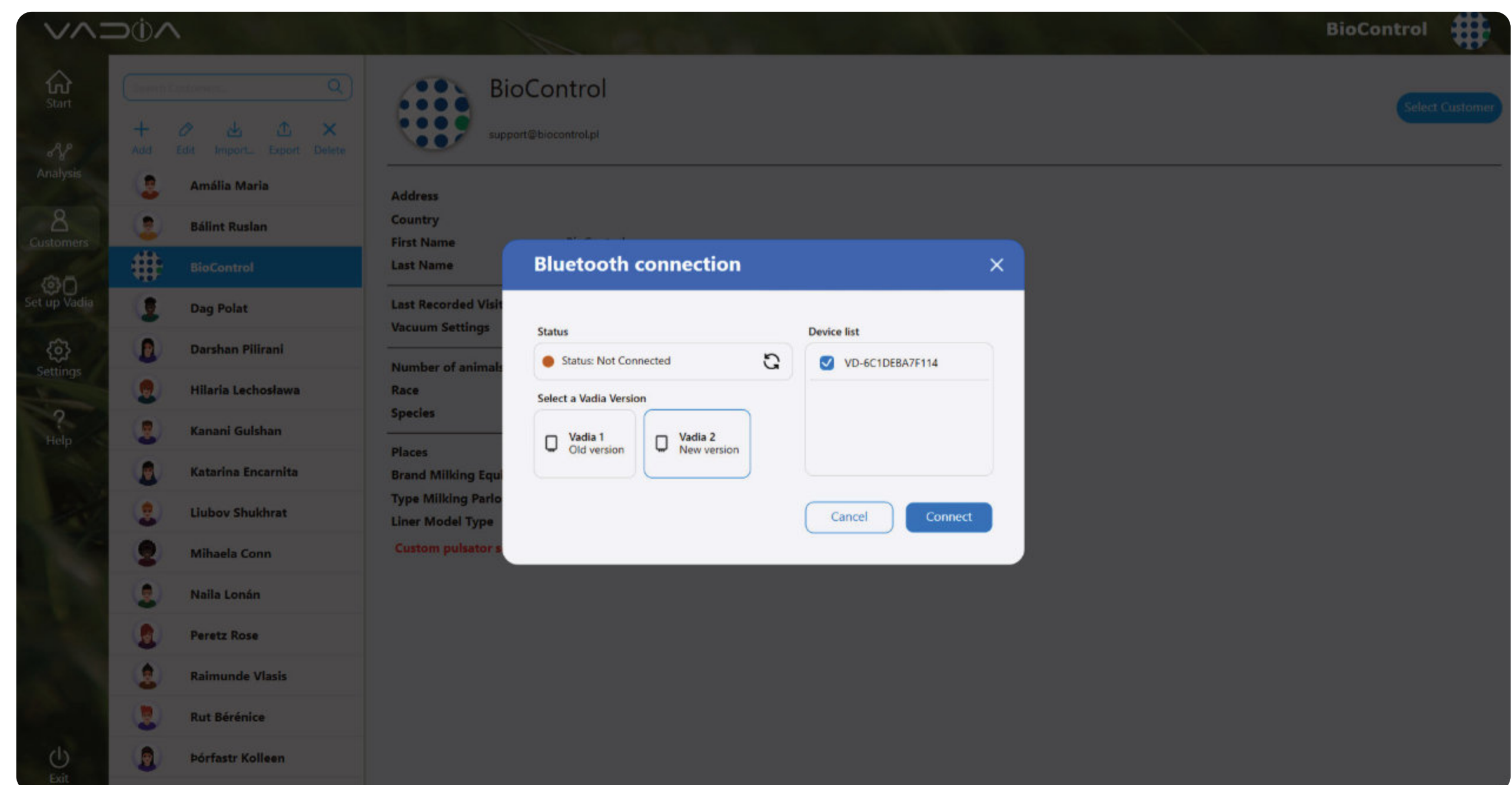
**NOTE:** Make sure your device has Bluetooth 5.0 module. If it does and you cannot find the device, try applying vacuum to one channel and refresh the view.



Click on the name of the device, and press **'Connect'**. After the device has successfully connected, the following window will appear:

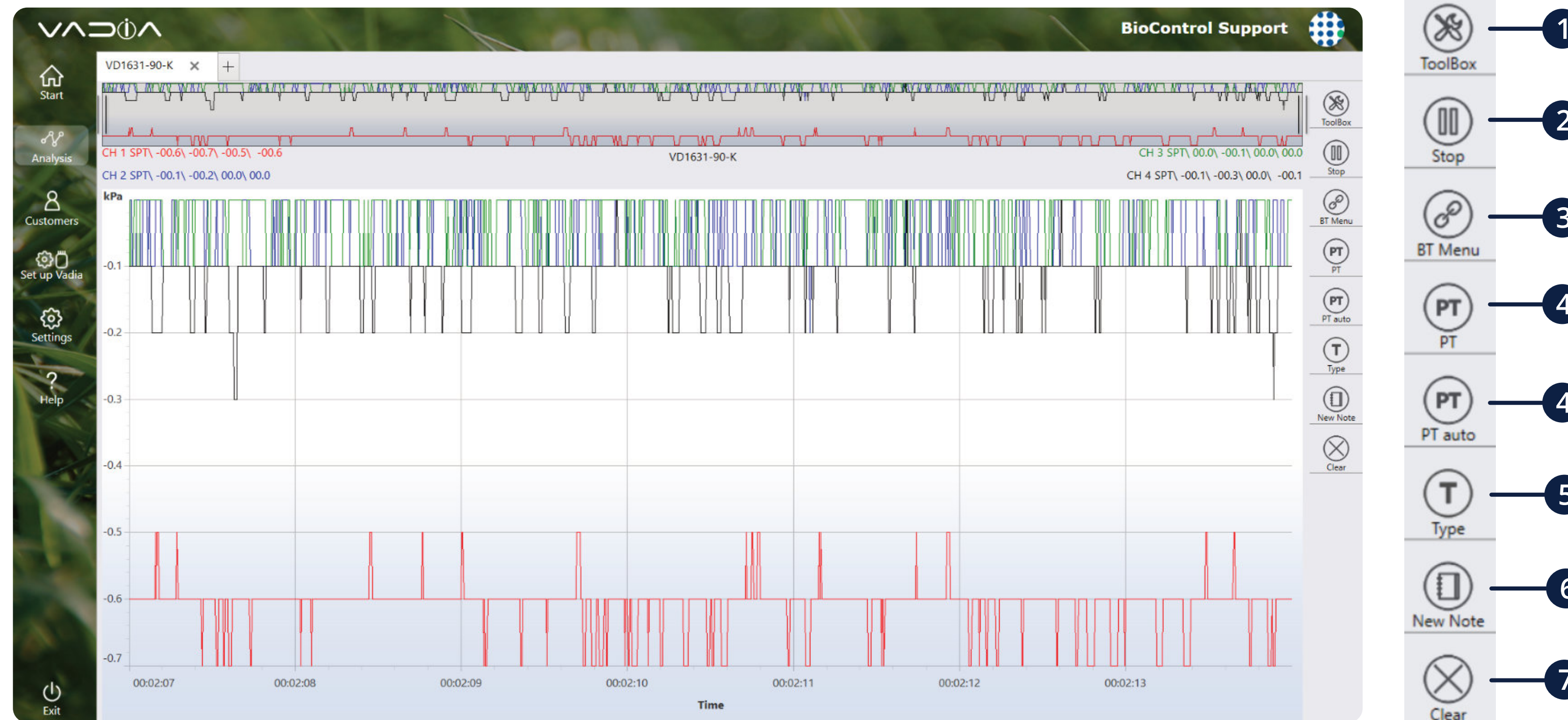
Choose one of the following options and you will be transferred to the analysis view.

Having issues with Bluetooth? - refer to Troubleshoot & FAQ section.





## 20.2. VaDia Suite Bluetooth Connection - Analysis view



- 1 Toolbox – opens menu bar with graph settings
- 2 Stop – stops the data flow to perform an analysis
- 3 BT Menu – opens a menu with VaDia devices in range
- 4 PT – performs a pulsator test from current data
- 5 Type – choose the type of test you want to perform on the current data
- 6 New Note – create a note
- 7 Clear – clears all data from the graph

## 20.3. VaDia Suite Online

To start online analysis, select the customer and connect to VaDia via Bluetooth.

Blow in the vacuum tubes to test if the Bluetooth connection is working, the data will be displayed on the graph in real time.

After collecting a bit of data, click 'PT' and Pulsator Test will be calculated based on the data in detail graph. If you want choose a different range of data, pause the live stream and select custom data range.

**Note:** Milking Time Test, Fall off Test, Slug Test, Milk Flow Resistance Test, Milking Parlour Efficiency and Liner Compression Test can only be executed in the mode 'Paused'. First collect the data in the mode 'Running', and then go in mode 'Paused'. The displayed data can then be analyzed as a vd5-file.

Pulsator Test can be made on running data.

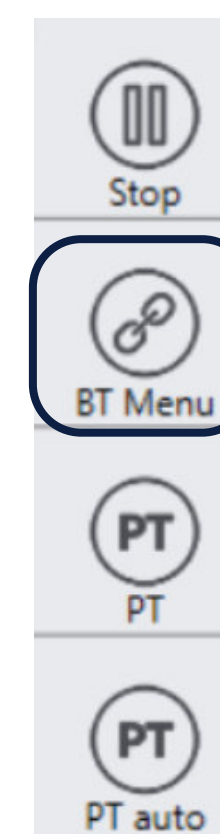


## 20.4. Change between Bluetooth devices

You can go back to Bluetooth connection menu by clicking at 'BT Menu' button.

In this menu, you can disconnect from currently connected VaDia and connect to a different one.

**Note:** Only one VaDia device can be connected at the same time in Vadia Suite PC software.

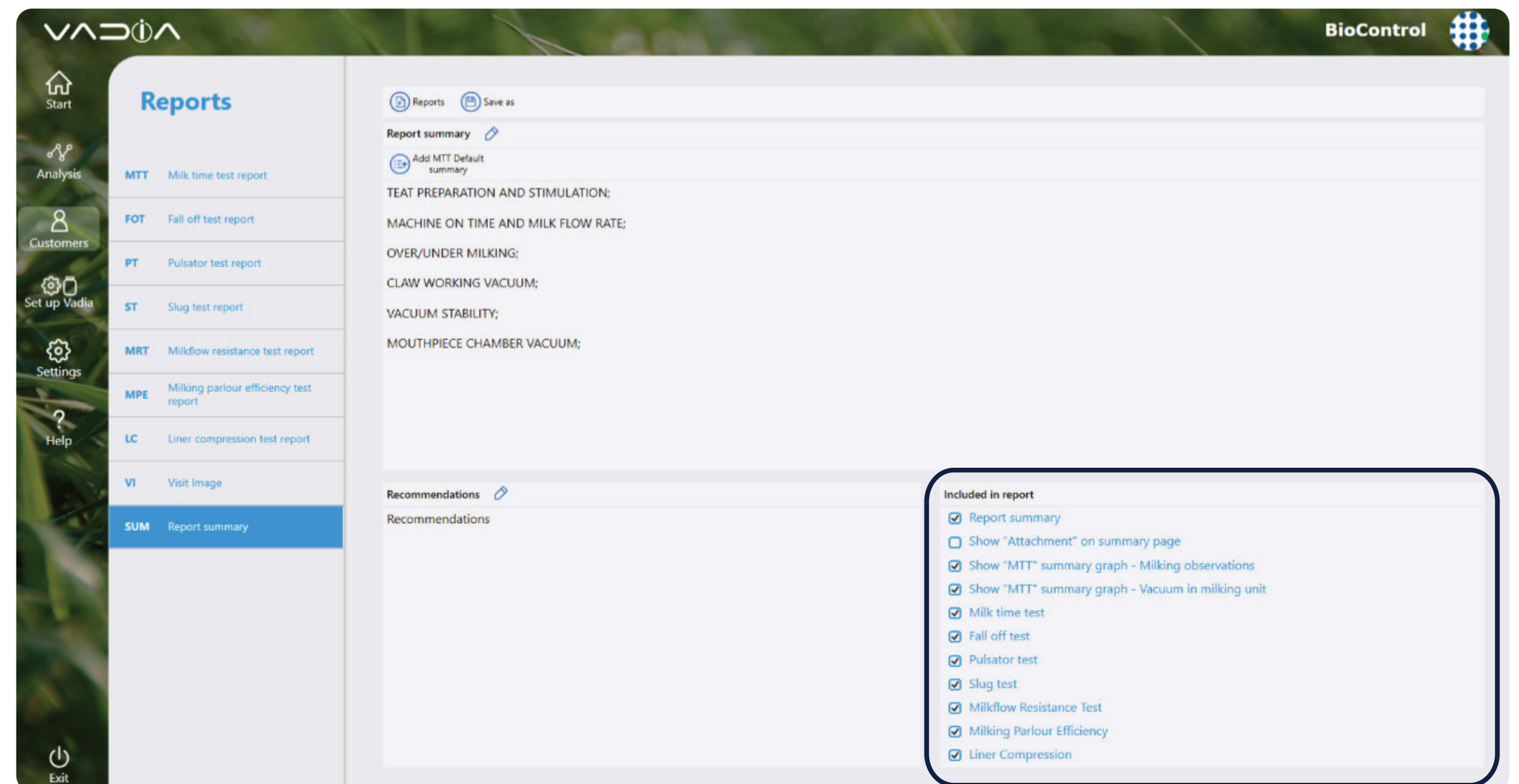
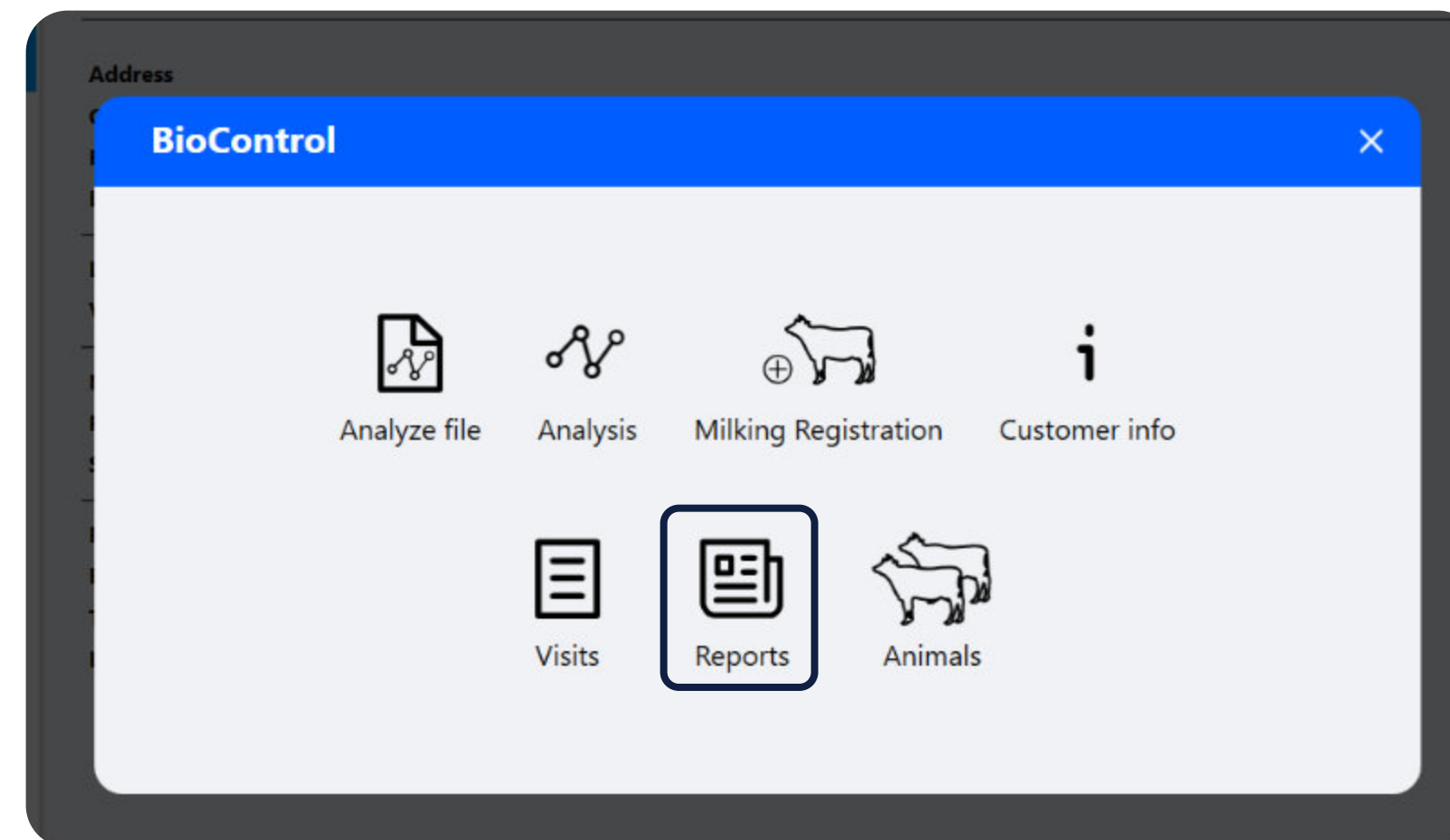


# 21. REPORTING

There are two ways to get to “Reports” view:

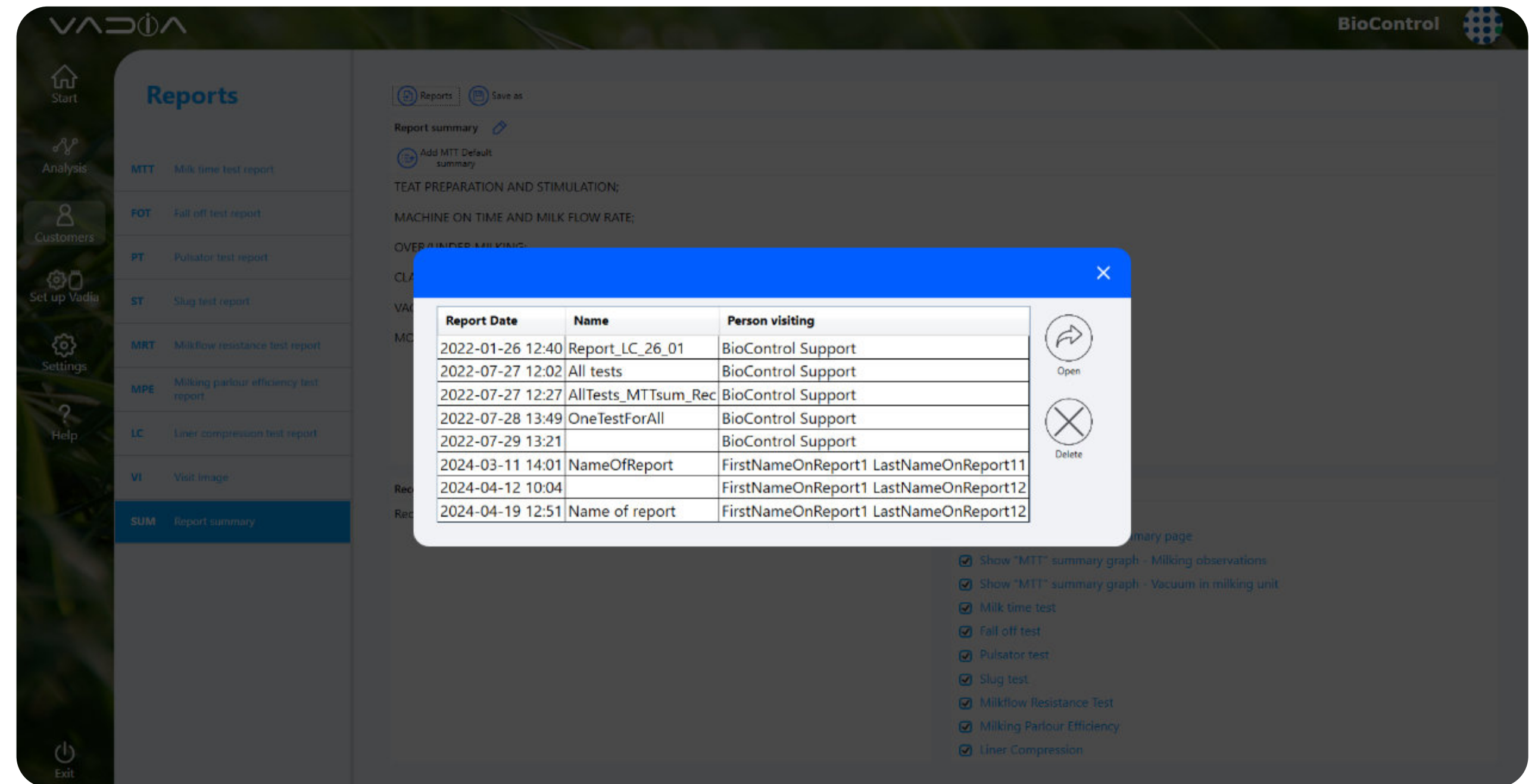
- Reports button at customer menu
- Visits and then Reports and Advanced reports

**Checkboxes:** Pulsator test, fall off test, milk time test, slug test, milkflow resistance test, milking parlour efficiency, liner compression and reports summary will be automatically selected if you pick a test from any of these sections. Report summary will be selected when you type something at “Summary” or when you add a default section.



Reports can be saved in the database and loaded later for editing.

Click "**Reports**" to show a list of saved reports, select a report from the list and click "**Open**" to load it for editing.



## 21.1. Milking Time Test Report

### Average Values Information

Average values are calculated based on MTT analyses chosen to attach to the report.

Tick/untick the box **“Show summary of all MTT tests on top of MTT report page”** if you do not want to show these average values in your report. You can also tick/untick the box **“Show recommended values in report”** to decide if you want to show the **“Recommended”** values in your report (or only the calculated averages).

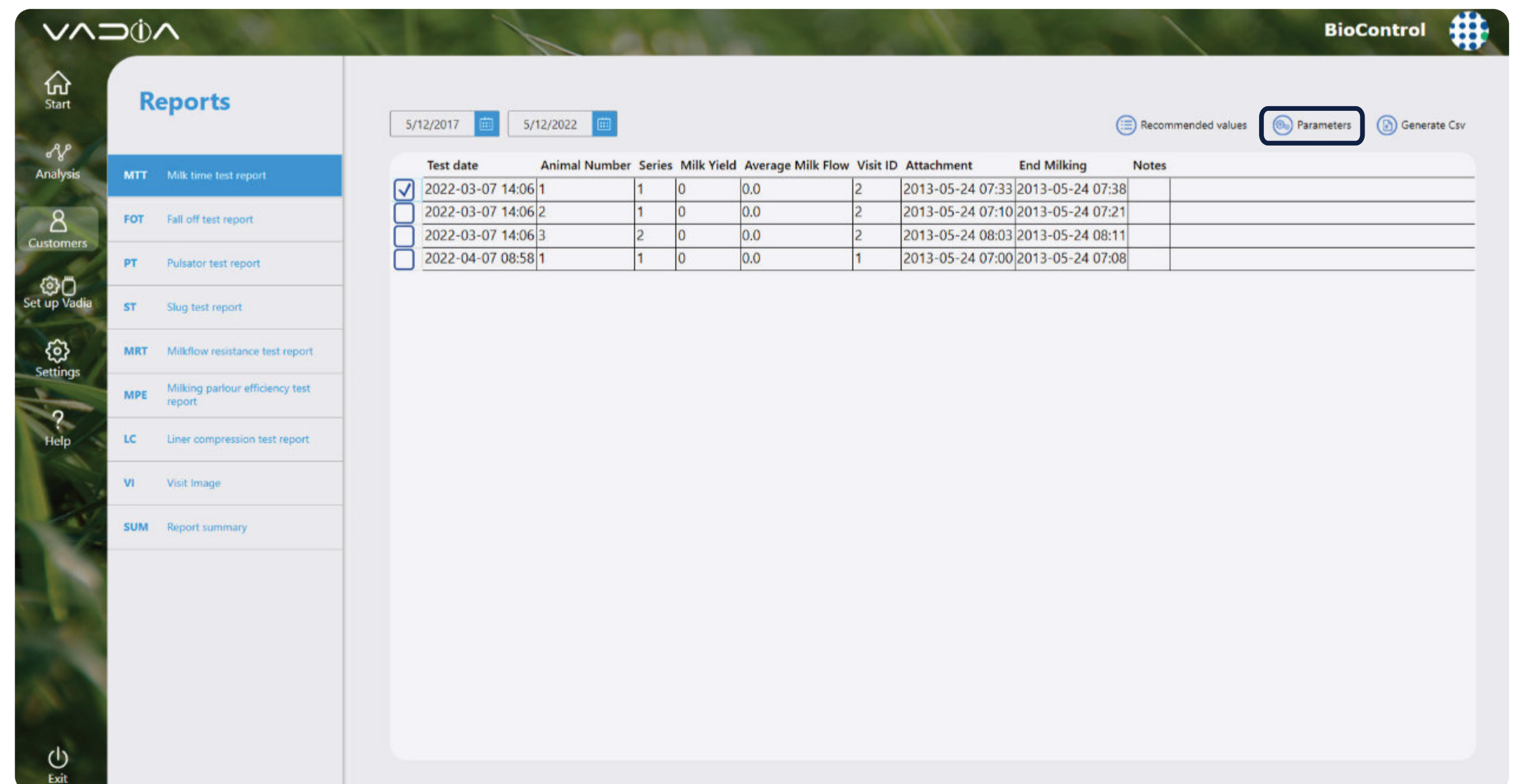
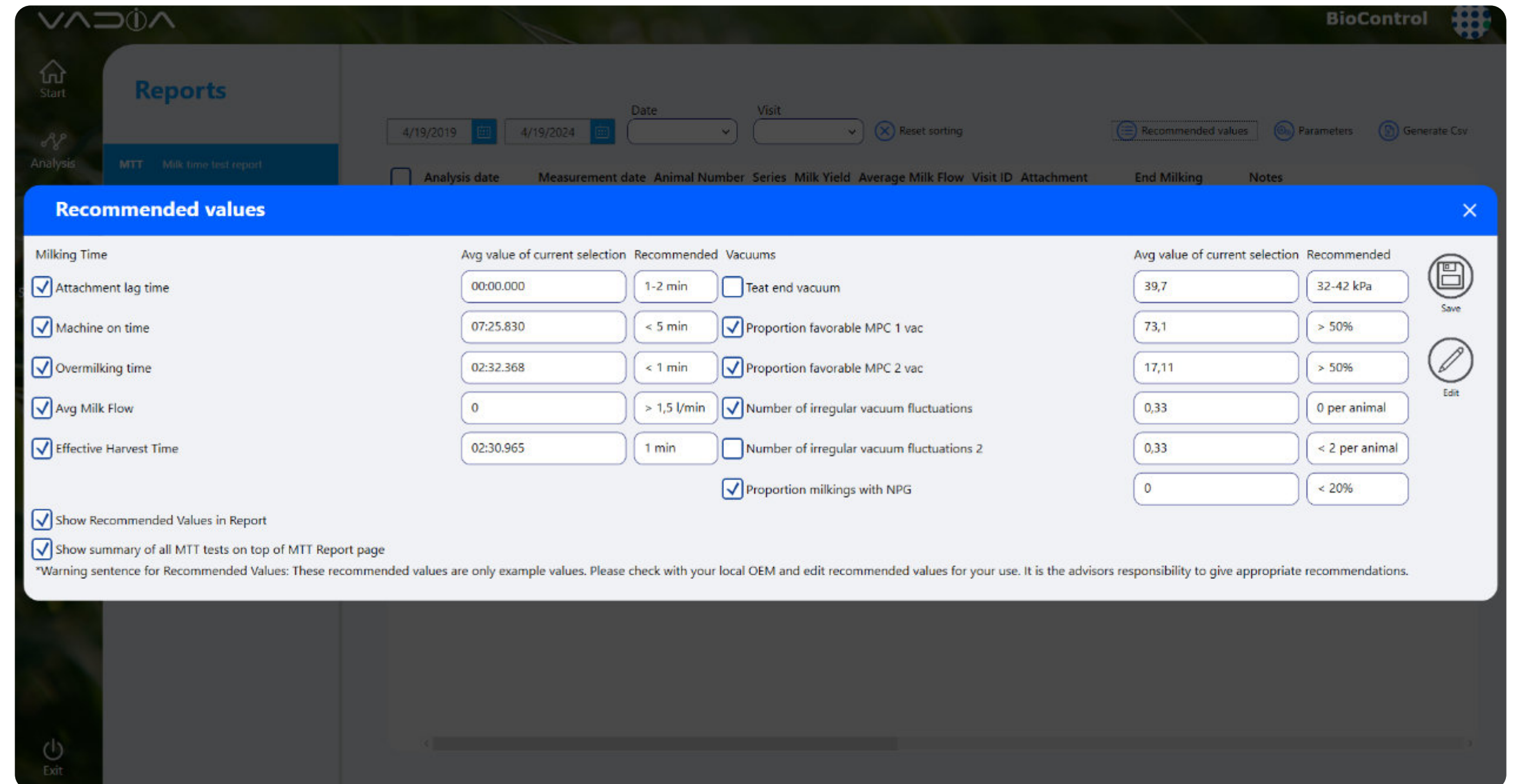
Click on **“Edit”** icon to be able to write in the boxes under **“Recommended”** to edit values.

Tick/untick boxes next to each calculated value to remove value from the report (for example by unticking box next to **“Overmilking”** you will not show overmilking average value information in report).

**OBS!** The recommended values are only example values! It is the advisor’s responsibility to edit values to give appropriate recommendations.

Average values are calculated based on MTT analyses chosen to attach to the report.

Click the **“Parameters”** icon so you can select the parameters you need.



These parameters will appear in the summary table in report.

Parameters
✕

Summary parameters

Details parameters

Animal	Time	Cyclic vacuum fluctuation	Save
<input checked="" type="checkbox"/> Animal Number	<input checked="" type="checkbox"/> Start Preparation	<input type="checkbox"/> Minimum	
<input checked="" type="checkbox"/> Milk Yield	<input checked="" type="checkbox"/> Preparation time (time from start to finish preparation)	<input checked="" type="checkbox"/> Average	
<input type="checkbox"/> Average Milk Flow	<input checked="" type="checkbox"/> Attachment lag time (from preparation to attachment)	<input type="checkbox"/> Maximum	
	<input checked="" type="checkbox"/> Attachment	<input checked="" type="checkbox"/> Above max	
<b>SMT vacuum</b>	<input checked="" type="checkbox"/> Machine on time	<input checked="" type="checkbox"/> Below min	
<input type="checkbox"/> NPG1	<input checked="" type="checkbox"/> Overmilking time	<input type="checkbox"/> Irr. Vac. Fl. Type1 (IVF1)	
<input type="checkbox"/> NPG2		<input type="checkbox"/> Irr. Vac. Fl. Type2 (IVF2)	
<input type="checkbox"/> Total			
<input checked="" type="checkbox"/> PF period		<b>MPC vacuum</b>	
<input type="checkbox"/> Overmilking time		<input type="checkbox"/> MPC vacuum	

These parameters will appear next to the test.

Detail parameters are also the ones that will be exported to .csv file.

Parameters
✕

Summary parameters

Details parameters

Animal	Time	Cyclic vacuum fluctuation	Save
<input checked="" type="checkbox"/> Animal Number	<input checked="" type="checkbox"/> Start Preparation	<input checked="" type="checkbox"/> Minimum	
<input checked="" type="checkbox"/> Milk Yield	<input checked="" type="checkbox"/> Preparation time (time from start to finish preparation)	<input checked="" type="checkbox"/> Average	
<input checked="" type="checkbox"/> Average Milk Flow	<input checked="" type="checkbox"/> Attachment lag time (from preparation to attachment)	<input checked="" type="checkbox"/> Maximum	
<input checked="" type="checkbox"/> Notes to milking (from cow registration)	<input checked="" type="checkbox"/> Attachment	<input checked="" type="checkbox"/> Irr. Vac. Fl. Type1 (IVF1)	
<input checked="" type="checkbox"/> Teat Size	<input checked="" type="checkbox"/> Machine on time	<input checked="" type="checkbox"/> Irr. Vac. Fl. Type2 (IVF2)	
	<input checked="" type="checkbox"/> Overmilking time		
<b>SMT vacuum</b>		<b>MPC vacuum</b>	
<input checked="" type="checkbox"/> NPG1		<input checked="" type="checkbox"/> MPC vacuum	
<input checked="" type="checkbox"/> NPG2			
<input checked="" type="checkbox"/> Total			
<input checked="" type="checkbox"/> PF period			
<input checked="" type="checkbox"/> Overmilking time			

## 21.2. Fall Off Test Report

You can choose what test analyses to attach to the report by choosing dates. Click on the box to the left of the test to attach it to the report.

Select the tests and click **'Generate Csv'** to export selected tests to **'csv'**

The screenshot shows the VADIA Reports interface. On the left is a navigation menu with icons for Start, Analysis, Customers, Set up Vadia, Settings, Help, and Exit. The main area is titled 'Reports' and contains a list of report types: MTT (Milk time test report), FOT (Fall off test report), PT (Pulsator test report), ST (Slug test report), MRT (Milkflow resistance test report), MPE (Milking parlour efficiency test report), LC (Liner compression test report), VI (Visit image), and SUM (Report summary). The FOT report is selected. Above the table are filters for Date (4/19/2019 to 4/19/2024) and Visit, along with a 'Reset sorting' button and a 'Generate Csv' button.

<input type="checkbox"/>	Analysis date	Measurement date	Undershoot	Overshoot	Vacuum drop	Avg vacuum of phase 1	Min vacuum of phase 2	Avg vacuum of phase 3	Max vacuum of phase 4	Avg v
<input type="checkbox"/>	2022-03-07 14:06		0,3	0,6	1,3	40,3	38,7	39,0	40,9	40,4
<input type="checkbox"/>	2022-07-27 13:35		0,3	0,6	1,3	40,3	38,7	39,0	40,9	40,4
<input type="checkbox"/>	2022-07-27 13:36		0,3	0,6	1,3	11,9	11,4	11,5	12,1	11,9
<input type="checkbox"/>	2022-07-28 13:26		0,3	0,6	1,3	40,3	38,7	39,0	40,9	40,4
<input type="checkbox"/>	2022-07-28 14:26		0,3	0,6	1,3	40,3	38,7	39,0	40,9	40,4
<input type="checkbox"/>	2022-07-28 14:26		0,3	0,6	1,3	40,3	38,7	39,0	40,9	40,4
<input type="checkbox"/>	2022-08-04 13:23		0,3	0,6	1,3	40,3	38,7	39,0	40,9	40,4

## 21.3. Pulsator Test Report

You can choose what test analyses to attach to the report by choosing dates. Click on the box to the left of the test to attach it to the report.

Select the tests and click **'Generate Csv'** to export selected tests to **'.csv'**

Press **"Recommended values"** to set custom pulsator conditions for the selected customer.

The screen **'Pulsator conditions'** lists default targets and deviation tolerances for Pulsator Testing. Values that deviate from these targets will be automatically highlighted in the Pulsator Testing reports.

Highlighting can be customized by the user (default background is red, and font is black).

The screenshot shows the VADIA Reports interface. On the left is a navigation menu with options: Start, Analysis, Customers, Set up Vadia, Settings, Help, and Exit. The main area is titled 'Reports' and contains a list of test types: MTT (Milk time test report), FOT (Fall off test report), PT (Pulsator test report), ST (Slug test report), MRT (Milkflow resistance test report), MPE (Milking parlour efficiency test report), LC (Liner compression test report), VI (Visit image), and SUM (Report summary). The PT option is selected. Above the list, there are filters for 'Date' (4/19/2019 to 4/19/2024) and 'Visit', along with a 'Reset sorting' button and 'Recommended values' and 'Generate Csv' buttons. The main table has columns for 'Analysis date', 'Measurement date', 'Pulsator number', and 'Notes'. It contains 20 rows of data, each with a checkbox in the first column for selection.

The screenshot shows the 'Recommended values' dialog box overlaid on the Reports interface. The dialog has a title bar with a close button. It contains several sections:
 

- Use ISO Conditions:** A checkbox that is unchecked.
- Avg value of current selection:** A field with the value '60'.
- Recommended:** A field with the value '60' and the unit 'per min'.
- Validation checkboxes:**
  - Rate validation: Target 60, Deviation +/- 5 %.
  - Ratio validation: Target 65, Deviation +/- 5 %.
  - B-phase validation: Target 50.2, Deviation > 30 %.
  - D-phase validation: Target 21.9, Deviation > 15 %.
- Use conditions:** A checkbox that is checked, with a 'Reset to default' button.
- Parameter table:**

A (msec)		B (msec)		C (msec)		D (msec)		Rate	
Target	100	Target	500	Target	100	Target	300	Target	60
Deviation %	10	Deviation %	10	Deviation %	10	Deviation %	10	Deviation %	5
Value	10	Value	50	Value	10	Value	30	Value	3

Vmax		Ratio min		Ratio max		Limp		Dip	
Target	42	Target	40	Target	60	Target	2	Target	4
Deviation %	5	Deviation %	5	Deviation %	5				
Value	2.1	Value	0	Value	0				
- Highlighting options:**
  - Below min:** Rear (red circle), Front (black circle).
  - Within scope:** Rear (white circle), Front (black circle).
  - Above max:** Rear (red circle), Front (black circle).
- Buttons:** 'Cancel' and 'Save'.



## 21.4. Slug Test Report

You can choose what test analyses to attach to the report by choosing dates. Click on the box to the left of the test to attach it to the report.

Select the tests and click **'Generate Csv'** to export selected tests to **' .csv'**

The screenshot shows the VADIA Reports interface. On the left is a navigation sidebar with icons for Start, Analysis, Customers, Set up Vadia, Settings, Help, and Exit. The main area is titled 'Reports' and contains a list of report types: MTT (Milk time test report), FOT (Fall off test report), PT (Pulsator test report), ST (Slug test report), MRT (Milkflow resistance test report), MPE (Milking parlour efficiency test report), LC (Liner compression test report), VI (Visit Image), and SUM (Report summary). The 'ST' report is selected. Above the table are filters for 'Date' (4/19/2019 to 4/19/2024) and 'Visit', along with a 'Reset sorting' button and a 'Generate Csv' button.

<input type="checkbox"/>	Analysis date	Measurement date	Velocity	Slug Time (sec)	Distance	Vacuum drop	Diameter	Slug Length
<input type="checkbox"/>	2022-03-07 14:06		2,5	2,4	6,0	1,4	48,0	1,3
<input type="checkbox"/>	2022-03-07 14:27		2,5	2,4	6,0	1,4	48,0	1,3
<input type="checkbox"/>	2022-07-27 12:16		2,5	2,4	6,0	30,5	48,0	1,3
<input type="checkbox"/>	2022-07-27 12:20		2,5	2,4	6,0	30,5	48,0	1,3
<input type="checkbox"/>	2022-07-27 12:21		2,5	2,4	6,0	30,5	48,0	1,3
<input type="checkbox"/>	2022-07-27 12:22		2,5	2,4	6,0	30,5	48,0	1,3
<input type="checkbox"/>	2022-07-28 13:27		2,5	2,4	6,0	31,5	48,0	1,3
<input type="checkbox"/>	2022-07-28 14:27		2,5	2,4	6,0	31,5	48,0	1,3
<input type="checkbox"/>	2022-08-04 14:02		2,5	2,4	6,0	31,6	48,0	0,8
<input type="checkbox"/>	2024-03-05 11:36	2014-09-16	2,5	2,4	6,0	31,4	48,0	0,6

## 21.5. Milk Resistance Test Report

You can choose what test analyses to attach to the report by choosing dates. Click on the box to the left of the test to attach it to the report.

Select the tests and click **'Generate Csv'** to export selected tests to **'.csv'**

The screenshot shows the VADIA Reports interface. On the left is a navigation sidebar with icons for Start, Analysis, Customers, Set up Vadia, Settings, Help, and Exit. The main area is titled 'Reports' and contains a list of report types: MTT (Milk time test report), FOT (Fall off test report), PT (Pulsator test report), ST (Slug test report), MRT (Milkflow resistance test report), MPE (Milking parlour efficiency test report), LC (Liner compression test report), VI (Visit Image), and SUM (Report summary). The MRT report is selected. Above the table are filters for Date (4/19/2019 to 4/19/2024) and Visit, along with a 'Reset sorting' button and a 'Generate Csv' button.

<input type="checkbox"/>	Analysis date	Measurement date	Notes
<input type="checkbox"/>	2022-03-07 14:08		
<input type="checkbox"/>	2022-07-27 13:40		
<input type="checkbox"/>	2022-07-27 13:41		
<input type="checkbox"/>	2022-07-28 13:28		Milk Resistance Test Notes Milk Resistance Test Notes Milk Resistance Test Notes Milk Resistance Test Not
<input type="checkbox"/>	2022-07-28 14:28		MRT VD5
<input type="checkbox"/>	2022-07-28 14:29		MRT VD5 MRT VD5 MRT VD5 MRT VD5 MRT VD5 MRT VD5 MRT VD5 MRT VD5 MRT VD5 MRT VD5 MRT VD5 MRT VD5 MI
<input type="checkbox"/>	2022-08-04 14:33		

## 21.6. Milking Parlour Efficiency Report

You can choose what test analyses to attach to the report by choosing dates. Click on the box to the left of the test to attach it to the report.

Select the tests and click **'Generate Csv'** to export selected tests to **'.csv'**

The screenshot shows the VADIA Reports interface. On the left is a sidebar with navigation icons for Start, Analysis, Customers, Set up Vadia, Settings, Help, and Exit. The main content area is titled 'Reports' and features a list of report types on the left and a data table on the right. The 'MPE' (Milking parlour efficiency test report) is selected. The table has the following data:

<input type="checkbox"/>	Analysis date	Measurement date	Number of milkings	Duration	Average milking time	Average loading time	Turns per hour	Time per turn	Notes
<input type="checkbox"/>	2022-03-07 14:09		110	01:17:10	00:38	00:03	84,94	00:00:42	
<input type="checkbox"/>	2022-07-27 13:57		9	01:29:08	07:07	03:07	5,39	00:11:08	
<input type="checkbox"/>	2022-07-27 13:58		9	01:29:08	07:07	03:07	5,39	00:11:08	
<input type="checkbox"/>	2022-07-28 13:28		9	01:29:09	07:07	03:07	5,39	00:11:08	Milking Parlour Efficiency Test No
<input type="checkbox"/>	2022-07-28 14:29		9	01:29:09	07:07	03:07	5,39	00:11:08	MPE VD5 MPE VD5 MPE VD5 MP
<input type="checkbox"/>	2023-05-19 14:16	2023-01-11	8	01:55:10	07:09	08:16	3,65	00:16:27	

## 21.7. Liner Compression Test Report

You can choose what test analyses to attach to the report by choosing dates. Click on the box to the left of the test to attach it to the report.

Select the tests and click '**Generate Csv**' to export selected tests to **' .csv'**

The screenshot shows the VADIA Reports interface. On the left is a navigation sidebar with icons for Start, Analysis, Customers, Set up Vadia, Settings, Help, and Exit. The main area is titled 'Reports' and contains a list of report types: MTT (Milk time test report), FOT (Fall off test report), PT (Pulsator test report), ST (Slug test report), MRT (Milkflow resistance test report), MPE (Milking parlour efficiency test report), LC (Liner compression test report), VI (Visit Image), and SUM (Report summary). The 'LC' report type is selected. Above the table are filters for Date (4/19/2019 to 7/26/2022) and Visit, along with a 'Reset sorting' button and a 'Generate Csv' button. The table below has the following columns: Analysis date, Measurement date, TPPD, Milk flow time, Rest time, Milk flow percent, Rest phase percent, Pulsator number, and Notes.

<input type="checkbox"/>	Analysis date	Measurement date	TPPD	Milk flow time	Rest time	Milk flow percent	Rest phase percent	Pulsator number	Notes
<input type="checkbox"/>	2021-12-13 12:55		0,0	582	417	58	0	1	
<input type="checkbox"/>	2022-01-26 12:33		0,0	524	478	52	0	1	
<input type="checkbox"/>	2022-01-26 12:34		0,0	563	440	56	0	2	
<input type="checkbox"/>	2022-01-26 12:34		0,0	577	424	58	0	3	
<input type="checkbox"/>	2022-01-26 12:35		0,0	556	444	56	0	4	
<input type="checkbox"/>	2022-01-26 12:35		0,0	555	443	56	0	5	
<input type="checkbox"/>	2022-01-26 12:38		0,0	817	180	82	0	6	
<input type="checkbox"/>	2022-01-26 13:44		0,0	559	433	56	0	7	
<input type="checkbox"/>	2022-03-07 14:11		0,0	577	423	58	0	1	

## 21.8. Visit Image

You can add an image to a visit and later attach it to the report. Go to your “Visits” view, select a visit and click “+” next to “Files”. Add your image and then include it in the report.

The screenshot shows the VADIA software interface. On the left is a navigation menu with options like Start, Analysis, Customers, Set up Vadia, Settings, Help, and Exit. The main area displays a 'Visits' view with a table of visit records. Below the table, there are sections for 'Details' (visit date, reason, person), 'Files' (with a '+' icon to add files), and 'Visit Notes'. A bar chart titled 'Vacuum in milking unit' is shown, comparing four vacuum metrics across three animals.

Date of report	Number of tests
2021-03-17 09:46	13
2021-02-24 13:48	2
2021-02-19 12:08	3
2021-02-17 09:49	10
2021-02-05 14:08	3
2021-01-20 13:26	2
2021-01-19 15:21	4
2021-01-18 13:48	36
2021-01-18 13:47	10
2021-01-18 13:47	10
2021-01-12 12:01	12

**Vacuum in milking unit**

Animal	Teat end vacuum	Vacuum fluctuations during peak flow	Mouthpiece vacuum during peak flow	Mouthpiece 2 vacuum during peak flow
1	40	20	25	0
2	40	22	23	0
3	40	6	7	0

You can include the image previously added to the visit in the Reports - Visit Image tab.

The screenshot shows the VADIA software interface in the 'Reports' view. The left navigation menu is the same as in the previous screenshot. The main area displays a list of report types, with 'VI - Visit Image' highlighted. Below the list, there is a table showing report entries.

Date	Name	Notes
2022-05-12 14:03	oMvGolyM.png	

Click on the arrow and hold for approximately 2 seconds to display a list of all tests.

The screenshot shows the VADIA software interface. On the left is a sidebar with navigation options: Start, Analysis, Customers, Set up Vadia, Settings, Help, and Exit. The main area displays a table of test reports with columns for 'Date of report' and 'Number of tests'. A dropdown menu is open over the test entry for P12, listing tests from P1 to P26. The main view shows details for test P12, including a 'Visit Notes' section, a 'Files' section with two test log files, two waveform graphs, and a data table at the bottom.

Channel 2	Channel 3	Rate (1/min)	Ratio 1 (%)	Ratio 2 (%)	Percent A (%)	Percent B (%)	Percent C (%)	Percent D (%)	Limp (unit)
90	85	60,3	60,3	54,2	54,2	55,8	55,8	9,1	8,5
549	554	55,2	55,7	7,1	7,1	28,6	28,6	0,0	0,0
71	71								
285	285								
43,9	44,3								

The screenshot shows the VADIA software interface. On the left is a sidebar with navigation options: Start, Analysis, Customers, Set up Vadia, Settings, Help, and Exit. The main area displays a table of test reports with columns for 'Date of report' and 'Number of tests'. A dropdown menu is open over the test entry for P42, listing tests from P40 to P48. The main view shows details for test P42, including a 'Details' section with visit information, a 'Files' section with two test log files, two waveform graphs, and a data table at the bottom.

Channel 2	Channel 3	Rate (1/min)	Ratio 1 (%)	Ratio 2 (%)	Percent A (%)	Percent B (%)	Percent C (%)	Percent D (%)	Limp (unit)
90	85	60,3	60,3	54,2	54,2	55,8	55,8	9,1	8,5
549	554	55,2	55,7	7,1	7,1	28,6	28,6	0,0	0,0
71	71								
285	285								
43,9	44,3								

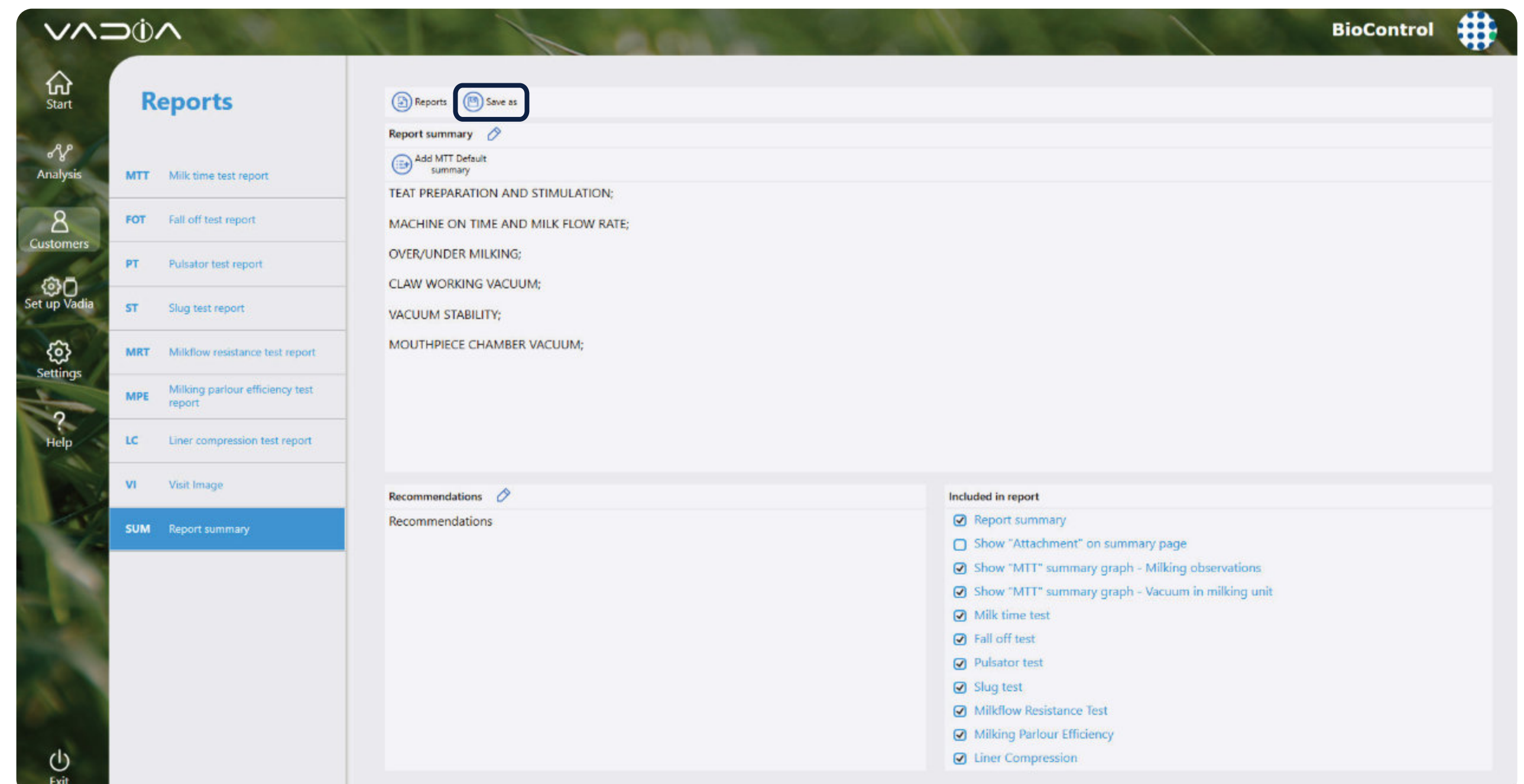
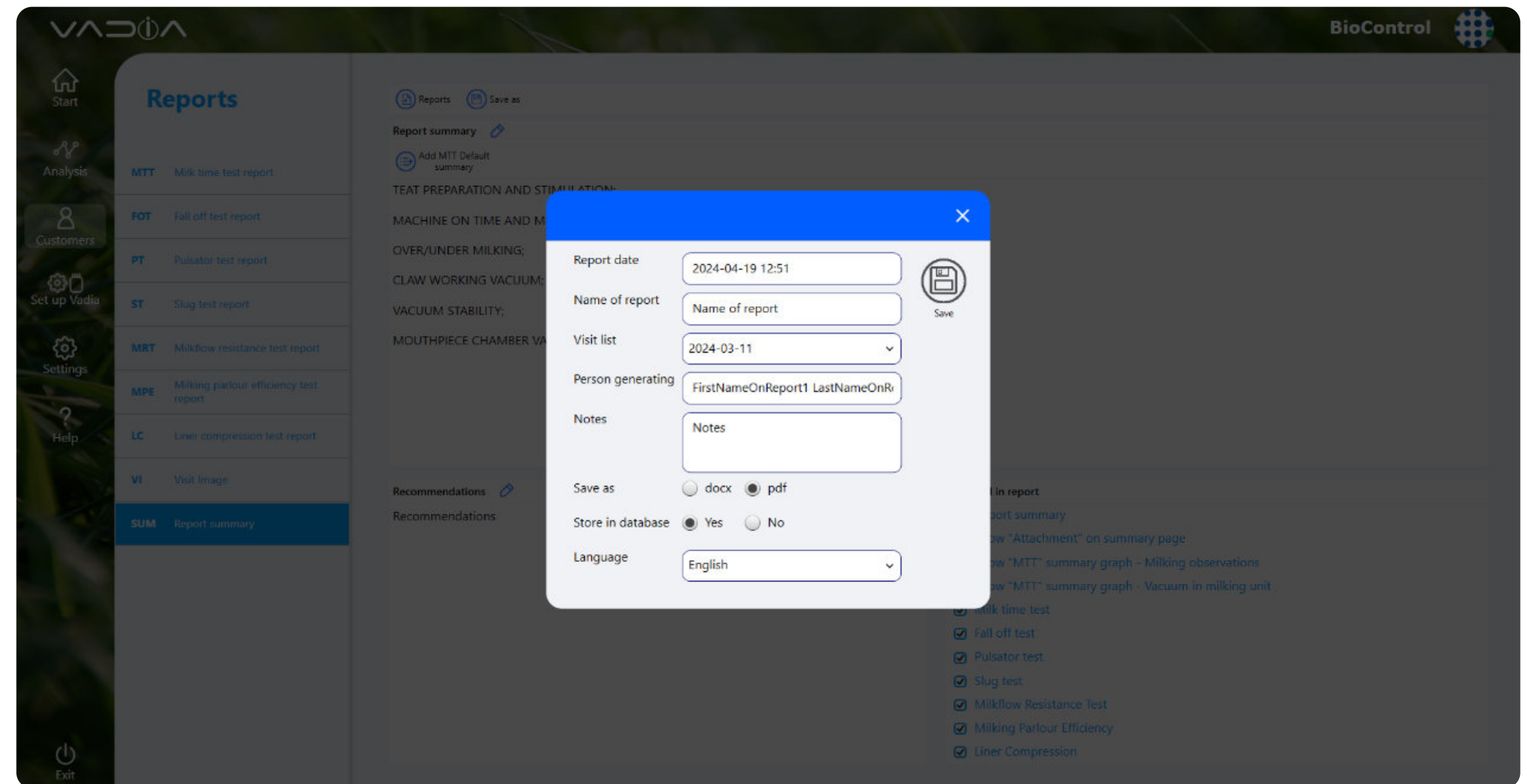
After clicking '**Save as**' the following pop up will be displayed.

In the window, there is an automatic report date entered which can be edited.

Provide the name of the report, choose a visit from visit list, person generating will be automatically filled by the software. There is room for notes, user can choose file format (docx or pdf) and if they want to save the report in database for future editing purposes.

Press '**Save**' to generate the report with selected tests, press '**X**' to leave the view.

It is also possible to generate the report in different language than selected in the software. Simply select the desired language from the drop down list.



## 21.9. PDF - Report of Pulsation Analysis

Page 1 of the report lists a total overview of all pulsators, the following pages list details of each pulsator.

Most information in the report is self-explanatory. 'Limping' and 'dip' are calculated as defined in ISO 3918.

- Limping is the difference in pulsator ratio between the two halves of a milking cluster with alternating pulsation. Limping checks if the two sides of the pulsator are equal. ISO 5707 recommends that limping shall be < 5%. Limping can also be intentionally when the rear half of the udder is milked with a different pulsator ratio than the front half.

- Dip is about the shape of the vacuum curve. A dip is when, during the B-phase, the vacuum for a short period drops more than 4 kPa below the maximum B-phase vacuum.



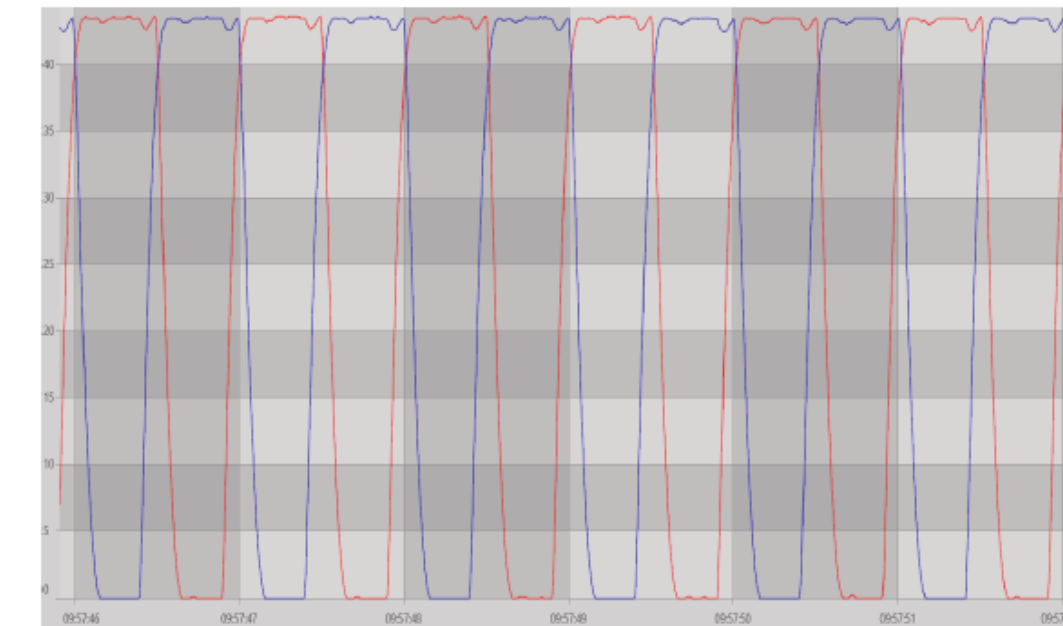
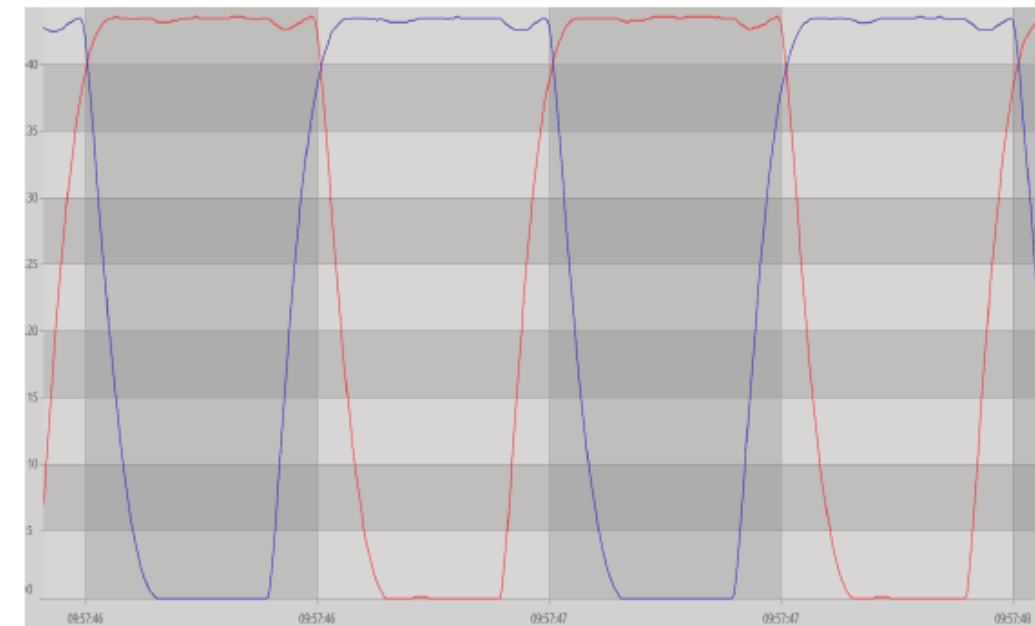
### Pulsator Test Report

**Customer**  
BioControl Support  
123 BioControl

**General Info**  
Test date 13-12-2021



**Advisor**  
BioControl Support  
BioControl  
735521406



Puls. Nr.	Chan	Rate (bpm)	Ratio	a (%)	a (ms)	b (%)	b (ms)	c (%)	c (ms)	d (%)	d (ms)	Vmax (kPa)	Limp	Dip
2	1	59.8	60.1 : 39.9	9.6	96	50.5	507	10.0	100	29.9	300	43.6	0.0	1.0
2	2	60.0	60.1 : 39.9	9.8	98	50.3	503	10.3	103	29.6	296	43.6	0.0	1.0



# 22. TROUBLESHOOT & FAQ

## 22.1. Vadia Suite does not see my device when it is initialized in LOG BT mode and I want to connect to it via Bluetooth

Please make sure that VaDia is in LOG BT mode (LED blinking in Blue) and your device has Bluetooth drivers installed and turned on.

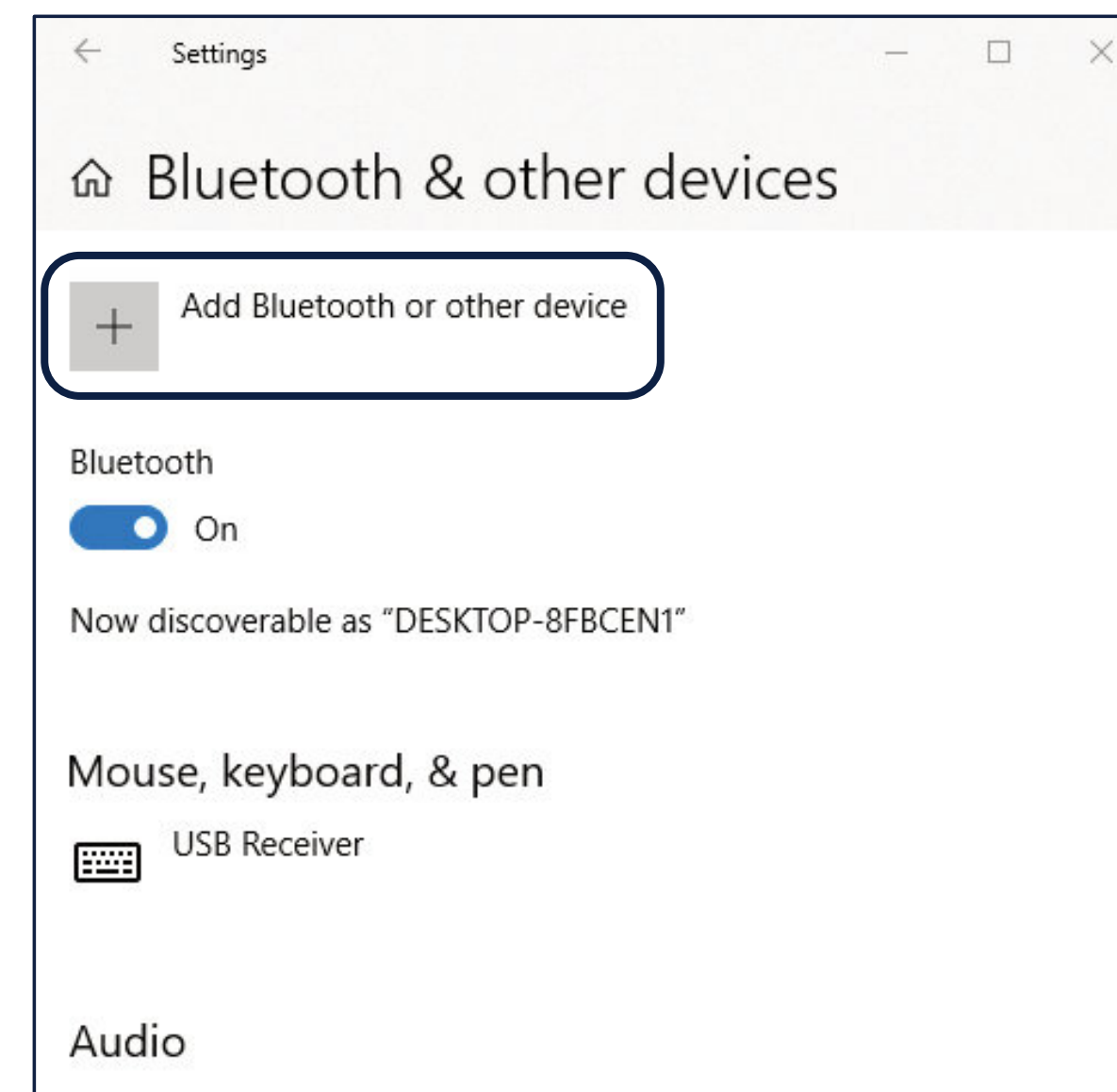
### Follow this path:

Launch Vadia Suite – Click **“Customers”** – Select customer from the list – Click **“Select customer”** – Click **“Analyze file”** – Click **“Analyze live data”** – wait until the list of nearby devices is refreshed, if your device is not on the list, make sure it is not in **“Sleep”** mode (apply vacuum to at least one channel to ‘awake’ it) – click **“Refresh”** icon below and wait for the list to refresh.

If your device is still not discoverable, try to manually pair it with your PC/laptop/tablet.

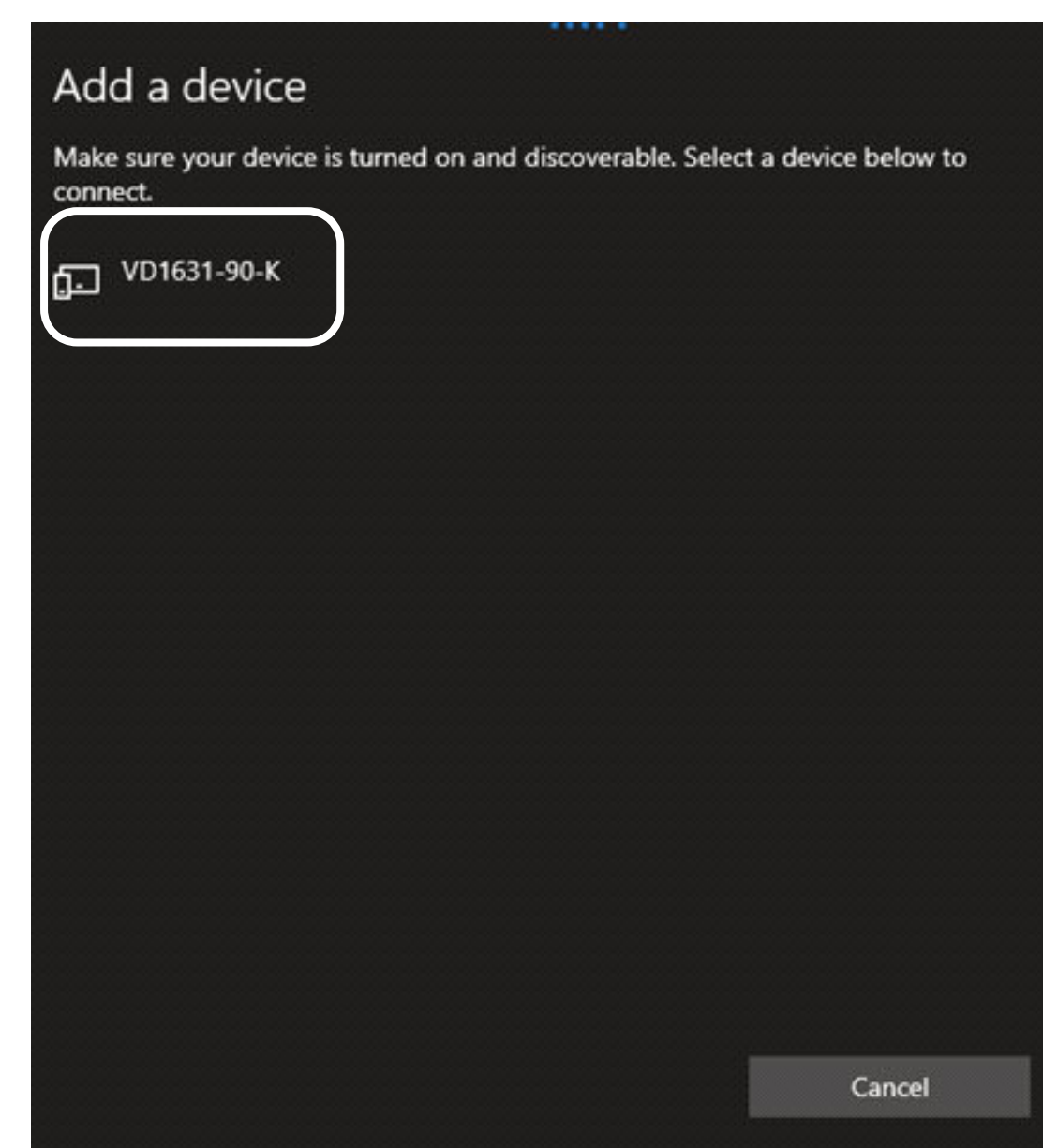
Go to Bluetooth Settings:

In this view click **“Add Bluetooth or other device”**



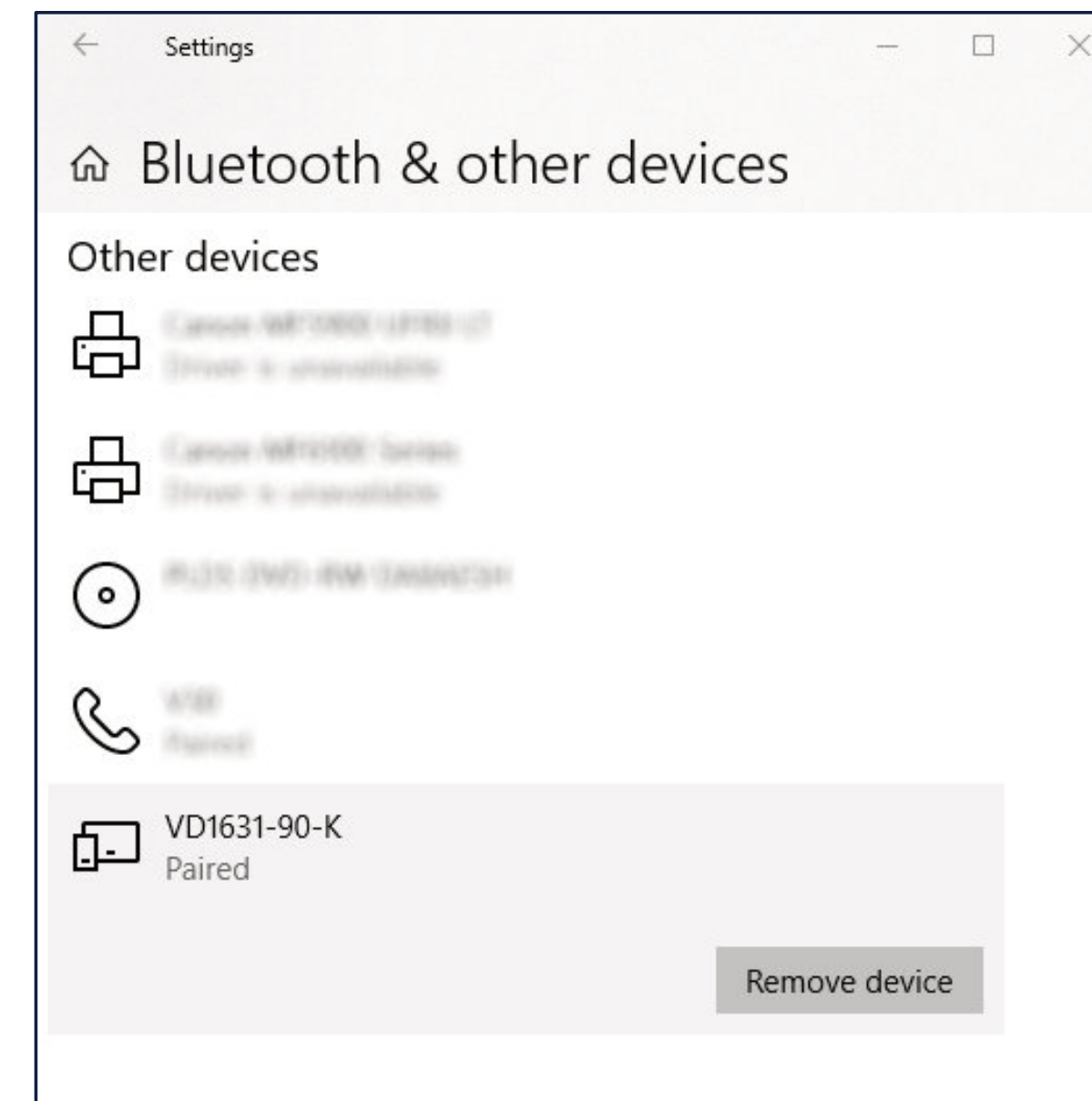
Click “ **Bluetooth** ”

Choose your VaDia from the list by clicking on its name, there should be a message saying device was successfully paired. **VaDia pairing code is ‘1111’.**



If your device is already paired and your Vadia Suite software does not see it, remove your device from the list of paired devices and pair it again using the procedure above. To remove VaDia from paired devices, go to Bluetooth Settings, click on the VaDia name and then **“Remove device”**:

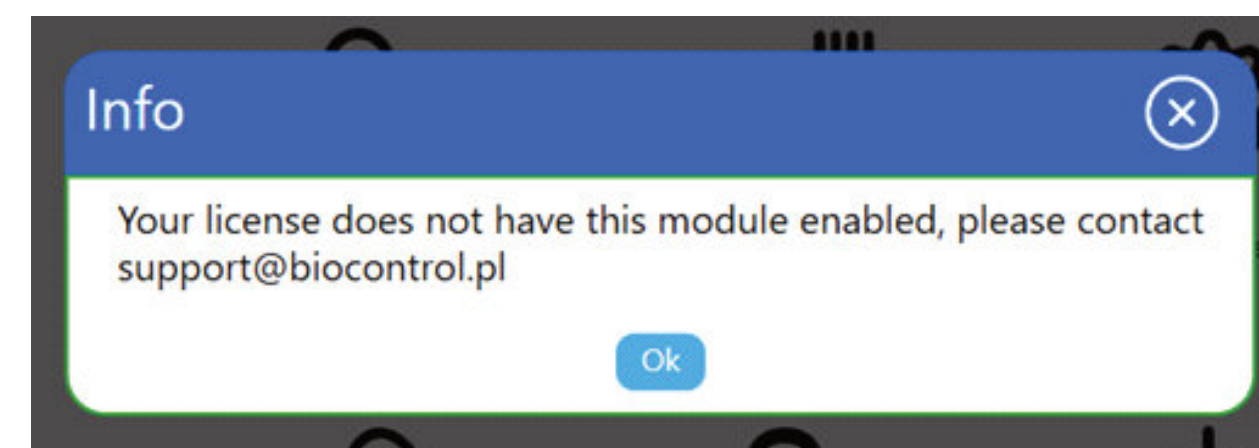
If the issue with Bluetooth persists, contact [support@biocontrol.pl](mailto:support@biocontrol.pl).



## 22.2. My license does not have access to the new user interface, how can I switch to the old one

To switch to the old user interface, please follow the steps below:

Please go to your Vadia Suite folder: **C:\Users\ "User\_name" \BioControl\VaDia.**



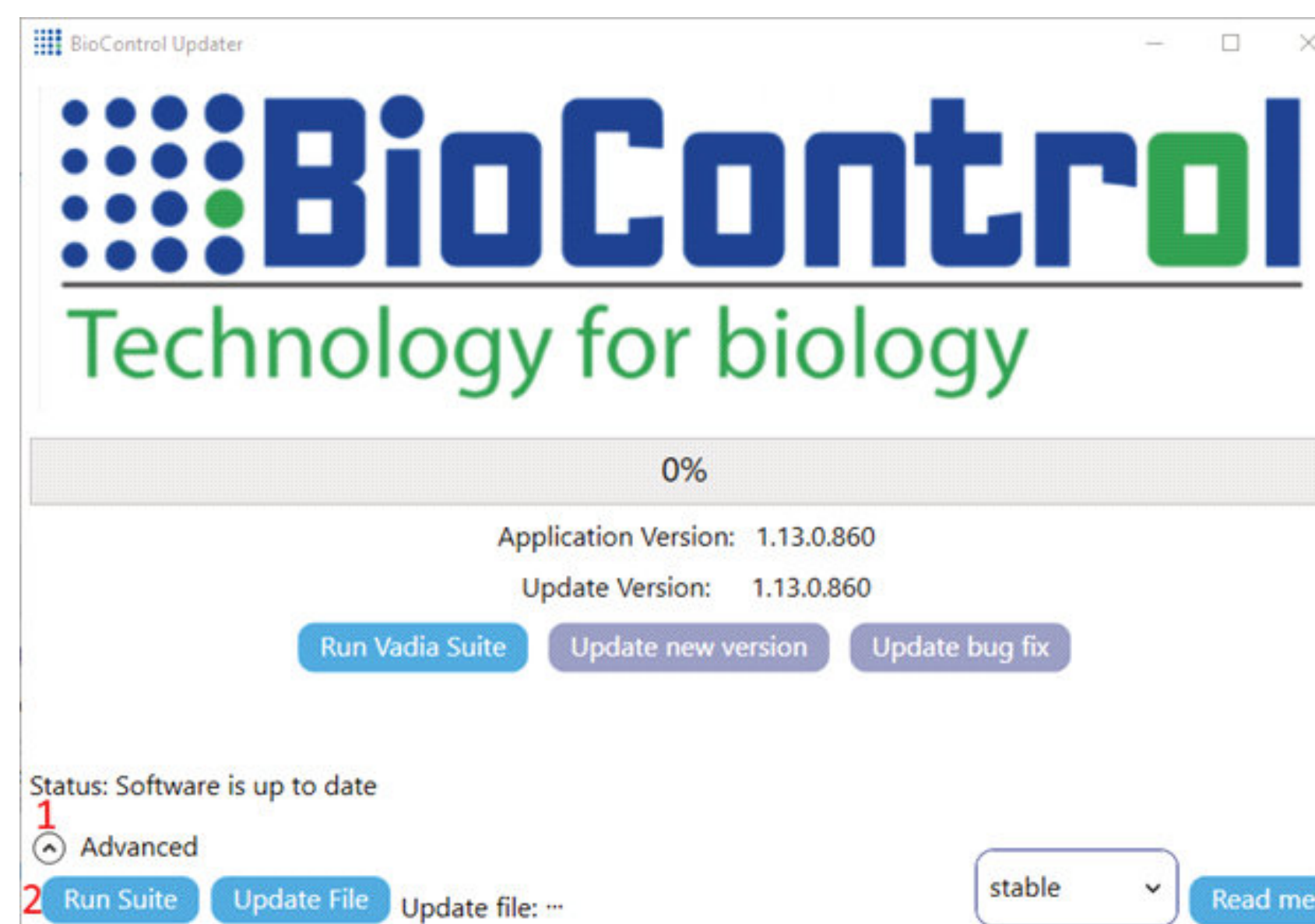
In this folder there should be a file called **VadiaSuiteUpdater.exe.**

Please launch this file, you should see the following screen:

In the bottom left corner of the window, please click on "**Advanced**" and then "**Run Suite**".

The software should launch in the "**Desktop**" user interface. It should stay in this mode, so you can launch your software from the shortcut on the desktop from now on.

If you want to upgrade your license and get access to the new user interface, contact [orders@biocontrol.pl](mailto:orders@biocontrol.pl).



## 22.3. My old PC/laptop/tablet broke down and I want to transfer my license to a new device

Transferring a license to a new device requires valid “Updater” license. That is to ensure that the latest version of the software is installed and activated on a new device.

Send an email to: [support@biocontrol.pl](mailto:support@biocontrol.pl) with your license number and request to change devices. BioControl employee will check the status of the license and get back to you with more information on how to proceed.

Make sure you have the latest VadiaSuiteUpdater.exe to install and activate your software. You can download it here: <http://www.biocontrol.no/downloads/VadiaSuite/VaDiaSuiteUpdater.exe>

If the issue you experience is not on the list above, please contact [support@biocontrol.pl](mailto:support@biocontrol.pl). Please provide your license number and a thorough description of a problem.