BigFarmNet manager

CulinaMix*pro*

Code No. 99-97-3621 GB

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Copyright

Liability

The manufacturer or distributor of the hardware and software described herein shall not be liable for any damage (such as the loss or disease of animals or the loss of other opportunities for profit) caused by failure of the system or incorrect use or operation.

We are constantly working on further developing the computer and the software and also consider user preferences. Please let us know if you have ideas or suggestions for improvement and modification!

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1 System description

This manual describes how to install and operate the control software for the CulinaFlex feeding system for suckling pigs. The CulinaFlex system automatically and continuously supplies milk replacers, prestarters or starter feed to piglets in the farrowing pen. The feed is supplied by a feed valve (time-controlled). When feeding is completed, air under pressure can squeeze the flexible hose inside the feed drop pipe, which thus functions as a pinch valve, to push all remaining feed out of the hose. The hose remains pressed together until the next feeding. This creates an anaerobic environment in which bacteria cannot multiply. The compressed air escapes from the pipe when the next feeding starts. The feed can now drop from the hose inside the feed pipe into the trough. This requires that the feed drop pipe is designed as a pinch valve.

CulinaFlex is controlled by the CulinaMix*pro* application with the BigFarmNet Manager software. One application can control up to 3 tanks, which run separately. This means that if one tank goes into error mode (no system alarm!) or is in idle mode, the other tanks continue to provide feed.

1.1 Licenses

The CulinaMix*pro* application uses the 510*pro* control computer to control the CulinaFlex feeding system for suckling pigs. The CulinaFlex feeding system can be controlled independently of BigFarmNet Manager by the 510*pro* control computer. This means that only the following software license is **required**:

Code no.	**BigFarmNet Manager license**	**Use**
91-02-6602	License 510 – BigFarmNet CulinaMix	1 per control computer

If no BigFarmNet Manager software is installed but the operator wants to monitor the system with BigFarmNet Manager, the optional basic installation software license is required.

The following software licenses are **optional**:

Code no.	**BigFarmNet Manager license**	**Use**
91-02-6500	BigFarmNet Manager – Basic installation software	1 per BigFarmNet network
91-02-6551	BigFarmNet Manager per additional PC/ MC700	In case animal and system data in the BigFarmNet Manager is to be available on additional computers

1.2 System limits

1 to 3	Mixing tanks
600	Feed valves
32	Feed components
10	Feeding times per mixing tank
10	Silos per mixing tank
4	Mineral dosing units per mixing tank

2 Installation and configuration of the control computer

	Only service technicians may install and configure the control computer.

Figure 2-1: Control computer 510*pro*

Carry out the following steps to install and configure the control computer:

1. Wiring, see the enclosed wiring diagram
2. Assigning a static IP address to the control computer, see chapter 2.1
3. Assigning a static IP address to the Manager PC, see chapter 2.2
4. Assigning a network card to the control computer, see chapter 2.3
5. Testing the connection to the control computer, see chapter 2.4
6. Installing the software on the control computer, see chapter 2.5

	Please contact the customer's IT administrator to determine the IP addresses in the network.

2.1 Control computer: assigning a static IP address

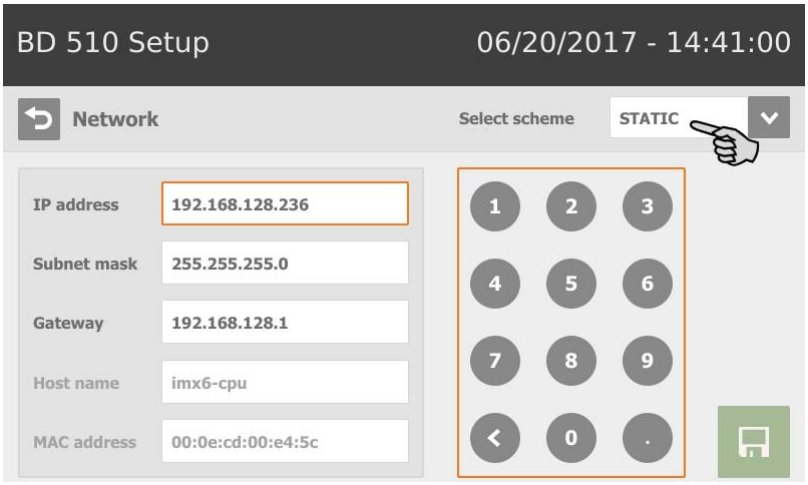
1. Start the control computer.
2. Tap on the configuration button on the start screen.

3. Tap on "Network".

4. Enter the IP address, the subnet mask and the gateway.

	The screenshot are examples only! **Do not** copy their data!

5. Make sure that you have selected "STATIC" for a static IP address under "Select scheme".



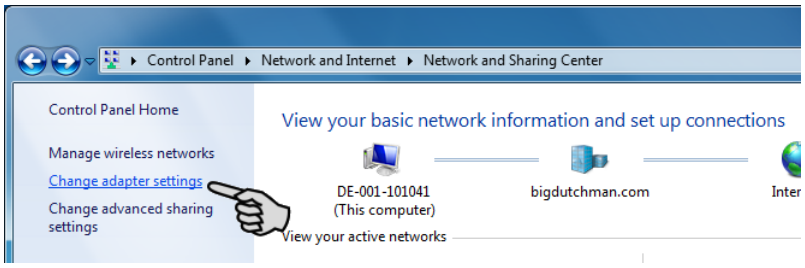
6. Save your inputs by tapping on  .

2.2 Manager PC: assigning a static IP address

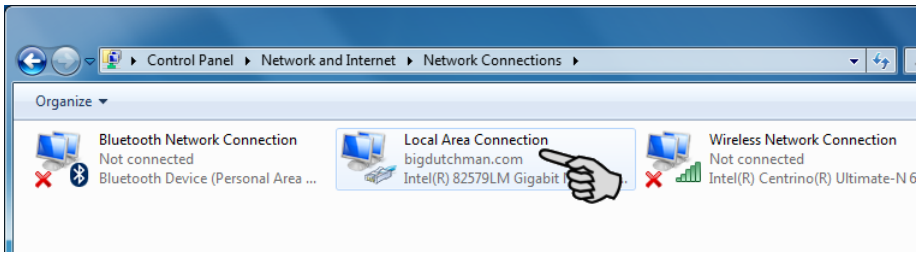
2.2.1 Windows 7

Assign a static IP address to the PC on which BigFarmNet Manager is installed or will be installed. The following steps correspond to the Windows 7 operating system.

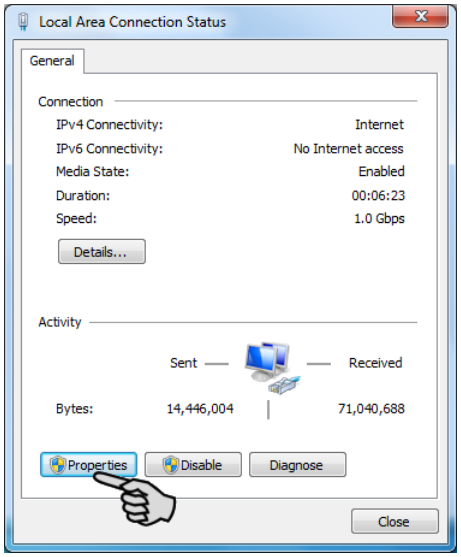
1. Click on "Control Panel" in the start menu  .
2. Click on "Network and Sharing Center".
3. Click on "Change adapter settings".



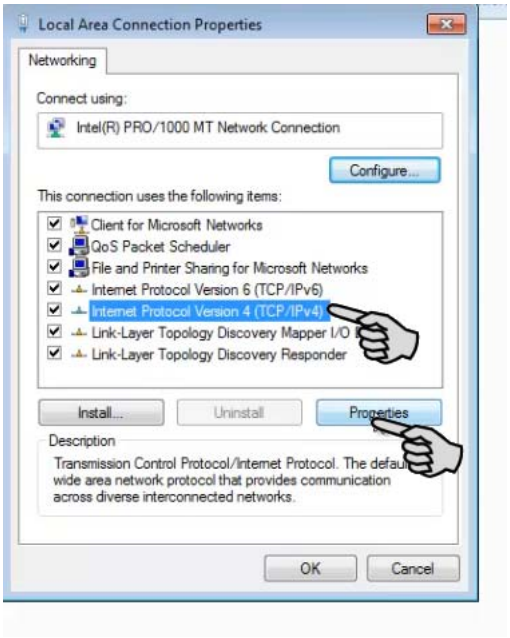
4. Double-click on "Local Area Connection".



5. Click on "Properties".

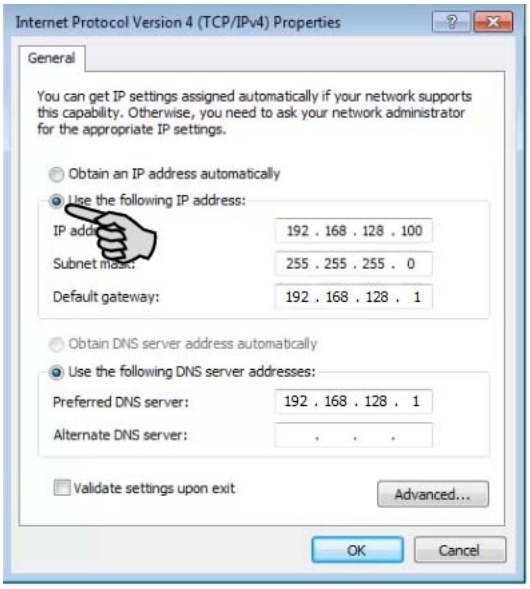


6. Select "Internet Protocol Version 4 (TCP/IPv4)" and click on "Properties".



7. Enter a static IP address.

	The screenshot are examples only! **Do not** copy their data!

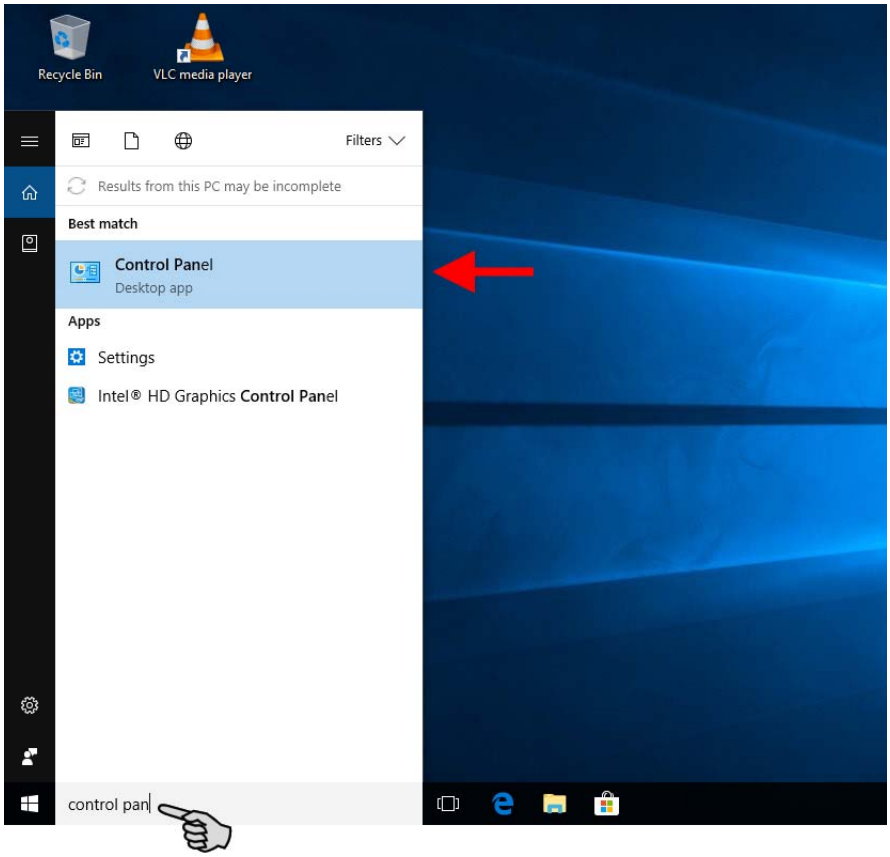


8. Accept these inputs by clicking on "OK".

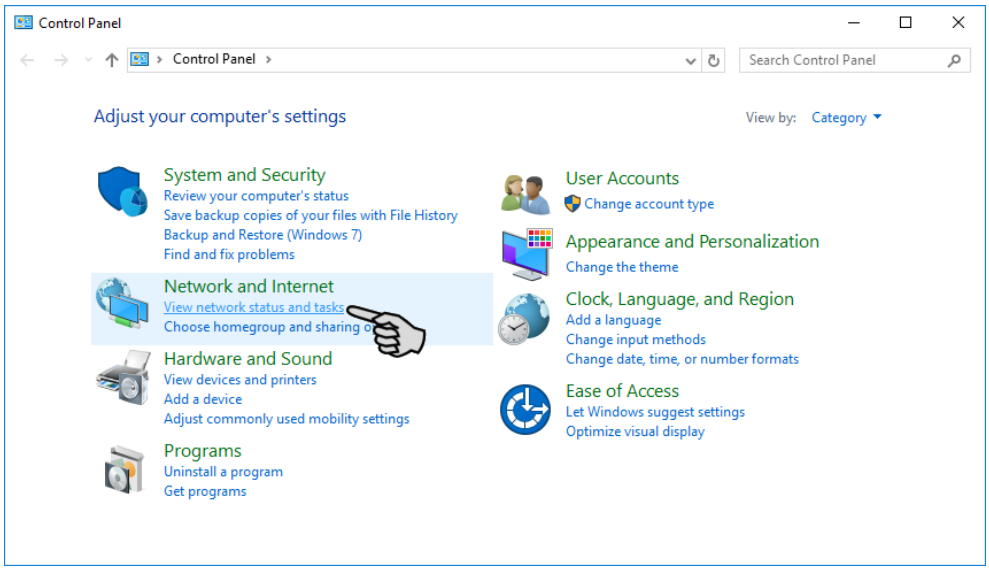
2.2.2 Windows 10

Assign a static IP address to the PC on which BigFarmNet Manager is installed or will be installed. The following steps correspond to the Windows 10 operating system.

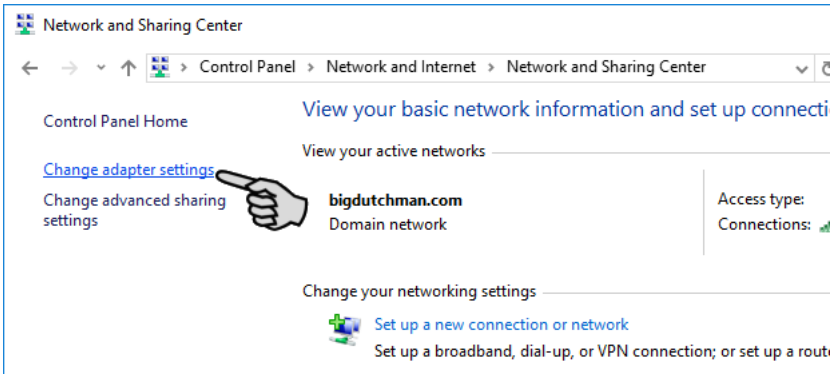
1. Open the Control Panel using the search field in the task bar.



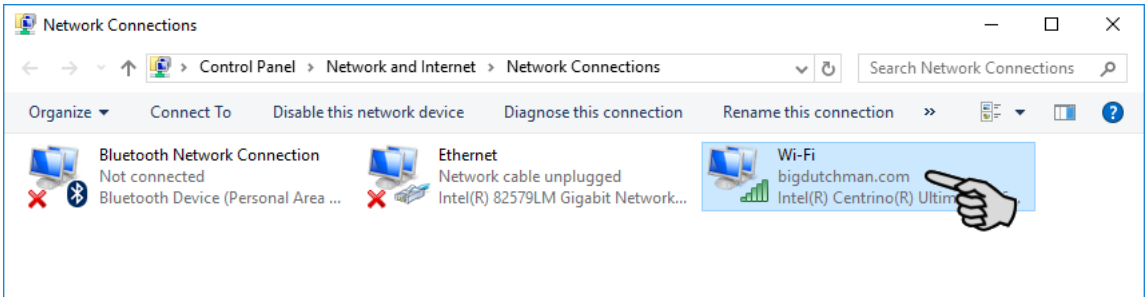
2. Click on "View network status and tasks" under "Network and Internet".



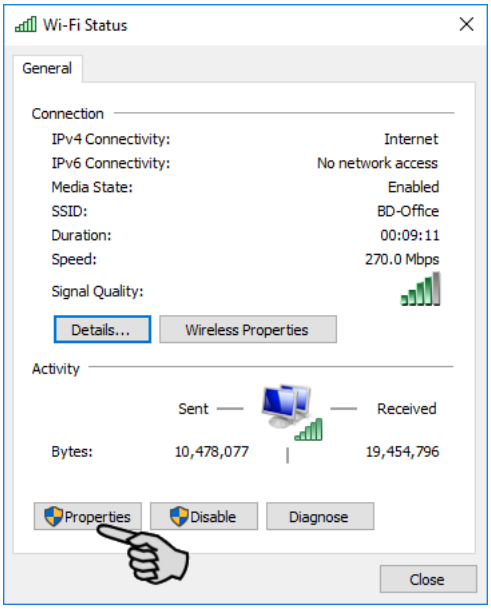
3. Click on "Change adapter settings".



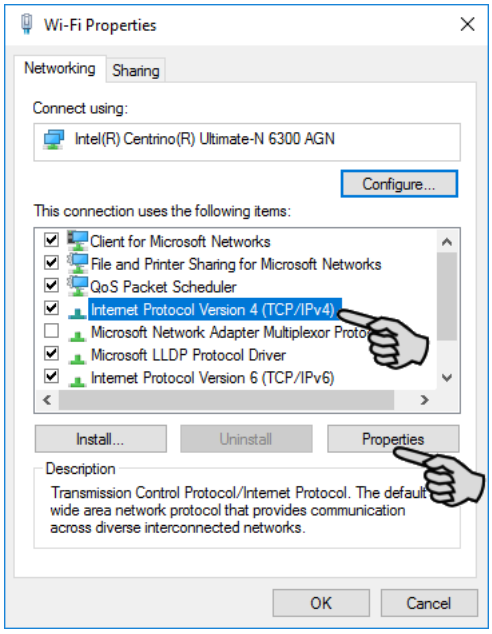
4. Double-click on "Wi-Fi".



5. Click on "Properties".

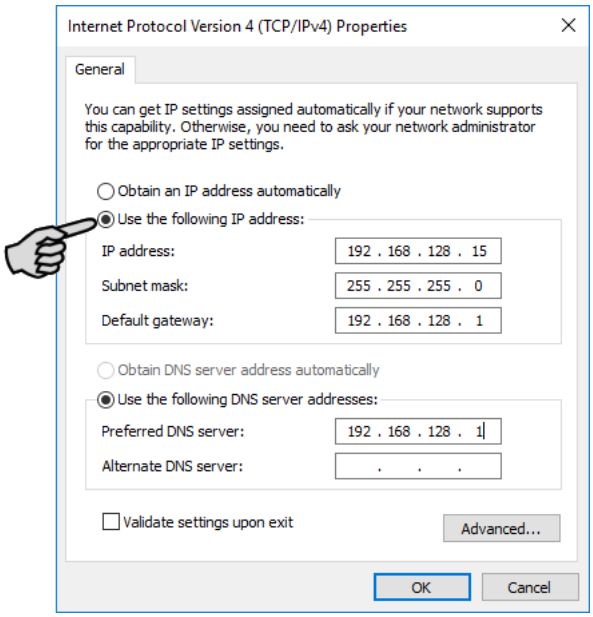


6. Select "Internet Protocol Version 4 (TCP/IPv4)" and click on "Properties".



7. Enter a static IP address.

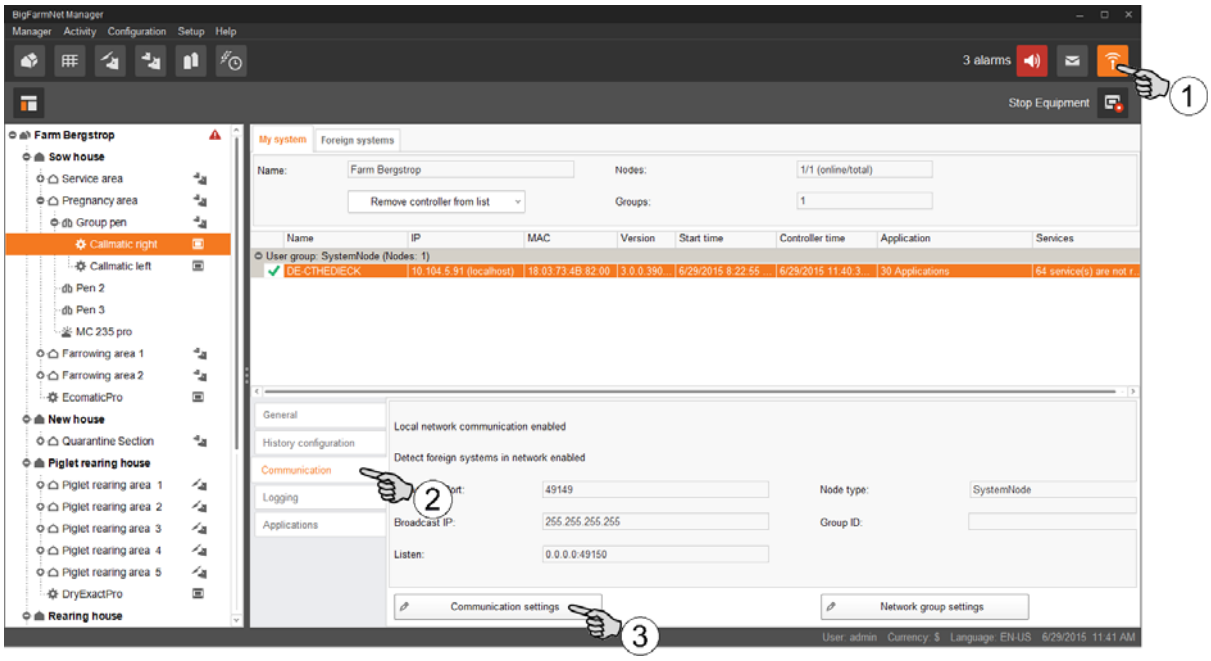
	The screenshot are examples only! **Do not** copy their data!



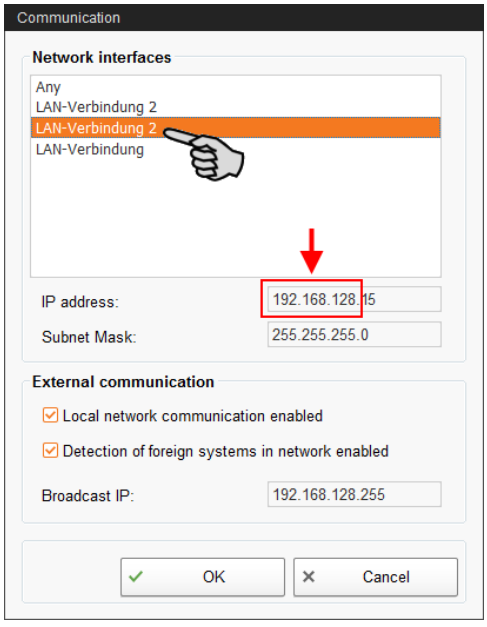
8. Accept these inputs by clicking on "OK".

2.3 Assigning a network card

Assign the network card in BigFarmNet Manager. Check the "BigFarmNet Manager – Installation/Configuration" manual for how to install BigFarmNet Manager.



1. Click on the network icon.
2. Click on "Communication".
3. Click on "Communication settings".
4. Select the correct network interface. The first three octets of the IP address must match those you have entered for the Manager PC beforehand, see chapter 2.2.



5. Click on "OK" to accept these settings.

2.4 Checking the connection to the control computer

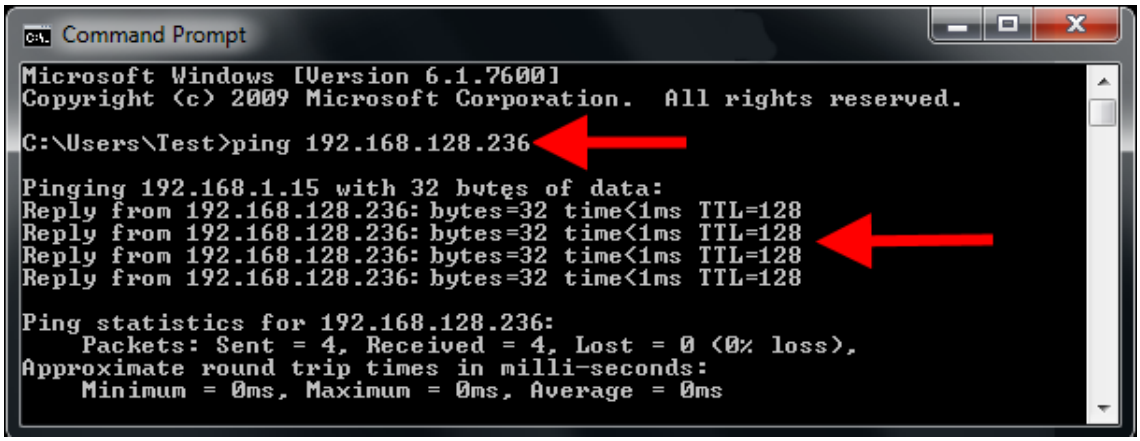
	Use the "ping" command to check the connection to the control computer.

Enter the command into the console as follows: ping <IP address>

Example in the screenshot: ping 192.168.128.236

If the control computer replies, four lines with the following information will appear:

- IP address;
- packet size;
- required time;
- TTL (time to live).



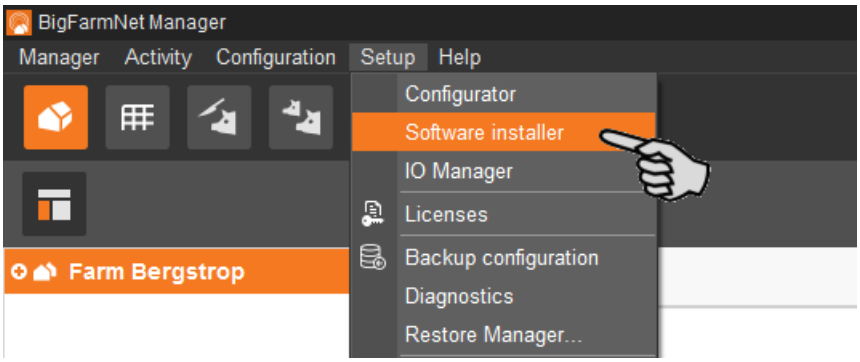
If the control computer replies, the software can be installed.

If the "ping" command fails and the control computer does not reply, contact the customer's IT administrator.

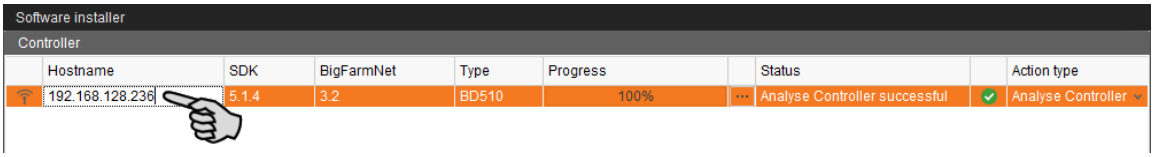
2.5 Installing the software on the control computer

Upon delivery, the control computer has an operating system pre-installed. The corresponding BigFarmNet software must be installed additionally.

1. Click on "Software installer" in the "Setup" menu.

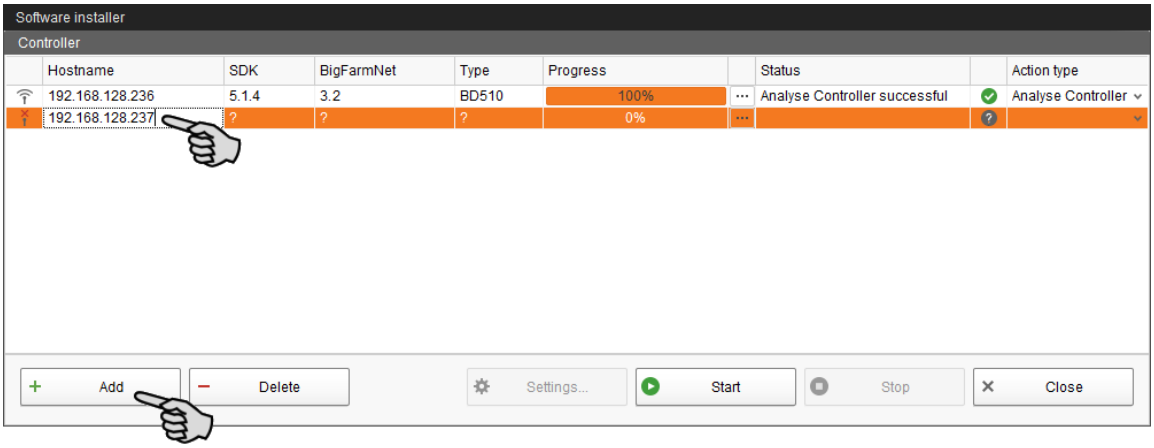


2. Enter the IP address of the control computer on which you want to install the software.



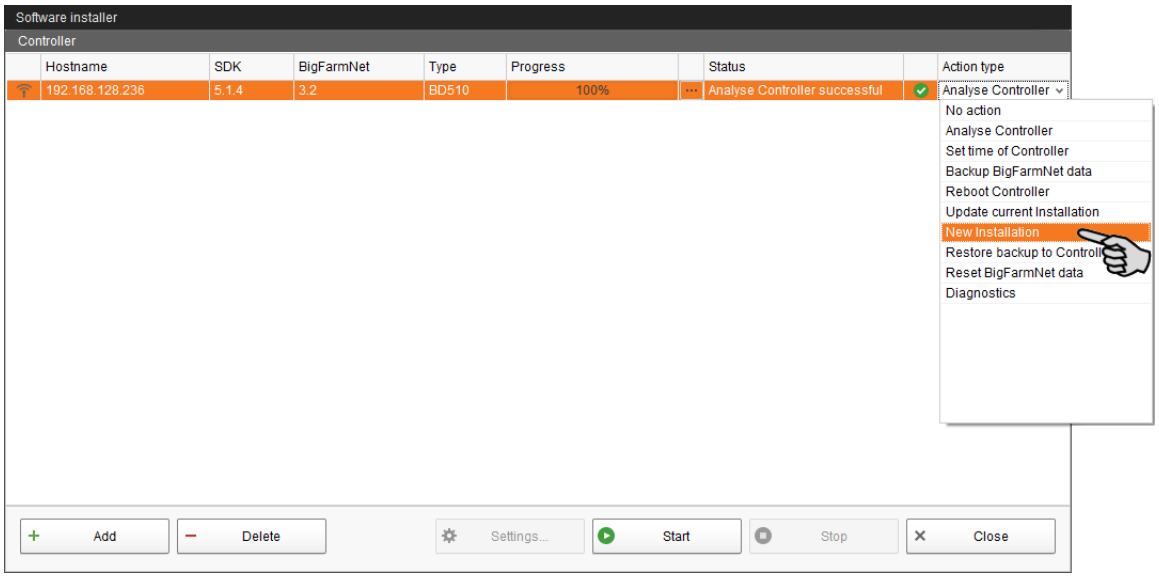
3. If necessary, add the desired number of control computers by clicking on "Add".

   This feature allows you to install the software simultaneously on multiple control computers. Each click on "Add" adds another control computer and the IP address increases by 1. However, you may change the IP address according to your wishes.



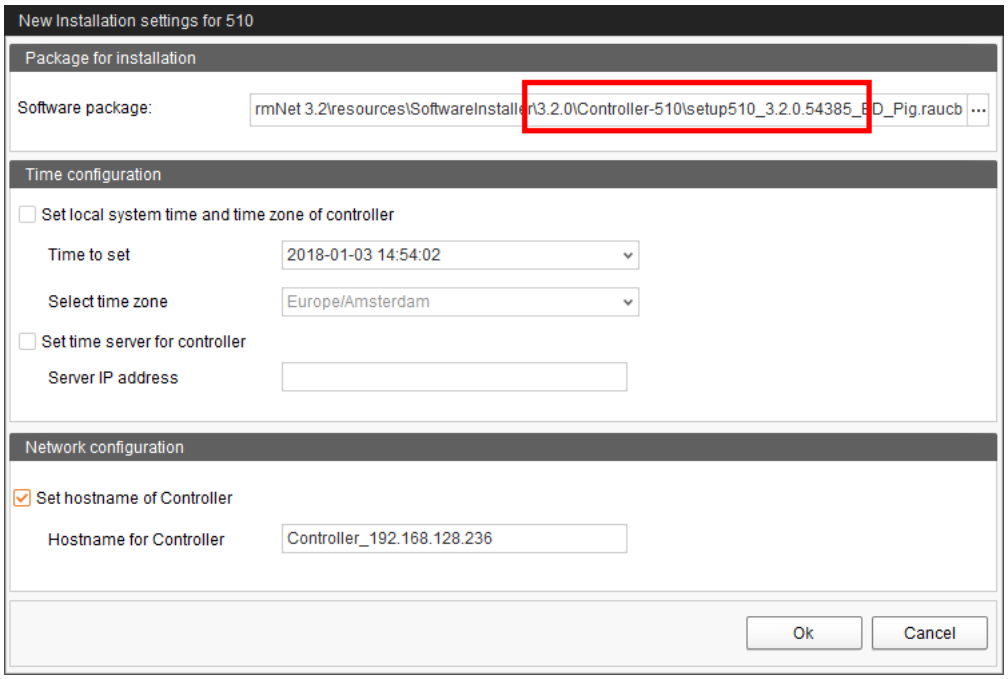
4. Click on a control computer to select it.

5. Click into the respective input field under "Action type" and select "New Installation".



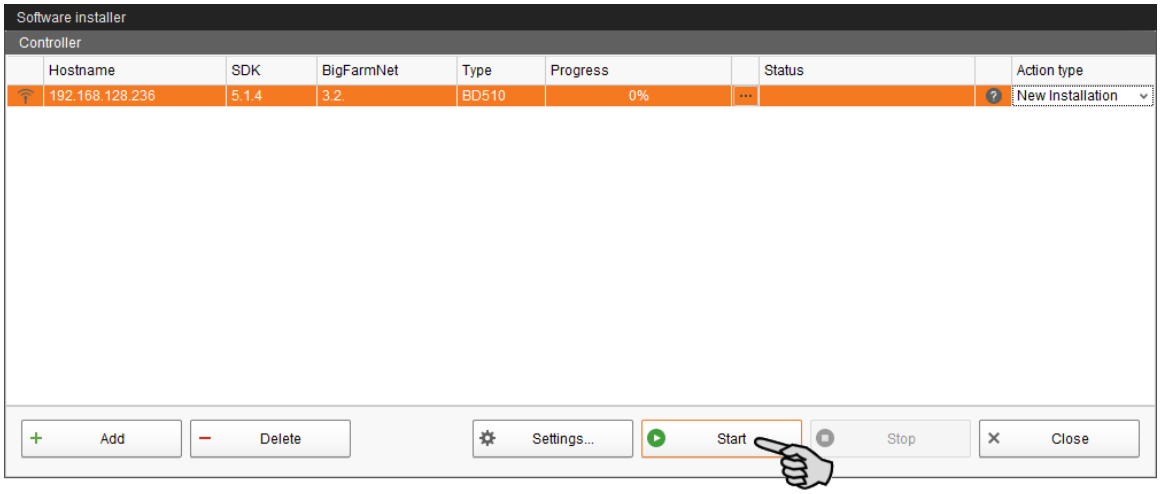
6. Click on "Settings" in the lower command bar of the dialog window.
7. Under "Software package", check whether the setup for the 510*pro* control computer is stored under the indicated path.

	When updating, check whether the update's version number in the software package corresponds to the version you want to install.

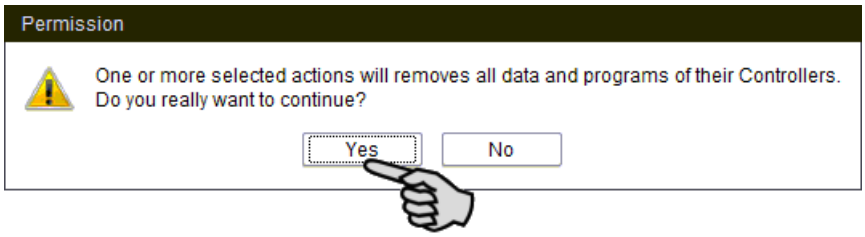


8. Confirm the dialog by clicking on "OK".

9. Click on "Start".

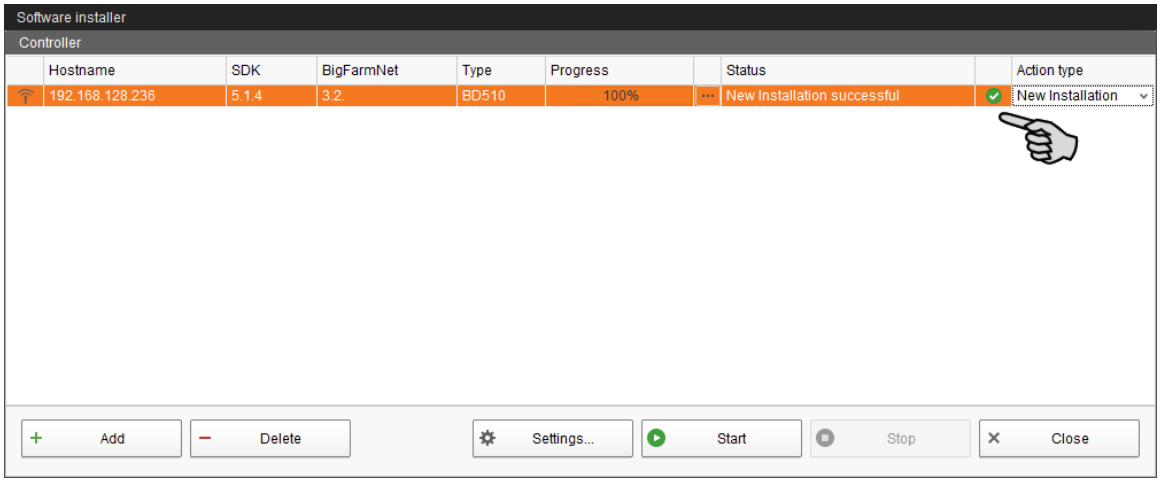


10. Confirm the prompt for confirmation.



The installation process may take a few minutes. Click on ··· to receive more information on the progress.

Successful installation is indicated by a checkmark in the "Status" column.



3 Configuration of the system

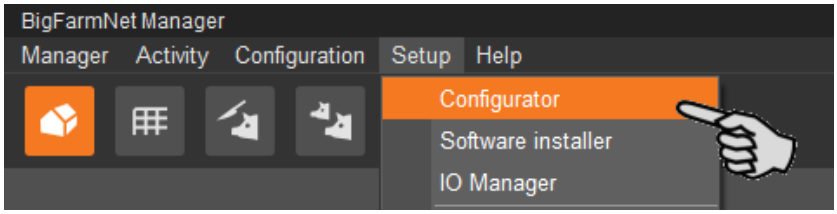
3.1 Adding the control computer and the application

Before the system can be configured in accordance with the mechanical situation, the respective control computer and the application must be added to your farm system.

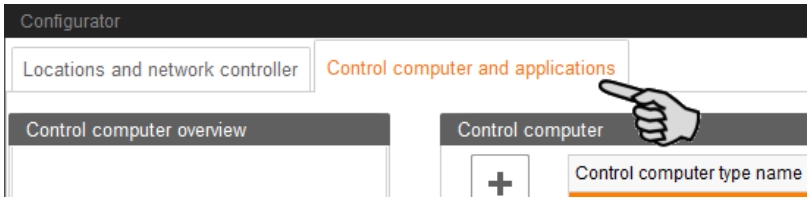
Proceed as follows:

1. Click on "Configurator" in the "Setup" menu.

   This opens the "'Configurator" window.

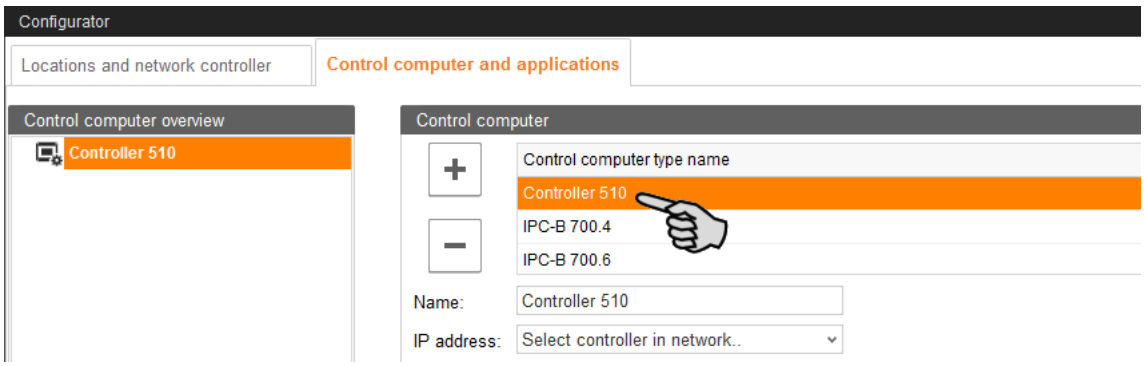


2. Click on the "Control computer and applications" tab.

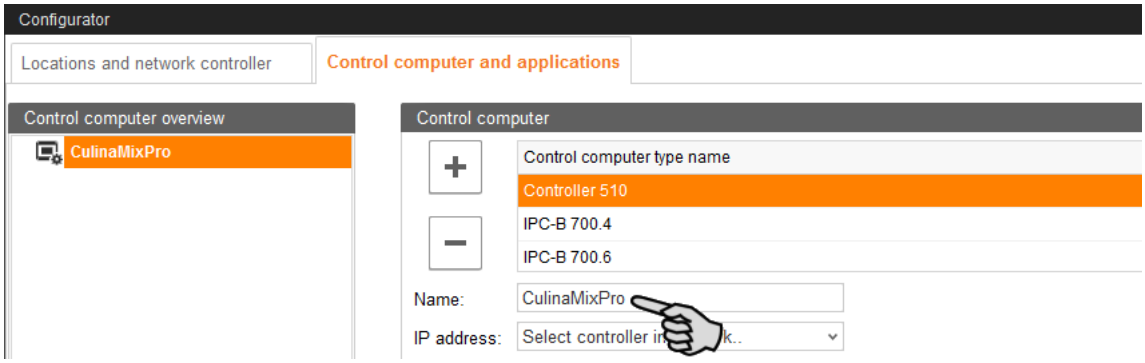


3. Select the correct control computer in the upper part of the window under "Control computer" and click on the plus button.

   The control computer is now added on the left under "Control computer overview".



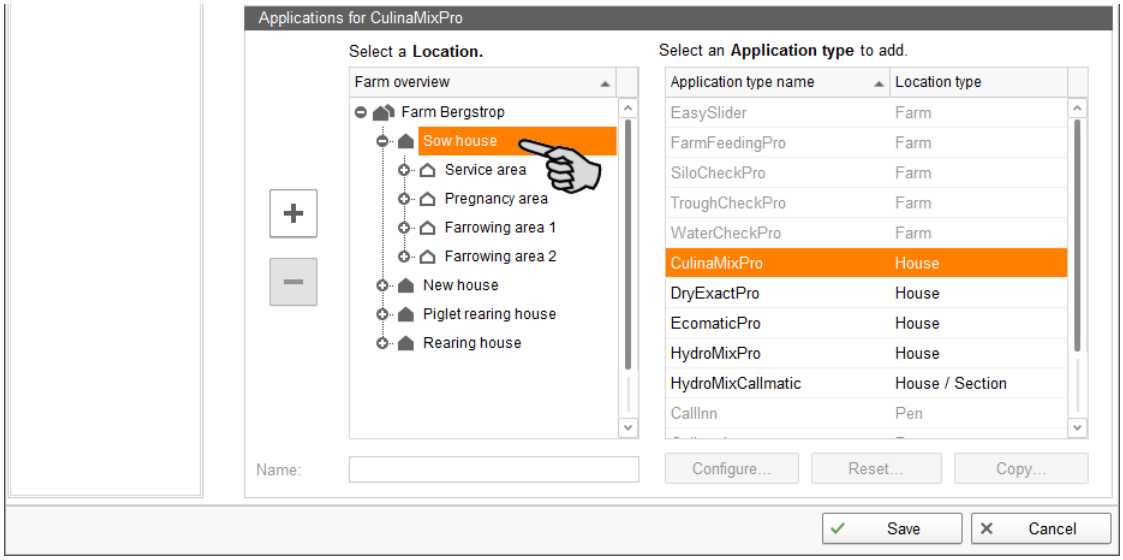
4. Enter a name for the control computer.



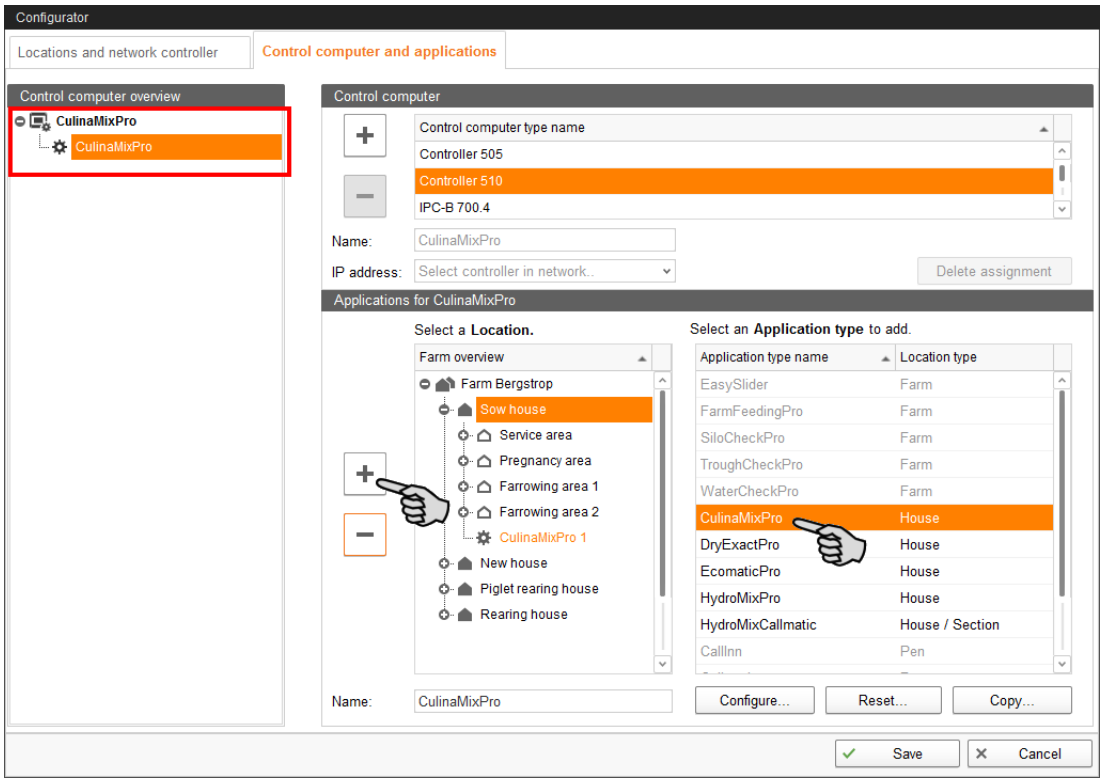
5. From the lower part of the window under "Applications for...", select the location where the system is to be operated.

   The applications available for selection depend on the selected location.

   The CulinaMix*pro* application can only be added to the "House" level.

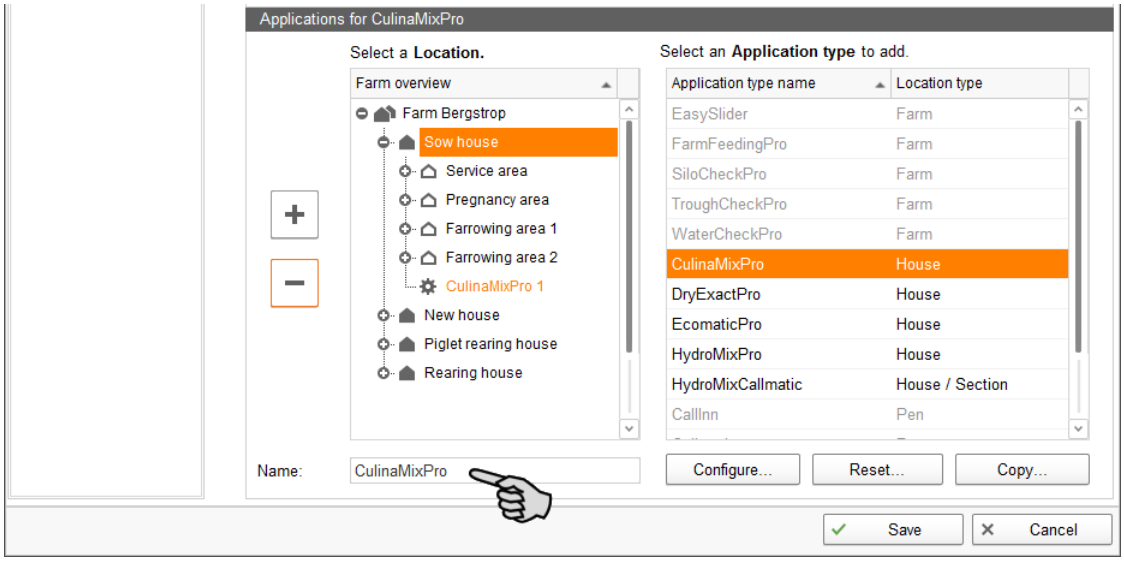


6. Select the correct application in the table on the right and click on the plus button to the left.



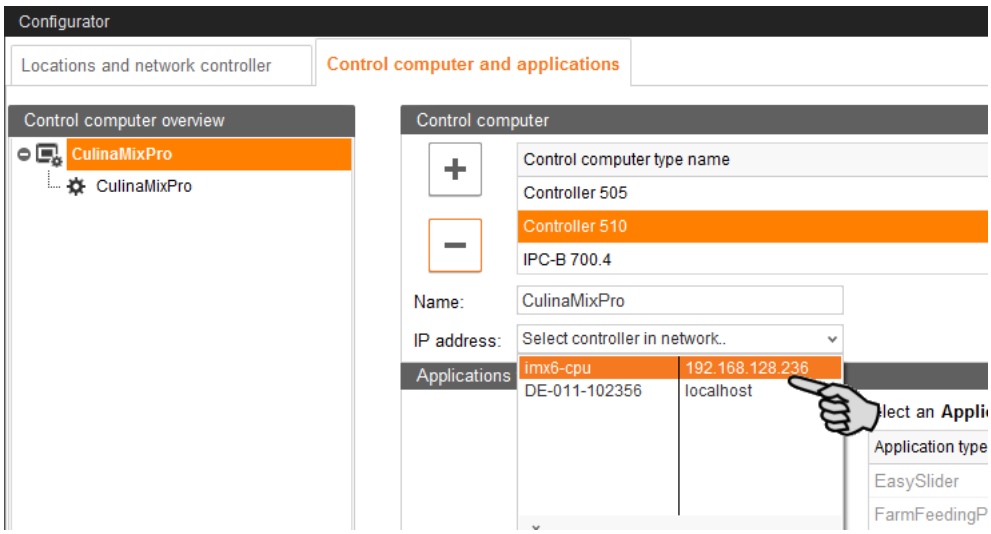
The selected application is assigned to the control computer on the left under "Control computer overview". In the structure, the control computer is displayed on the upper level and the respective application on the lower level.

7. Enter a name for the application.

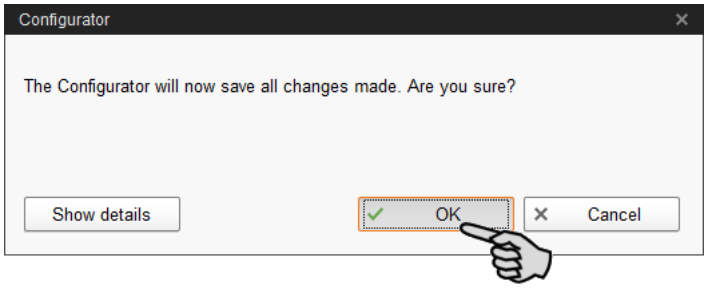


8. Click on the level of the control computer in the left-hand part of the window under "Control computer overview".
9. Assign the corresponding IP address to the control computer, if known.

   If the IP address has not been set up yet, you will need to add it later on.



10. Click on "Save" in the bottom command bar of the "Configurator" window after having configured all settings.
11. Confirm these settings by clicking on "OK".

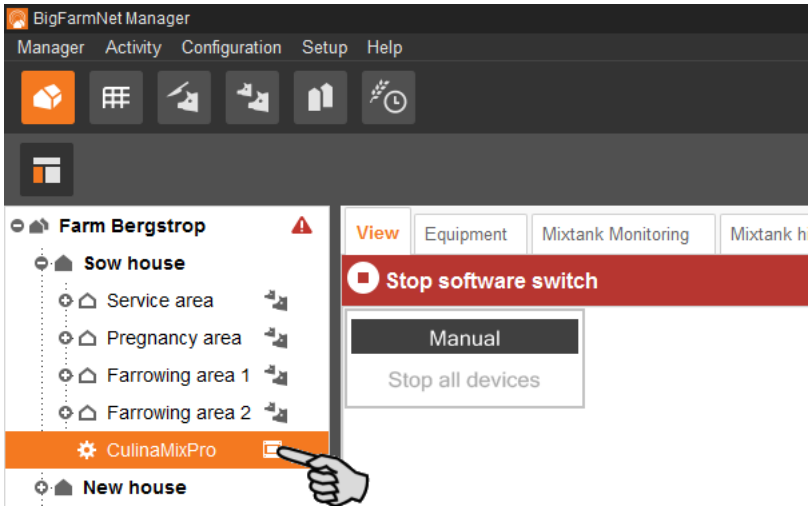


12. Confirm these settings again by clicking on "OK" in the next window.

3.2 Configuring settings in the Composer

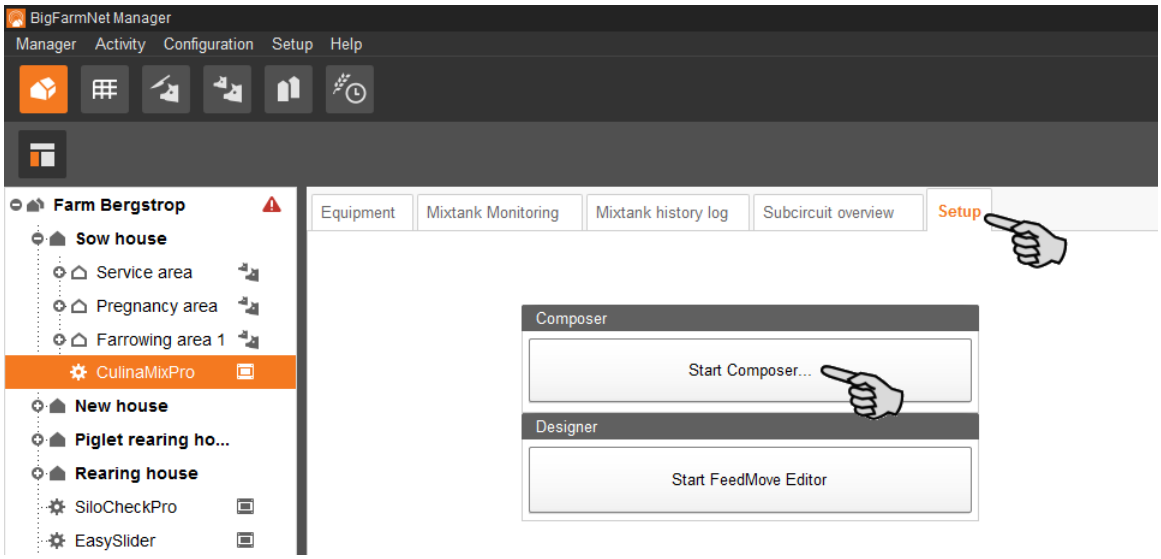
The Composer is used to configure the system according to the mechanical situation. All functions of the installed system must usually be defined once here. Proceed as follows:

1. In the farm structure, click on the controller icon of the system you want to edit.



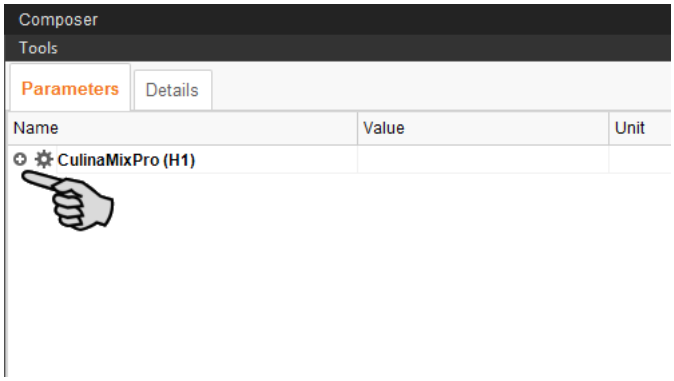
Check whether the application is running. If necessary, stop the application in BigFarmNet Manager by clicking on the "Stop" button.

2. In the "Setup" tab, click on the "Start Composer" button.



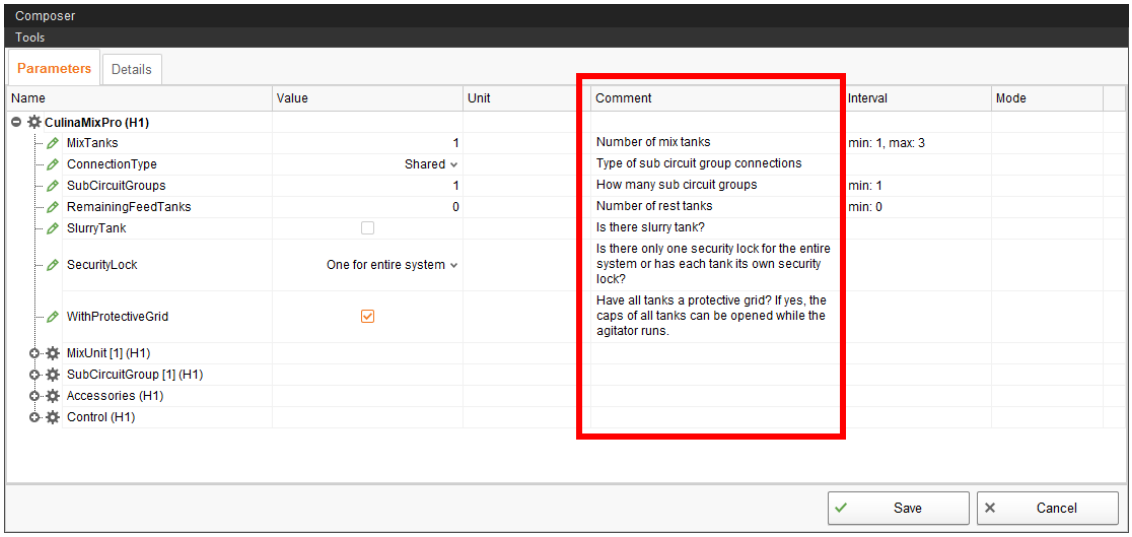
3. Click on the plus icon to see the different parameters.

   a) Also open subordinate parameters by clicking on the respective plus icon.



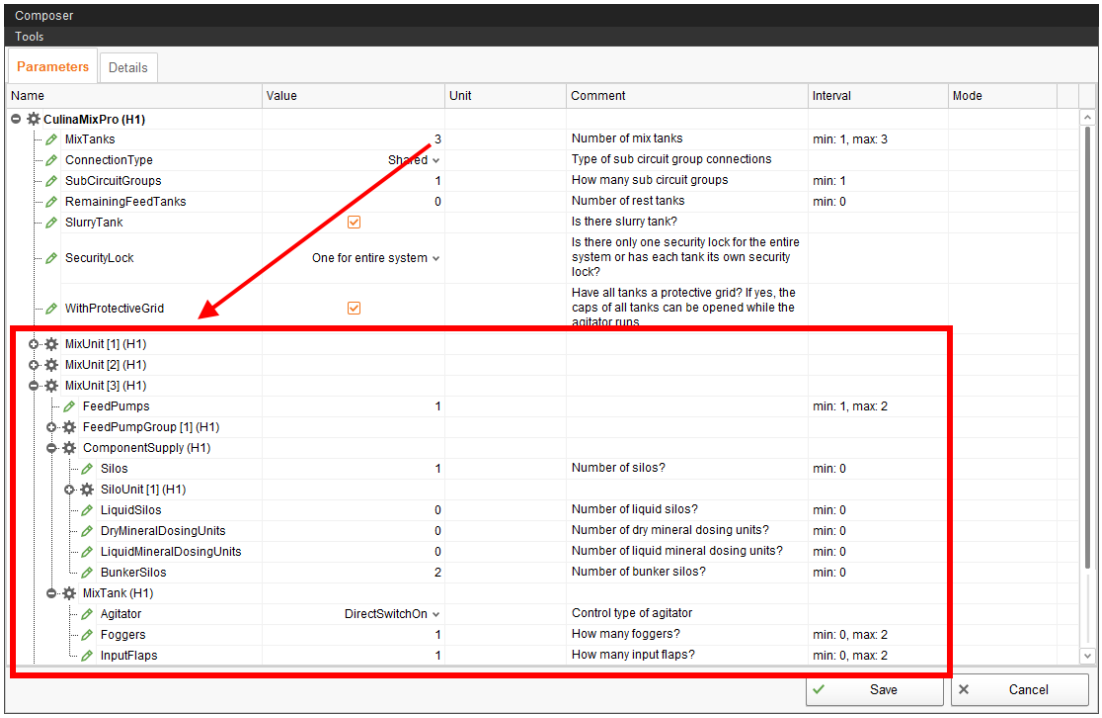
4. Configure the settings in accordance with the structure of the CulinaFlex system. Change pre-set values, if necessary.

   The column "Comment" contains information for setting the values. The following explains some of the parameters:



   – **Mixing tank:** Each mixing tank has its own **component supply** it does not share with any other tank. This means that the silo only supplies the mixing tank it was assigned to, and no other tank.

     Define the number of feed components that are added manually and the cleaning agents under **Bunker silo**.

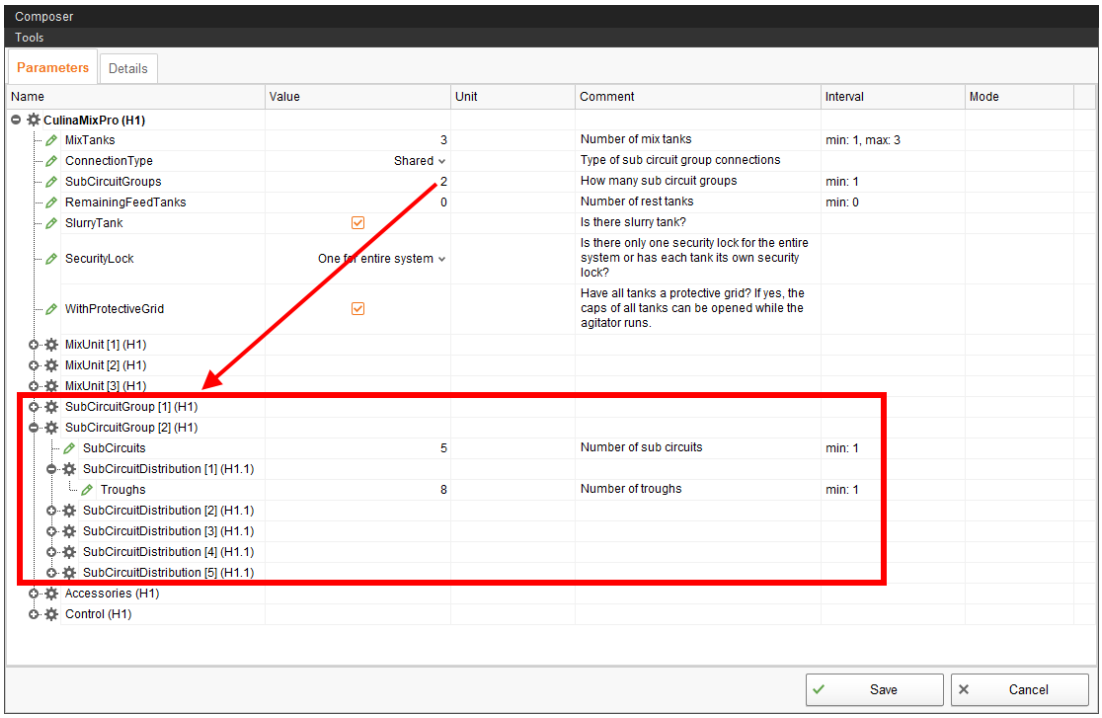


– **Connection type:**

"Shared" = One subcircuit takes feed from all mixing tanks.

"Separated" = One subcircuit takes feed from one mixing tank.

– **Subcircuit groups:** Divide the number of main circuits by the number of mixing tanks to calculate the number of subcircuit groups. Define the number of subcircuits for each subcircuit group, and the number of troughs for each subcircuit.



- **Remaining feed tank:** The remaining feed tank is a container into which feed can be pumped e.g. before cleaning. Feed from the remaining feed tank can still be provided to the animals.
- **Security lock:** Information regarding the security locks depends on whether the state of the tank lid ("open" or "closed") is queried simultaneously for all mixing tanks or individually for each mixing tank.
- **With protective grid:** This parameter is active by default and means that the mixing tanks are equipped with a protective grid. The agitator then continues running even when the tank lid is open. Deactivate this parameter box if you want to remove protective grids.
- **Accessories:** Add additional system components such as valves, pumps and augers subsequently below "Accessories".
- **Control:** Define, for example, the number of junction boxes 16 outputs 18 inputs as a function of the number of feed valves as well as the start and end valves under "Control" > "Control box". These junction boxes are not installed in the control box, however, but in the central aisle.

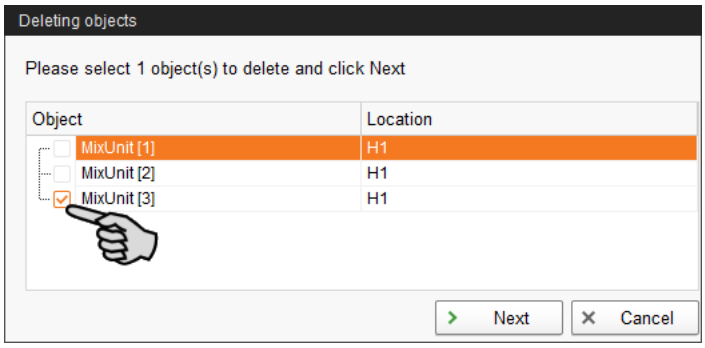
  Also define the frequency inverters used to control the pumps.

5. Proceed as follows to delete system components:

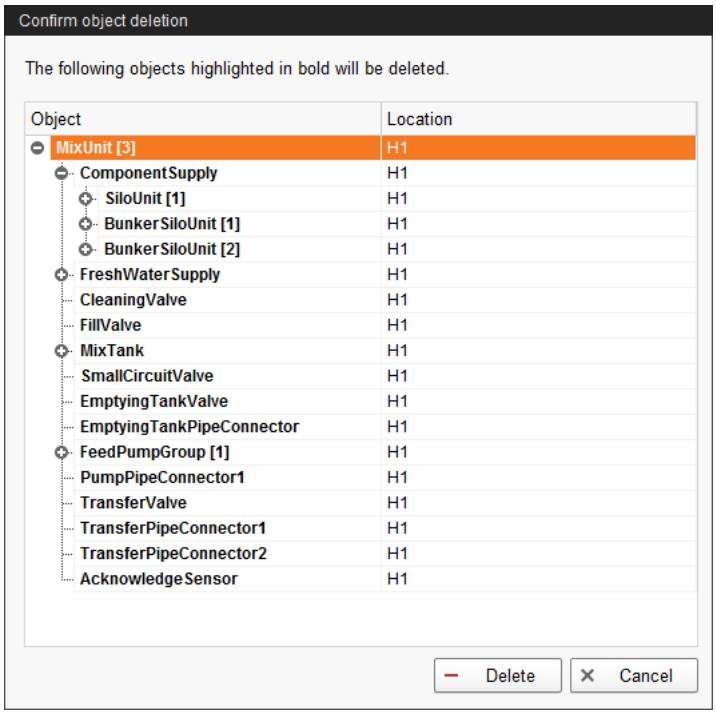
   a) Enter the new quantity (a lower number or 0) and press Enter.

   This opens a new dialog window that shows the system components with their assigned locations.

   b) Select the object(s) you wish to delete and click on "Next".



c) In the next window, confirm that you want to delete the object(s) shown by clicking on "Delete".



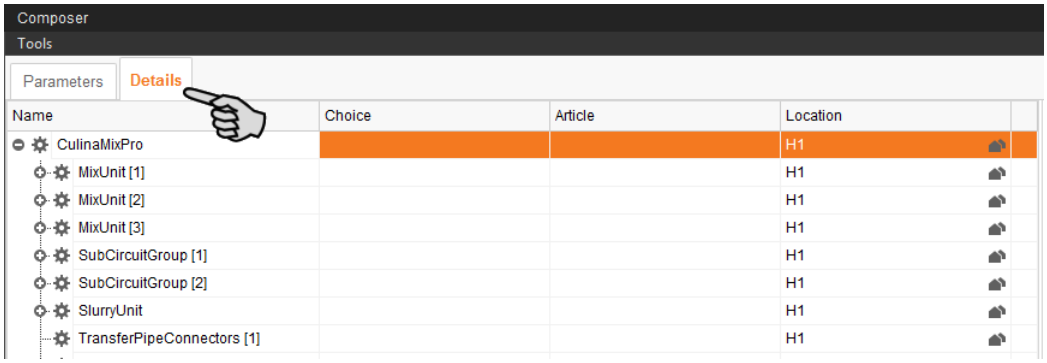
6. Click on "Save" to accept all settings for the Composer.

Settings under "Details"

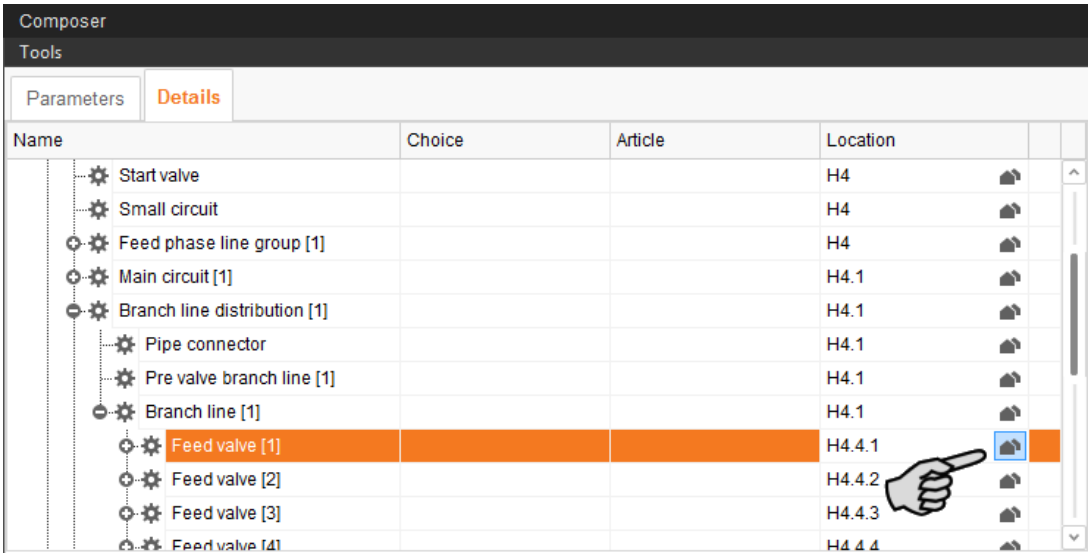
If a system is integrated into an existing BigFarmNet network, the system and/or the system component is assigned to the correct location in the "Details" tab. If the BigFarmNet network is installed at the same time as the system (application), the location does not need to be adjusted.

1. Click on the "Details" tab. Expand the structure by clicking on the plus icon.

   The structure shows all location-related components of the system.

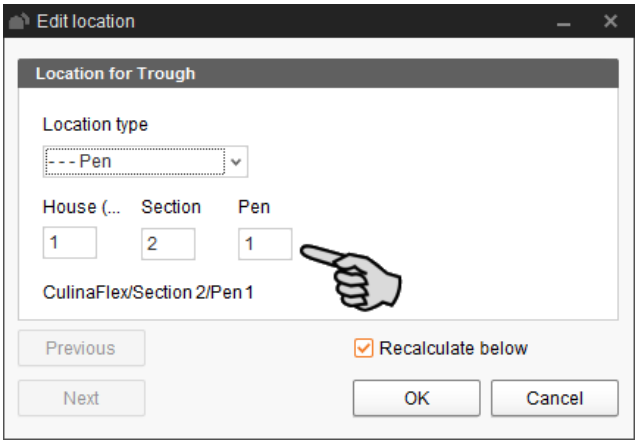


2. Click on the house icon of the system component.



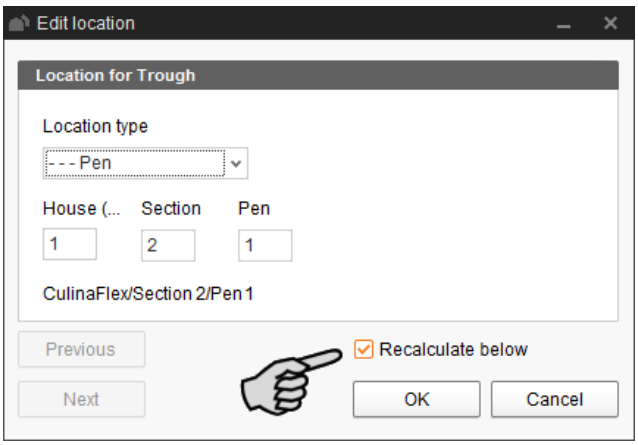
3. In the next window, enter the number of the correct location.

   The selected location is displayed in its entirety below the input field.



4. If necessary, check the box "Recalculate below".

   All below (subordinate) system components are then automatically assigned to the new location.

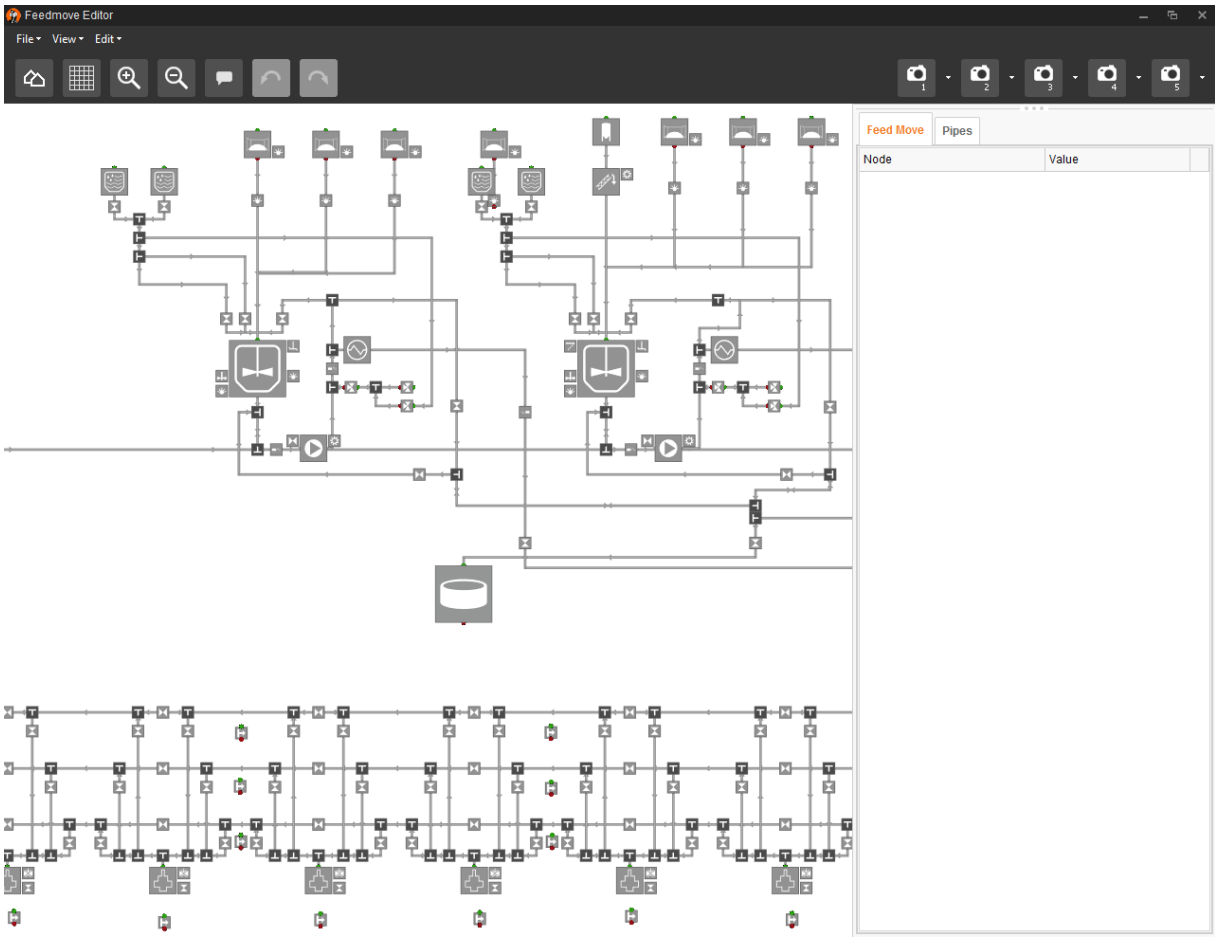


5. Click on "Next" to continue assigning locations to the system components on the same level.
6. Click on "OK" after you have finished to accept the input.

3.3 Depicting the system in the FeedMove Editor

The FeedMove Editor is a program used to edit the graphical depiction of the installed system. All system components you have created in the Composer are displayed as icons in the FeedMove Editor. In the FeedMove Editor, you can connect the individual system components according to the installed system. You thus define the route of the feed move.

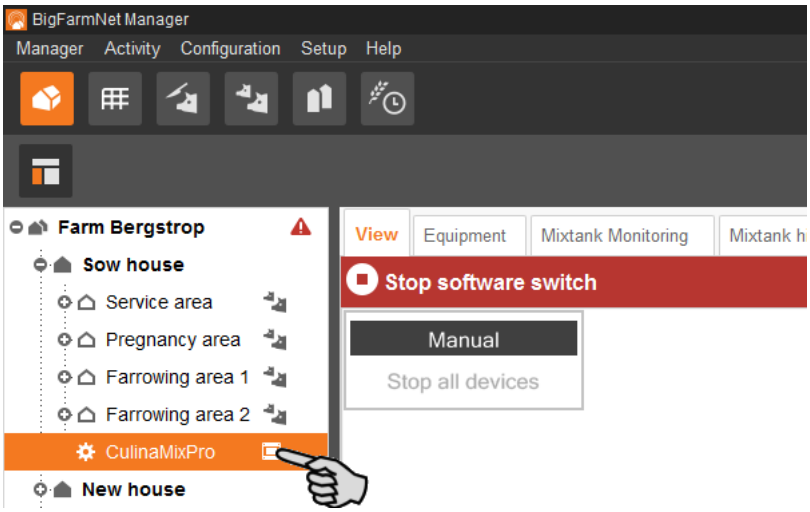
	Feed moves are automatically generated for CulinaMix*pro* and cannot be edited. Adding additional valves is not possible either.



The final graphical depiction is shown in the application window under the new tab "View" later on. This graphical depiction provides you with an overview of the system functions running during operation. You can also operate the system manually with the BigFarmNet Manager, see chapter 3.6 ”Manually controlling the system components”, page 44.

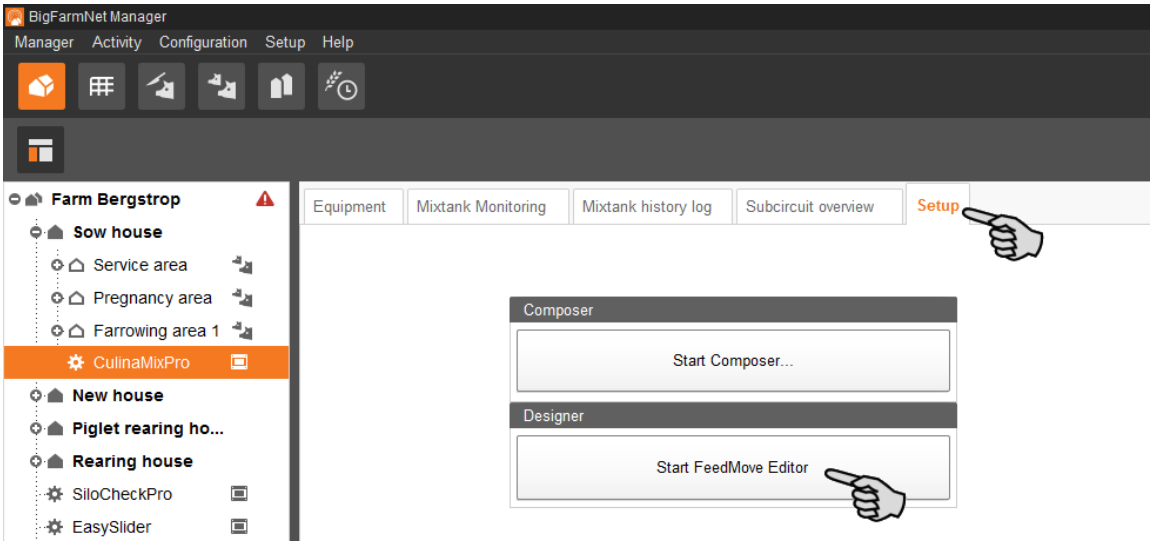
Start the FeedMove Editor as follows:

1. In the farm structure, click on the controller icon of the system you want to edit.

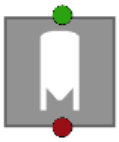


2. In the "Setup" tab, click on the "Start FeedMove Editor..." button.

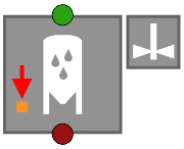
   The "FeedMove Editor" opens in a new window.



3.3.1 Icons of the system components



Silo dry



Liquid add-on unit, agitator and minimum sensor

Mineral dosing unit dry

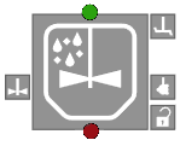
Mineral dosing unit liquid

MediINJECT

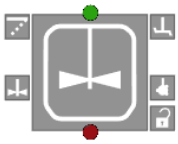
CCM

Bunker silo

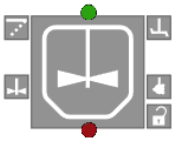
Fresh water tank



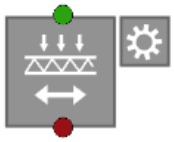
Used water tank

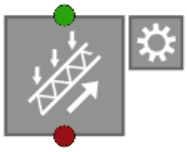


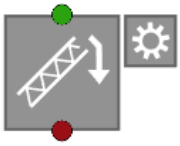
Pre-mixer



Mixing tank


Cross conveyor


Collecting auger


Dosing auger / FlexVey


Feed valve


Heat exchanger


Compressed air monitoring


Reciprocating compressor


Feed pump


Pump general


Vibrator


Agitator


Pressure sensor


Valve


Pinch valve


Cleaning valve


Input flap


Fogger


Cleaner


Security lock / tank blocking

 Blade CCM

 Slope auger CCM

 Drive unit

 Pipe connector

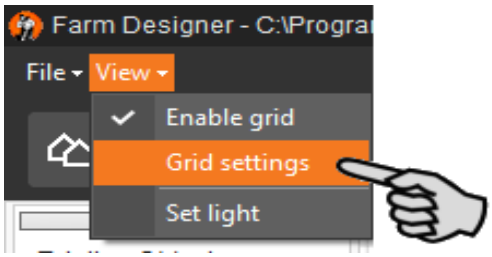
3.3.2 Basic functions

	View	Complete, enlarged view of the system
	Grid	Showing and hiding the grid lines in the drawing pane
	Zoom in/Zoom out	Zooming of the current view in the drawing pane
	Description	Showing and hiding the names of the individual system components
	Undo/redo	Undoing or redoing an action
	Cameras	Saving of different system views

3.3.3 Configuring the grid

You can align system components with a grid, "Showing and hiding the grid lines", see chapter 3.3.2 ”Basic functions”. The default grid setting is a line-to-line distance of 1 m. Adjust the size of the grid as follows, if necessary:

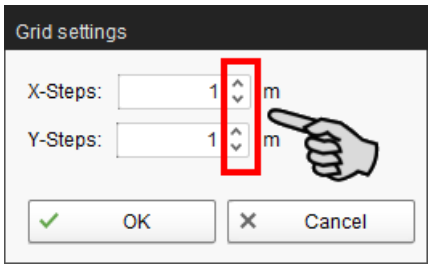
1. Click on "Grid settings" in the "View" menu.



2. Enter the desired value into the input fields next to "X-Steps" and "Y-Steps" to change the size of the grid.

   Or:

   Click on the arrows pointing upwards and downwards on the right of the input field to change the value.



3. Accept these inputs by clicking on "OK".

3.3.4 Adjusting and saving views

	The below mentioned functions of the mouse depend on how you have configured your mouse in Windows.

Adjust the desired view of the window as follows in the drawing pane:

- Zooming in and out:
  - Roll the scroll wheel of your mouse.
- Moving to the left and to the right:
  - Hold down the scroll wheel and move the mouse to the right or to the left.

    OR

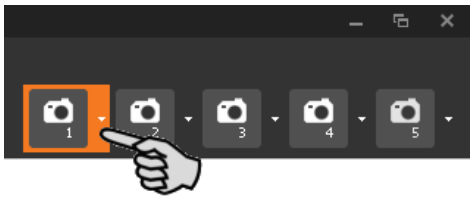
    Hold down the Shift key while rolling the scroll wheel of your mouse.
- Moving up and down:
  - Hold down the scroll wheel and move the mouse up or down.

    OR

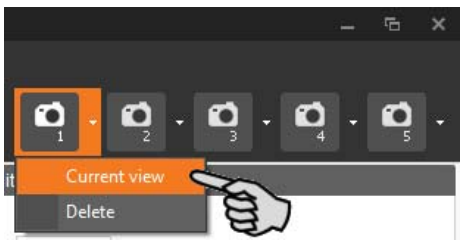
    Hold down the Control (Ctrl) key while rolling the scroll wheel of your mouse.

Save specific views of the depiction. You can retrieve saved views later on in the application window under the "View" tab. You can save up to 5 different views: one view for each camera icon.

1. Adjust the view as required.
2. Click on the arrow pointing downwards at one of the camera icons.



3. Click on "Current view" in the context menu. The view is now saved.



4. If you would like to retrieve the saved view later on, click on the corresponding camera icon.

3.3.5 Selecting and moving system components

1. Move the mouse pointer over the respective system component.

   The mouse pointer will change its shape  . The name of the system component is additionally displayed as tooltip for a moment.

2. Click on the system component and hold the mouse button.

   The colour of the system component changes to orange.

3. Move the system component to the required position and release the mouse button.

   Or:

1. Select multiple system components

   a) by drawing a rectangle over the system components while holding the left mouse button

      Or:

      by clicking on the different system components while holding the Ctrl key.

      The colour of the selected components changes to orange.

2. Click into the selected area and hold the mouse button.
3. Move the system component to the required position and release the mouse button.

	You can also move objects that are marked orange using the arrow keys on your keyboard.

3.3.6 Closing the FeedMove Editor

To finish working in the FeedMove Editor, save and close the program:

1. Save your work by clicking on "File" > "Save" and close the program by clicking on the X in the upper right corner.

   OR:

   Close the program directly by clicking on the X in the upper right corner.

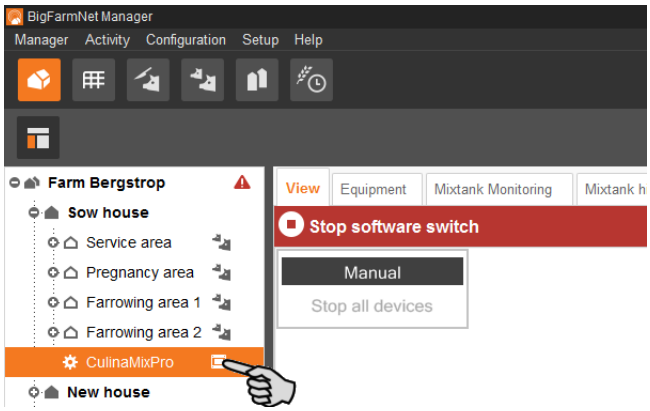
   The software automatically recognizes unsaved changes and shows a warning.

2. Click on "Yes" to save your changes.

3.4 Changing settings in the Composer

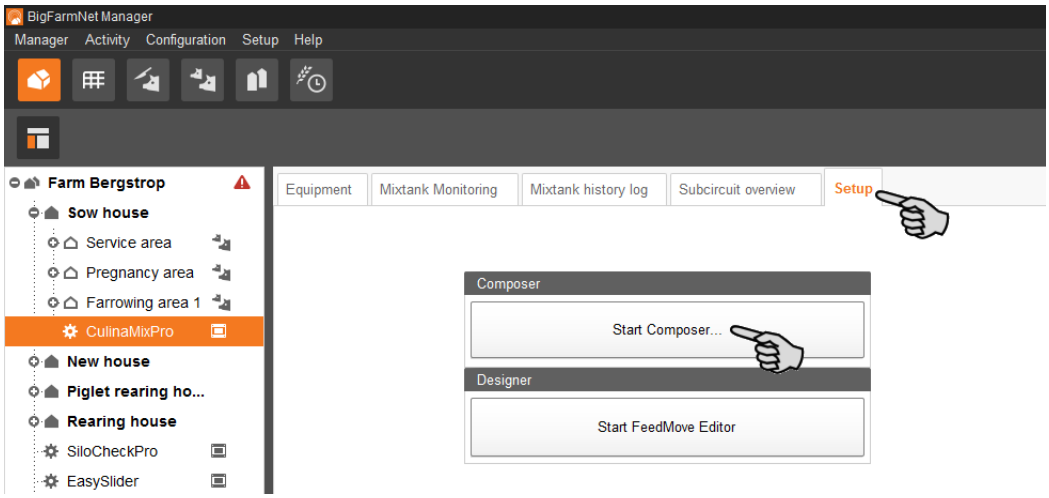
Usually, all functions of the installed system are defined once in the Composer. If necessary, the Composer can be opened as follows for subsequent modifications:

1. In the farm structure, click on the controller icon of the system you want to edit.



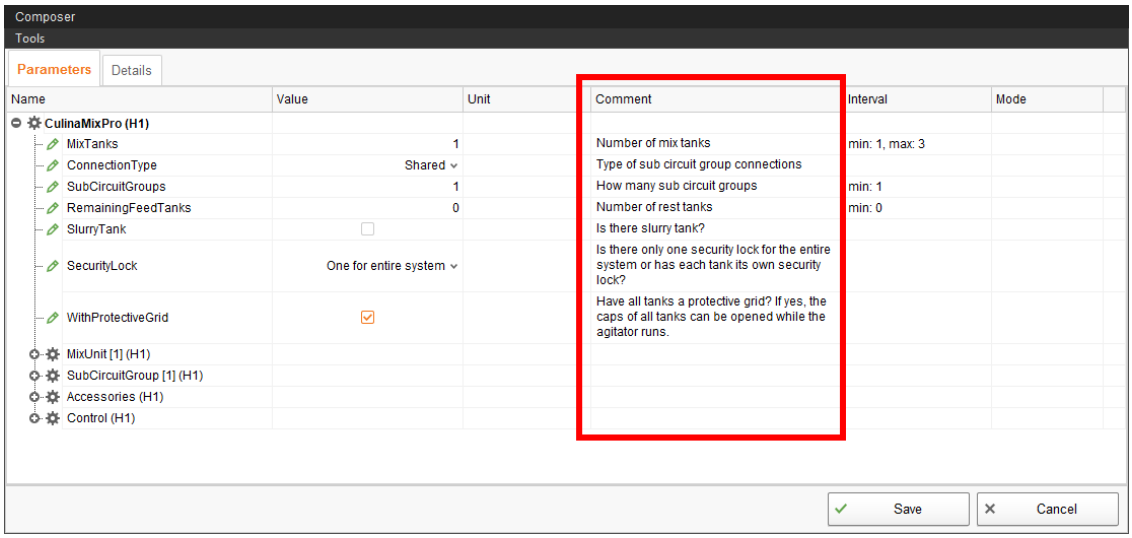
Check whether the application is running. If necessary, stop the application in BigFarmNet Manager by clicking on the "Stop" button.

2. In the "Setup" tab, click on the "Start Composer" button.



3. Configure the settings in accordance with the structure of the CulinaFlex system. Change pre-set values, if necessary.

   For explanations on the selected parameters, see chapter 3.2 ”Configuring settings in the Composer”.

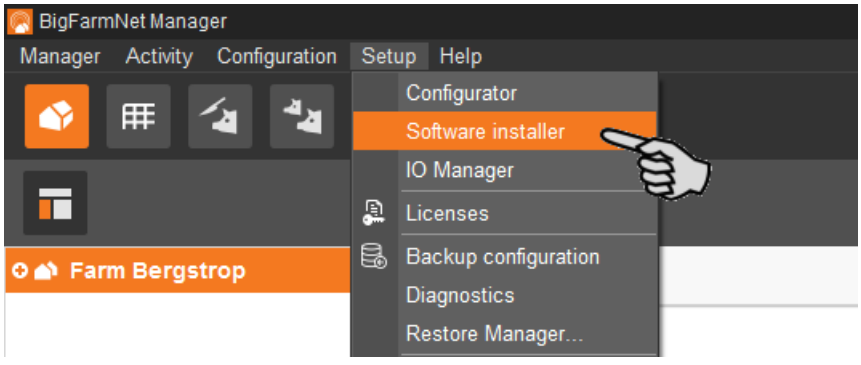


4. Click on "Save" to accept all settings for the Composer.

   The next dialog window prompts you to restart the control computer.

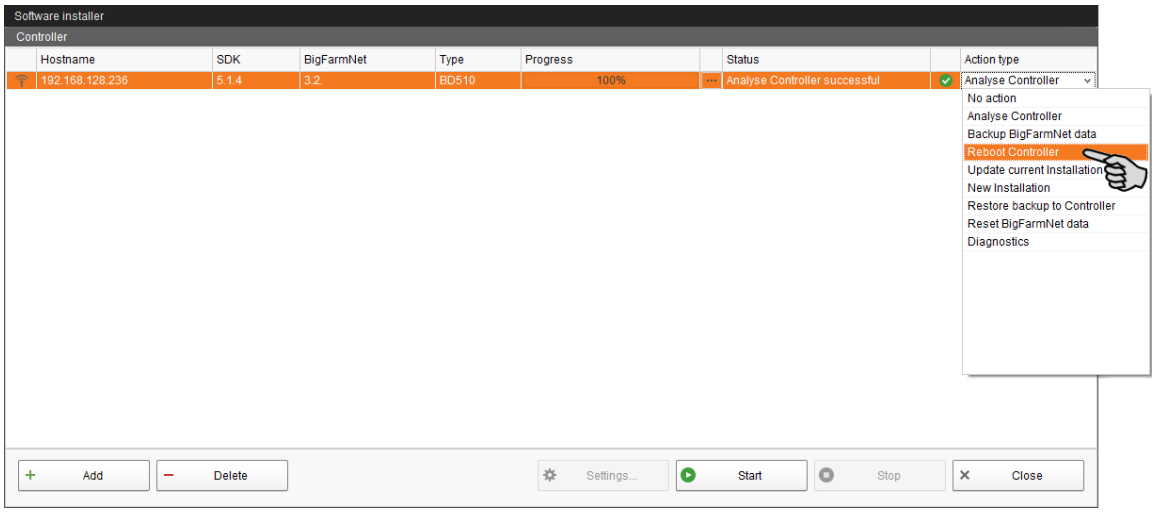
5. Confirm the dialog by clicking on "OK".

6. Click on "Software installer" in the "Setup" menu.



7. Click on the control computer to select it.

8. Click into the corresponding input field under "Action Type" and select "Reboot Controller".



9. Click on "Start".

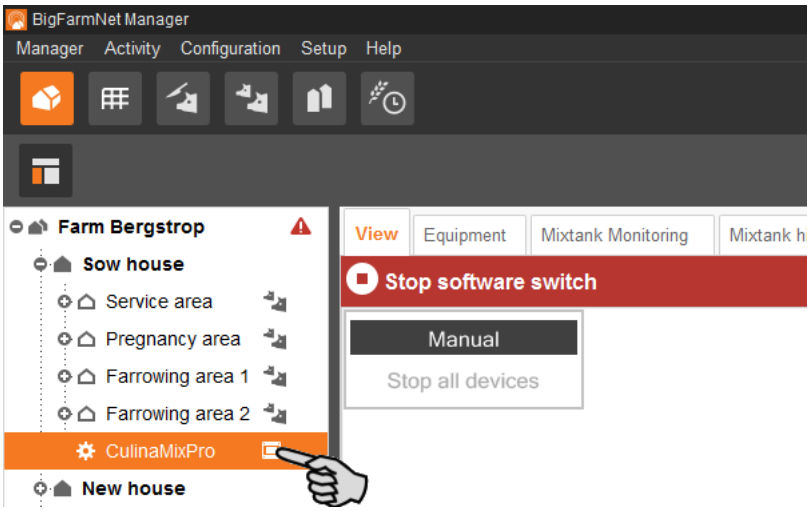
	This process may take a few minutes!

10. Start the FeedMove Editor again to accept the changes to the feed moves, see chapter 3.3.

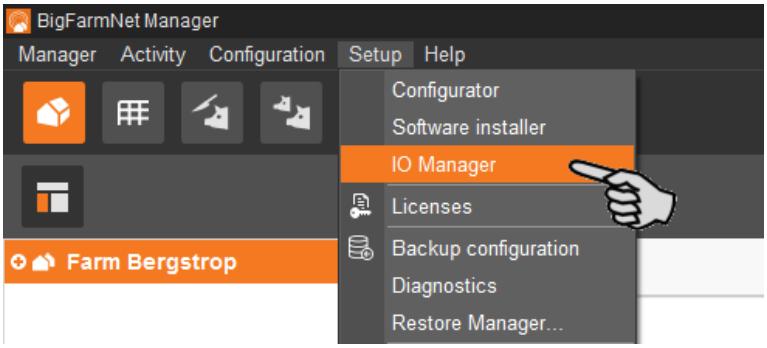
3.5 Configuring the IO Manager

The control is set up in the IO Manager. Assign the functions of the system that were defined in the Composer in the previous step to the IO cards.

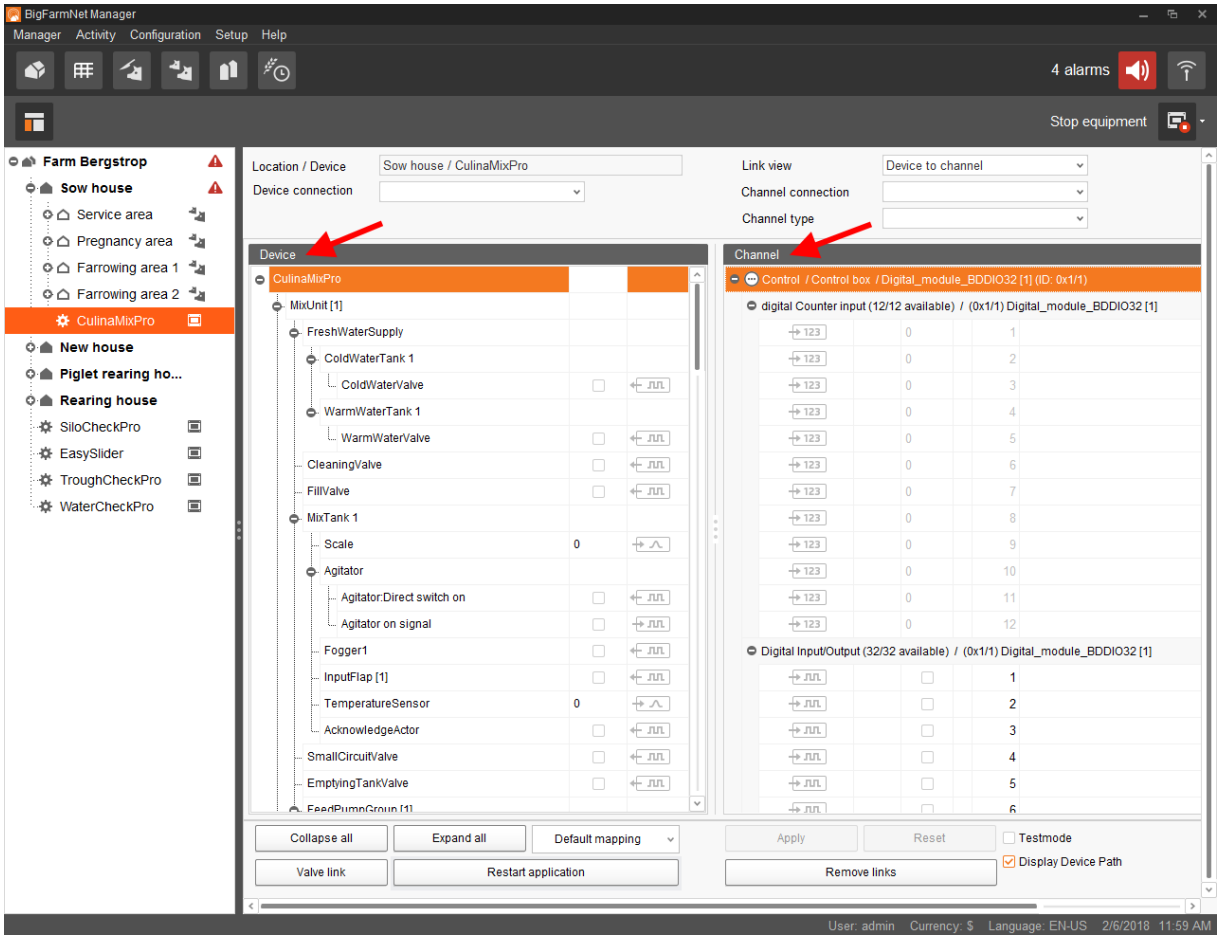
1. In the farm structure, click on the controller icon of the system you want to edit.



2. Click on "IO Manager" in the "Setup" menu.



The IO Manager opens in the application window. The left-hand part of the window shows the individual devices of the system under "Device". The right-hand part of the window displays the channels of the IO cards under "Channel".



The interfaces of the devices and the IO cards are indicated by the following icons:

– Digital output
– Digital input
– Analog output
– Analog input
– Counter input
– Serial interface

Connected devices and channels are indicated by dark gray icons and a green arrow. Example:

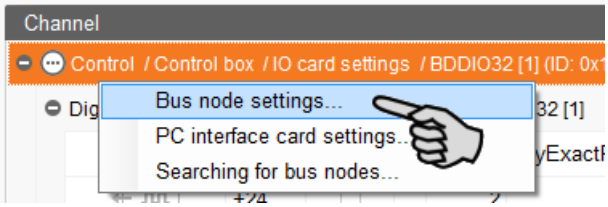
Devices and channels that are not connected are grayed out. Example:

3.5.1 Changing the node ID

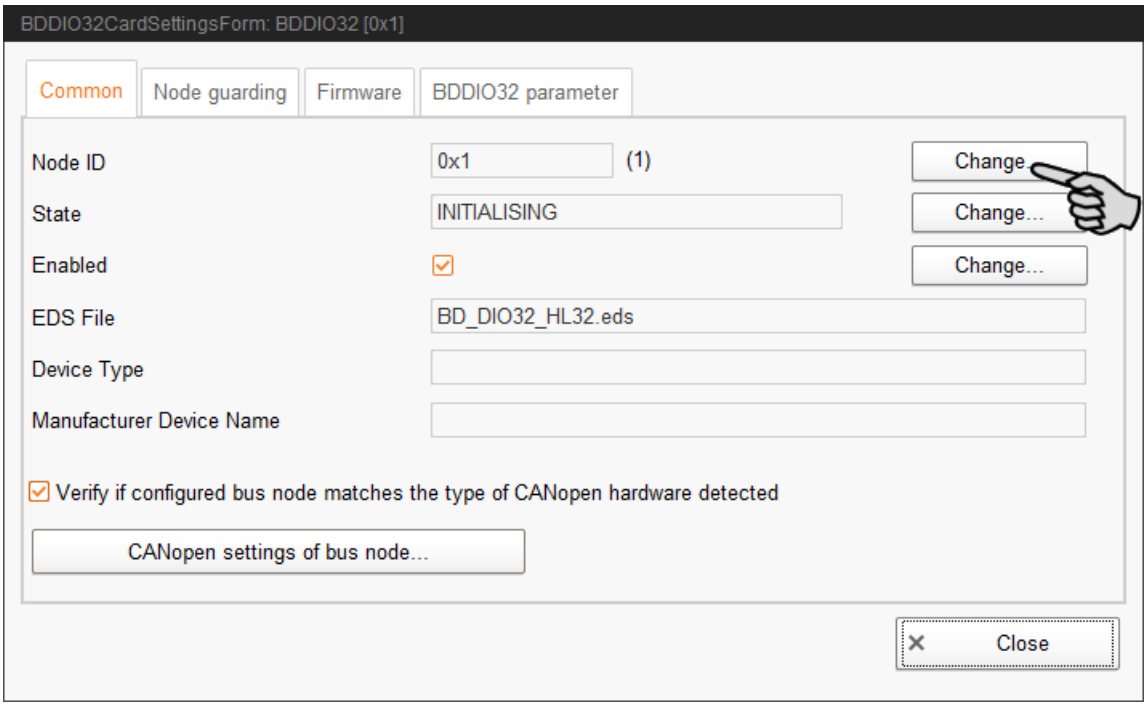
Please refer to the enclosed wiring diagram for information on the devices' CAN addresses. Assign the CAN addresses in accordance with the wiring diagram.

1. On the IO cards to be assigned, check to which CAN ID the rotary switch of each card is set (in the control box).
2. Open the context menu by right-clicking on the IO card (top level) and click on "Bus node settings...".

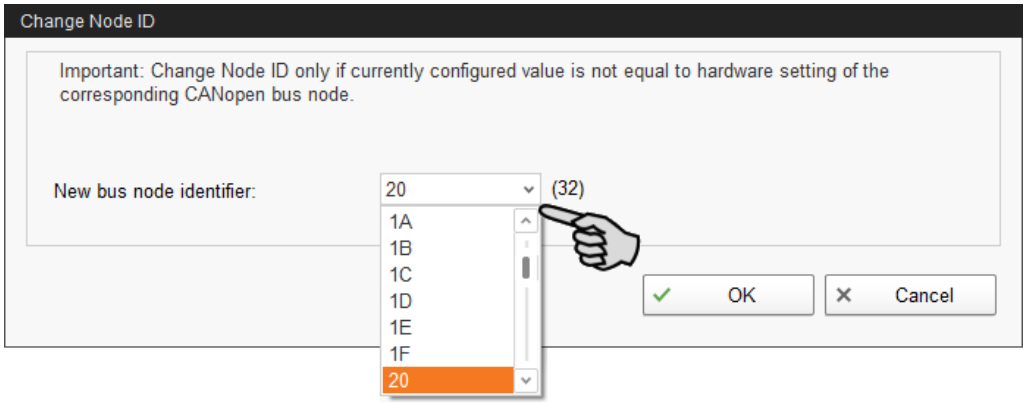
   This opens a new dialog.



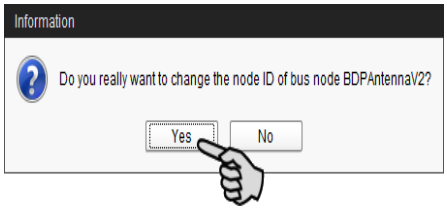
3. In the first tab, click on "Change..." next to "Node ID".



4. Select the new node ID and click on "OK".



5. Confirm the prompt for confirmation.



6. Click on "Close" to close the dialog.

3.5.2 Creating links

Link the different devices manually with the corresponding IO card. The system currently does not support the "Default mapping" function (button).

1. Change one or more inputs to outputs with the supply voltage +24 V in the "Channel" area, where necessary.

   In the preset, only inputs are shown at first.

   This function is only possible for BDDIO32 IO cards.

   a) Select one input or select multiple inputs by holding the Ctrl key.

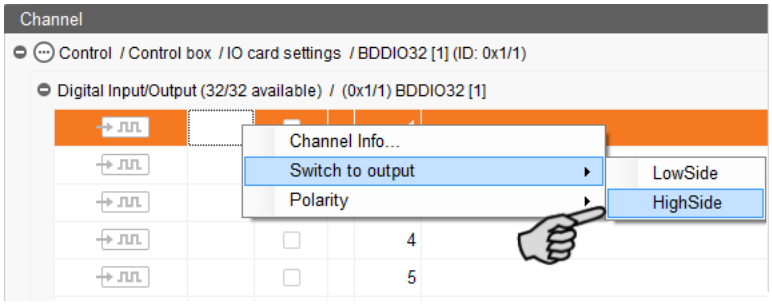
      Multiple editing is only possible for channels of the same type.

   b) Right-click into the marked area.

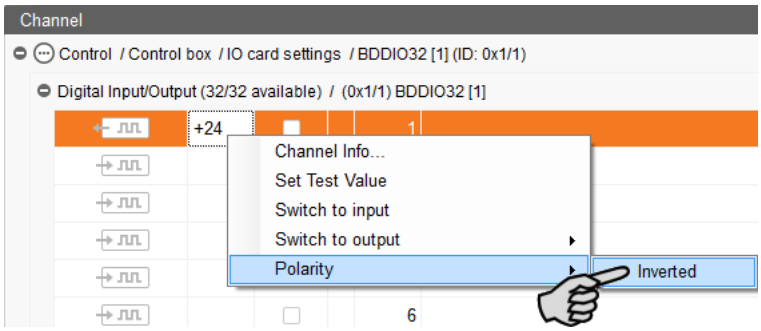
   c) In the context menu, select "Switch to output" > "HighSide", if the new output should switch to high side (24 V).

      Or:

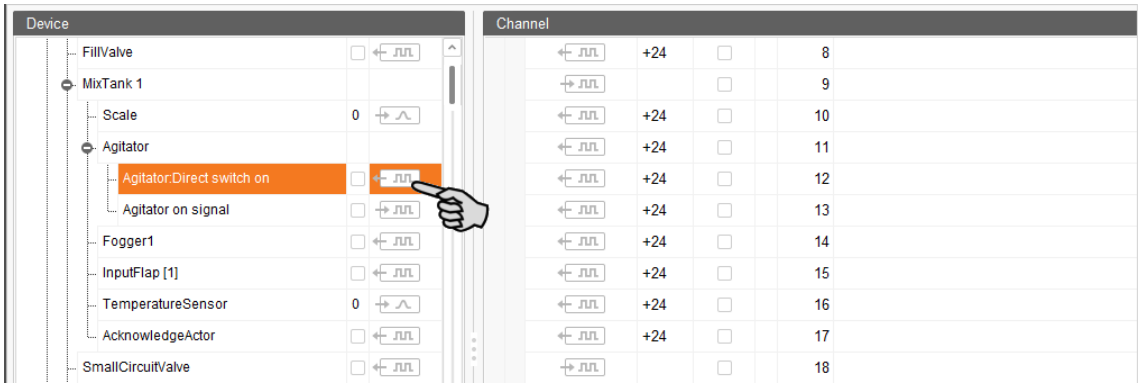
      In the context menu, select "Switch to output" > "LowSide", if the new output should switch to low side (ground).



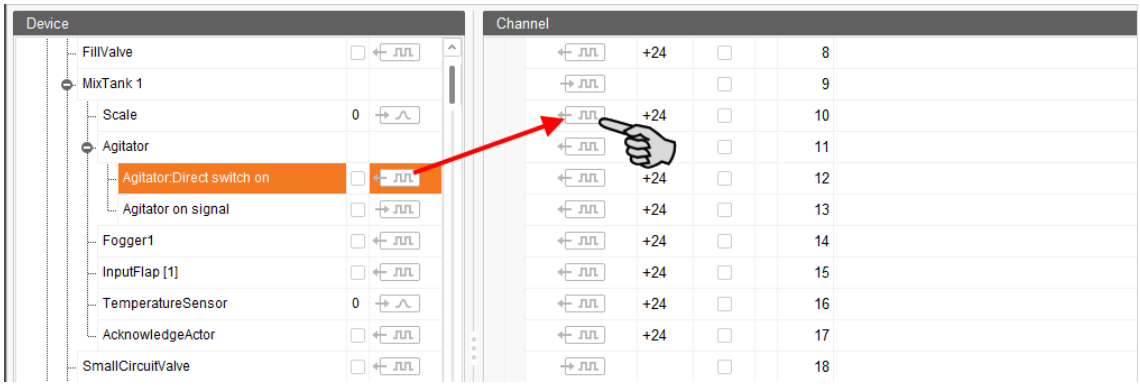
d) If necessary, you can invert the polarity of the signal by clicking on "Polarity" > "Inverted" in the context menu.



2. In the "Device" part of the window, click on the linking icon of the system component and hold the mouse button.

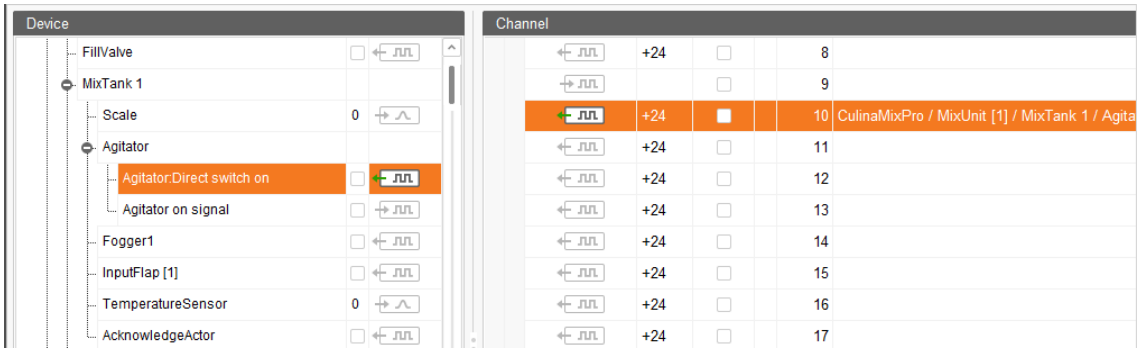


3. Drag the mouse to the linking icon of the desired channel in the "Channel" part of the window on the right.



4. Release the mouse button.

   The system component and the channel are now linked.

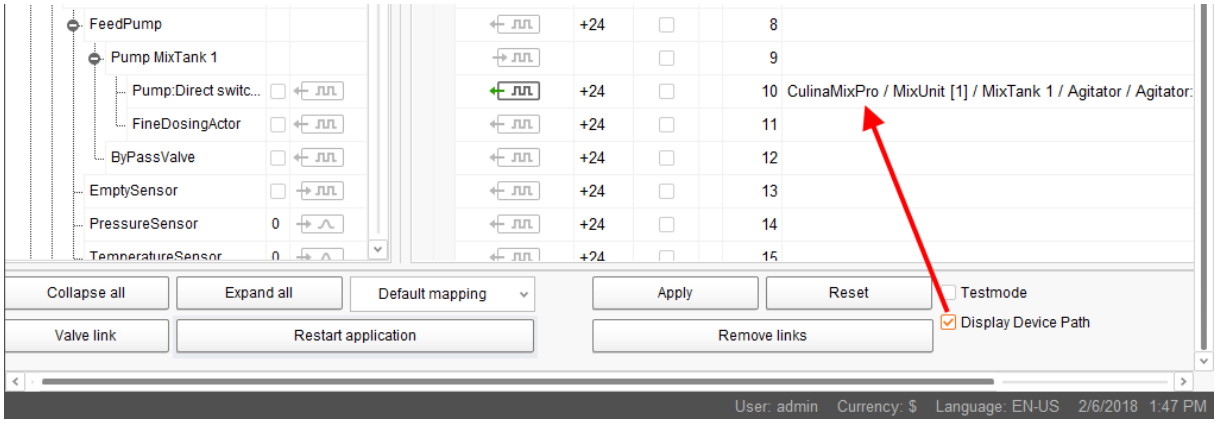


5. If you have created an incorrect link, right-click on the corresponding linking icon. Click on "Delete connection" in the context menu.

	Checking links: Double-click on the respective device to mark the linked channel.

6. Click on "Save" in the bottom command bar after having established all links.
7. Click on "Restart application" in the bottom command bar to start the control.

3.5.3 Displaying the device path



Check this box to see the device path of all devices.

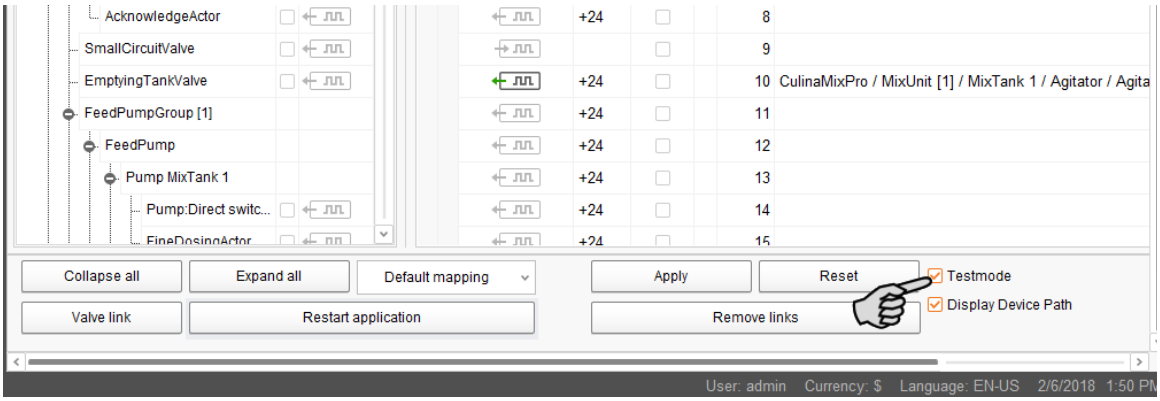
3.5.4 Using the test mode

In the test mode of the IO Manager, all devices can be turned on and off to check the correct setup of the control before starting to operate the system.

Proceed as follows:

	Only service technicians may use the test mode. Devices may start in case the system is connected. Make sure that no persons or animals are located in or around the station while using the test mode. Deactivate the test mode when finished.

1. Check the "Test mode" box in the bottom command bar.



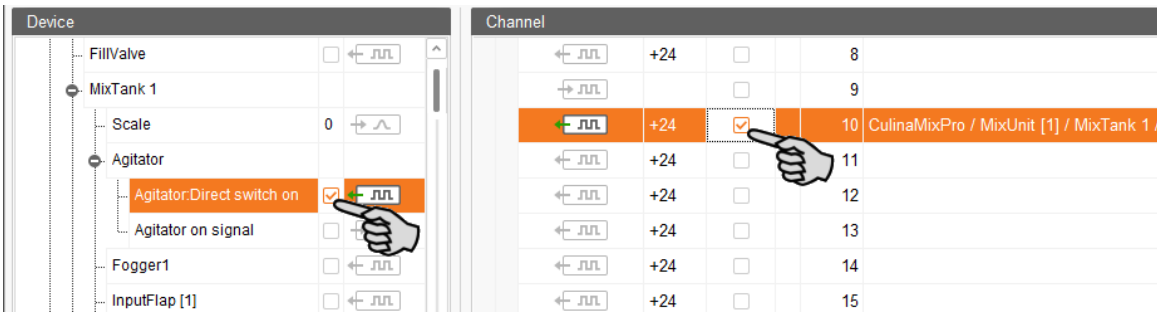
2. In the "Device" part of the window, double-click on the linking icon of the device you want to turn on. 

   This marks the linked channel in the "Channel" part of the window on the right.

3. Click on the check boxes of the selected device and respective channel to activate them.

   The actual device is now turned on.

   If the actual device does not turn on or if another actual device is running instead, correct the links in the IO Manager or reconnect the outputs of the IO card. Always refer to the overview drawing of the IO card attached to the wiring diagram.



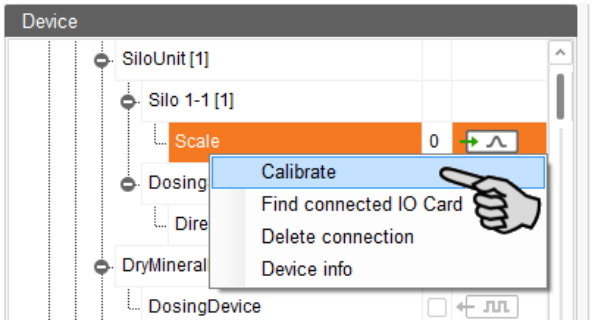
4. Turn off the device by deactivating the check box.
5. Exit the test mode by deactivating the check box "Test mode" in the bottom command bar.

3.5.5 Calibrating the scale

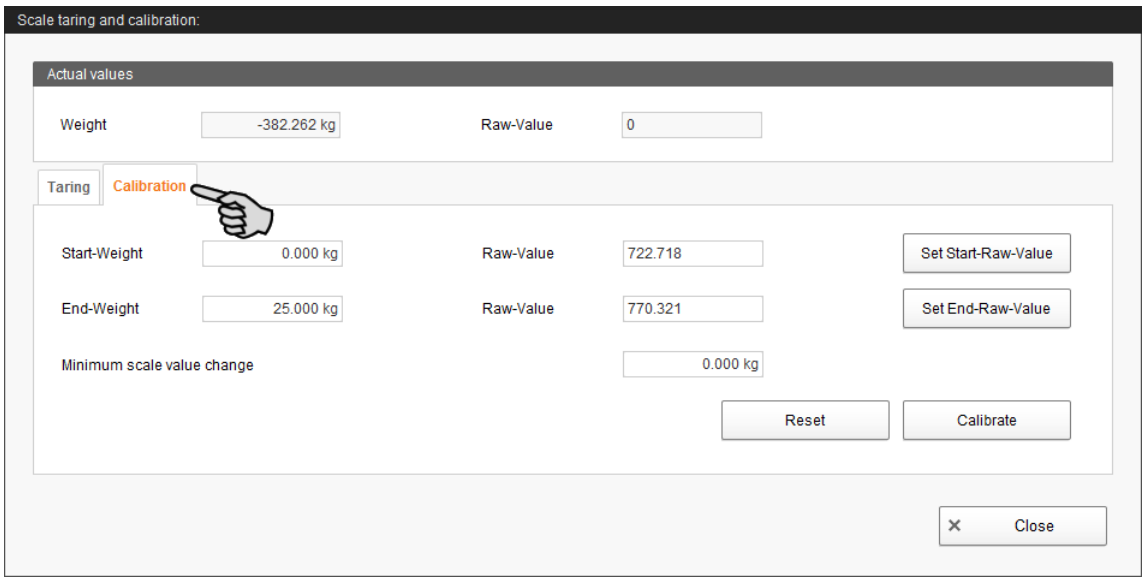
As soon as you have created a link between the weighing bars and the respective weighing box, you can calibrate the mixing tank's scale.

1. In the "Device" area, right-click on "Weighing bar".
2. In the context menu, click on "Calibrate".

   This opens a new dialog window.



3. Click on the "Calibration" tab and set the values as follows:



   a) Enter the start weight (usually the value 0) and confirm the value by clicking on the button "Set start raw value".

   b) Enter the end weight (the used calibration weight) and confirm the value by clicking on the button "Set end raw value".

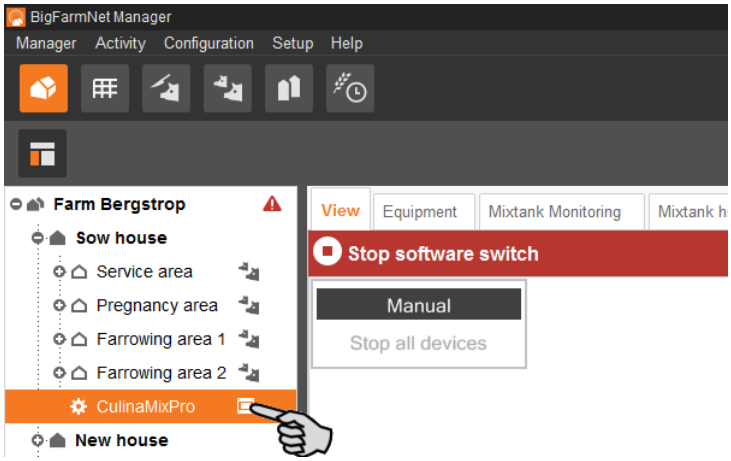
4. Click on the "Calibrate" button to complete the calibration process.
5. Click on "Close" to close the dialog.

3.6 Manually controlling the system components

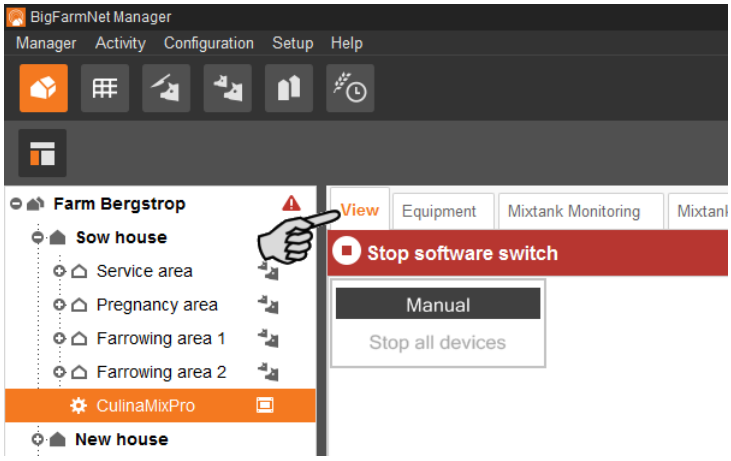
As soon as you have created your system in the FeedMove Editor (chapter 3.3 ”Depicting the system in the FeedMove Editor”), the tab "View" is added to the application window.

The system usually runs automatically, based on the configured settings. From the "View" tab, you can operate the system manually with the BigFarmNet Manager. This means that you can manually activate or deactivate individual system components and their elements.

1. In the farm structure, click on the controller icon of the system you want to edit.



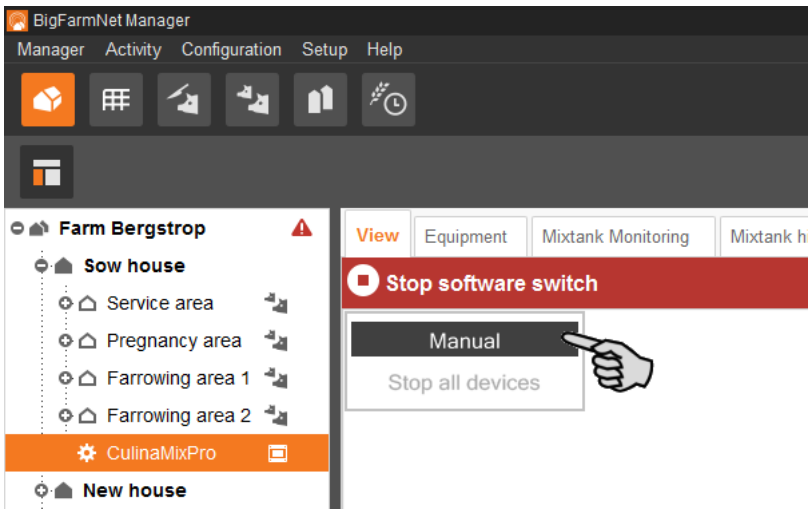
2. Click on the "View" tab.



Check whether the application is running. If necessary, stop the application in BigFarmNet Manager by clicking on the "Stop" button.

3. If necessary, adjust the view or retrieve one of your saved views using the camera icons, see chapter 3.3.4 ”Adjusting and saving views”.
4. Click on "Manual" in the upper left corner.

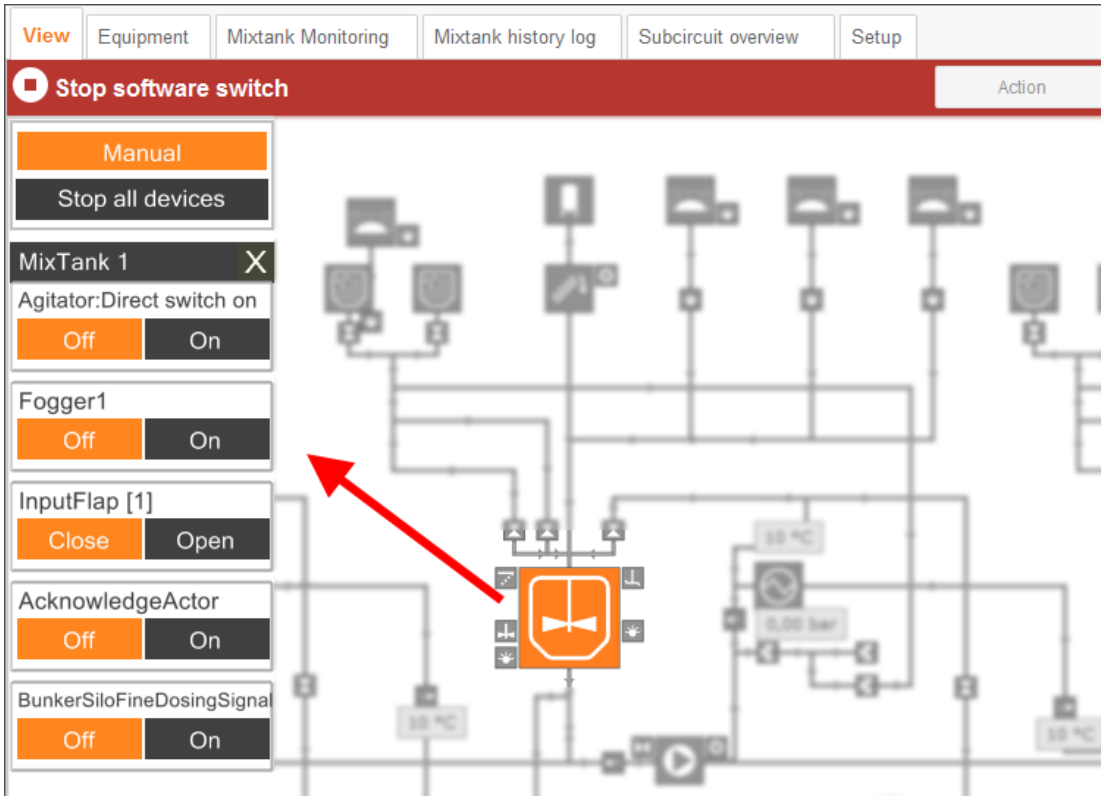
   Manual control is now active.



5. You can manually switch on or off functions of the system components as follows:

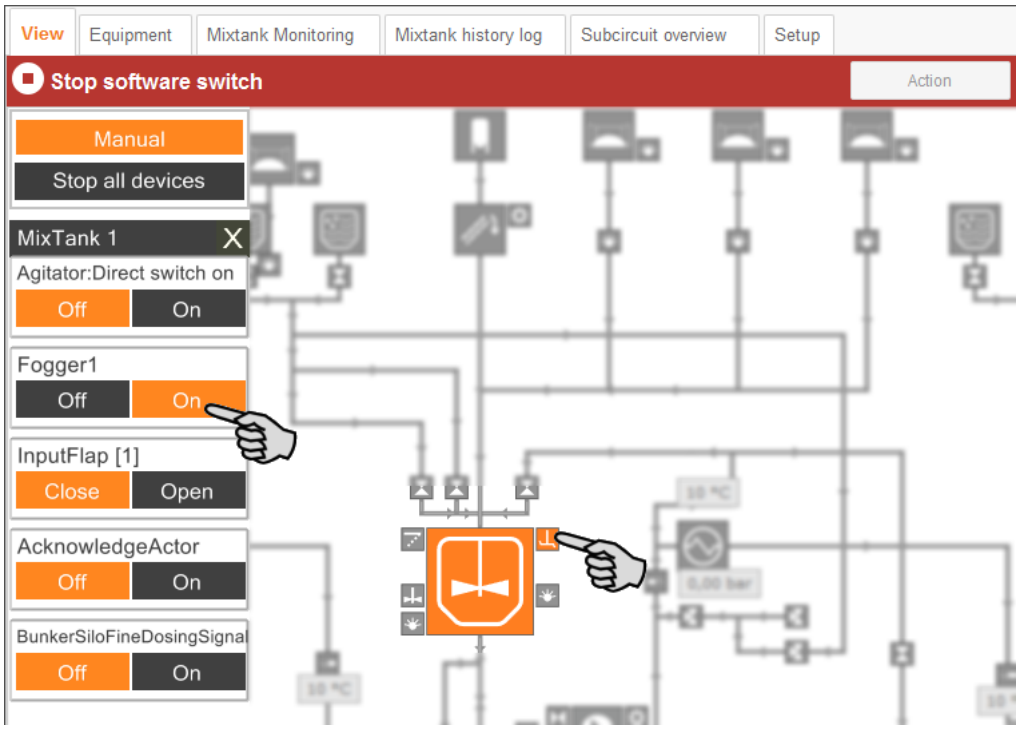
   a) Click on the respective system component.

   The colour of the system component changes to orange. The elements belonging to this component are displayed in the window to the left.



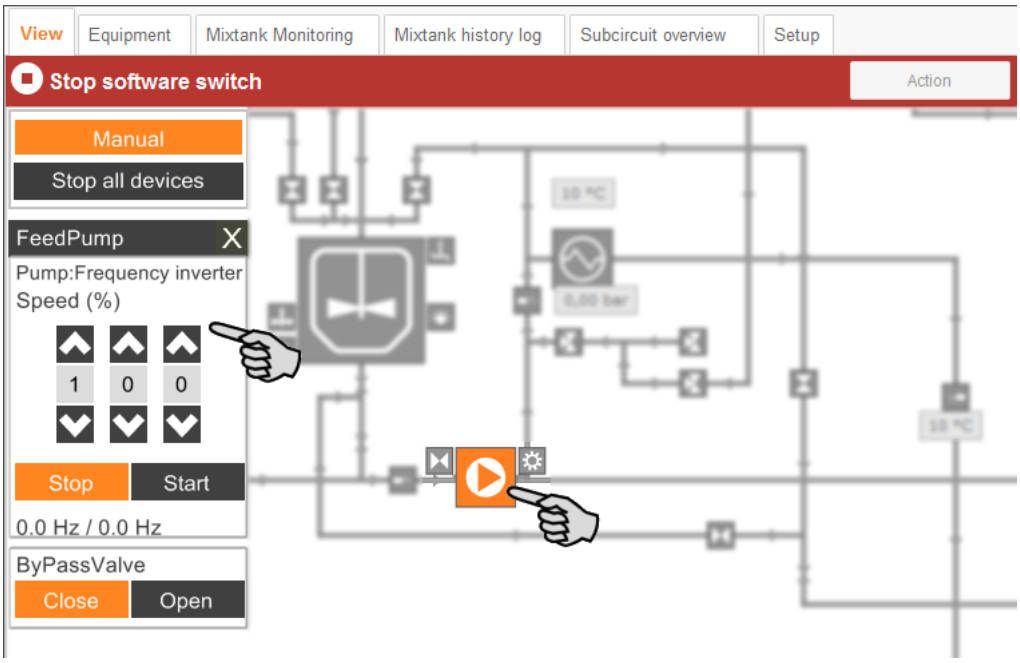
b) Activate or deactivate the required element in the window to the left or by clicking directly on the element icon in the view.

Active elements are orange. Inactive elements are gray.



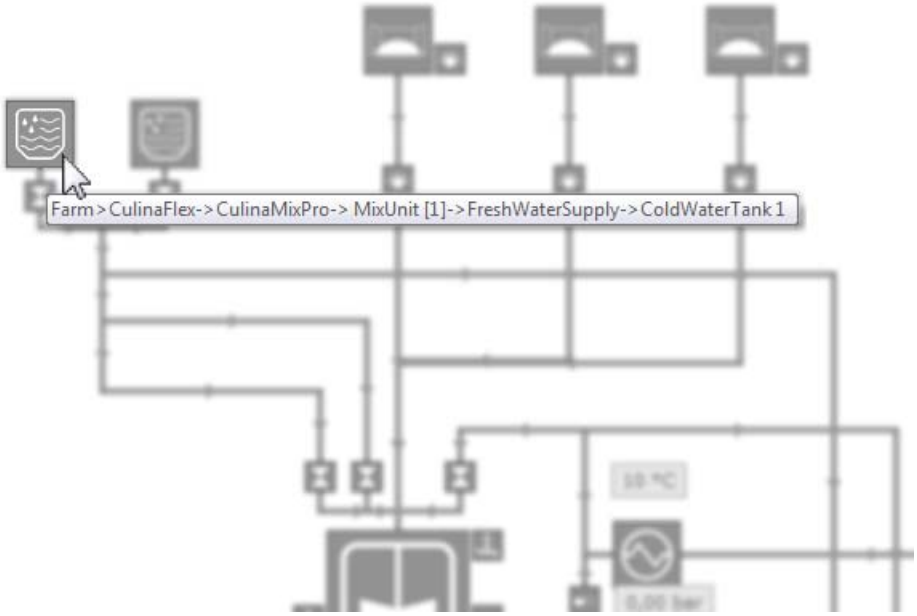
6. Change the frequency of a system component that is controlled by a frequency inverter, e.g. an agitator or a pump, if necessary.

Click on the respective system component and change the frequency using the arrows pointing upwards and downwards.



7. Move the mouse pointer over the different icons in the depiction to see the full name of the function or the system component.

   A tooltip shows the full name.



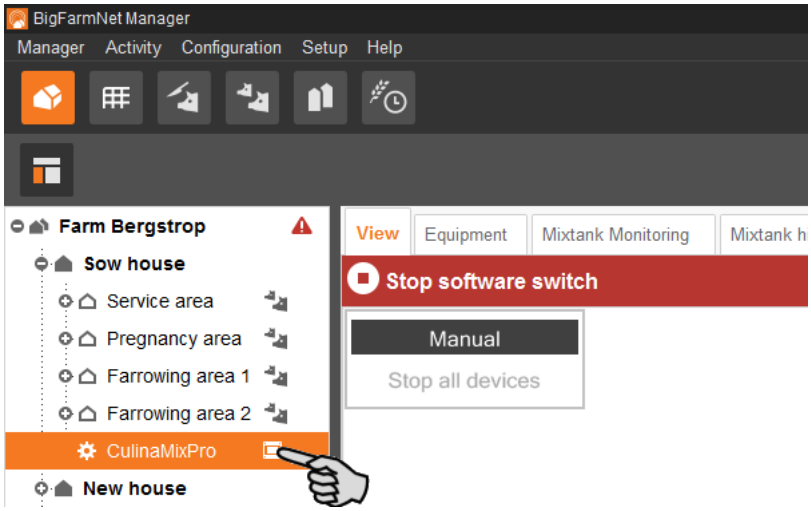
8. Stop manual control by clicking on "Manual" again.

3.7 Manual actions for the feed moves

As soon as you have created your system in the FeedMove Editor (see chapter 3.3), the tab "View" is added to the application window.

The system usually runs automatically, based on the configured settings. However, you may access individual feed moves and carry out manual actions, e.g. pump the contents of a mixing tank to the slurry tank or move a cleaning agent into a mixing tank. Manual actions can also be defined for multiple feed moves. These actions are then carried out one after another in the desired order.

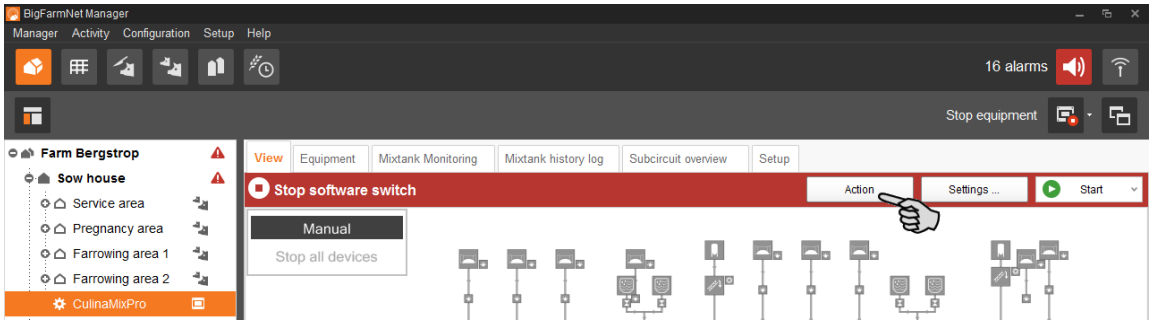
1. In the farm structure, click on the controller icon of the system you want to edit.



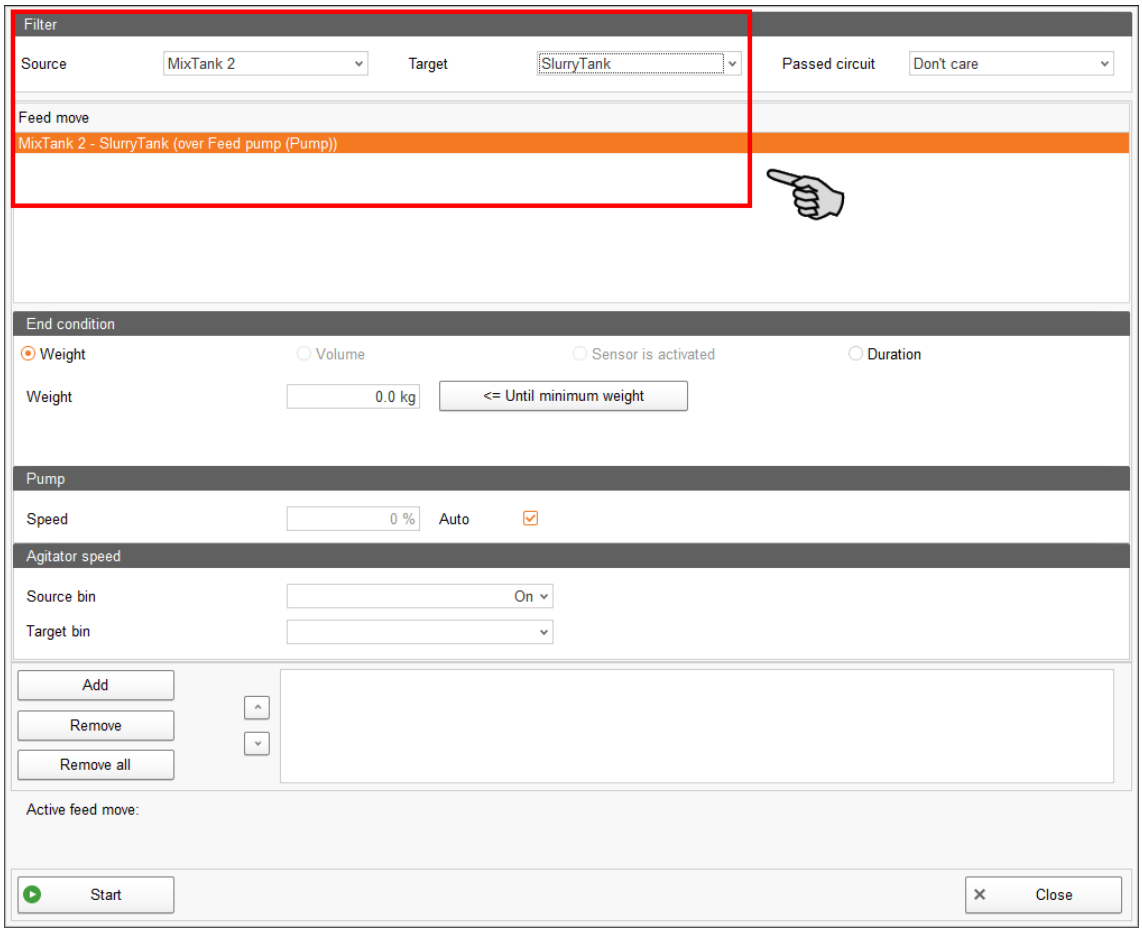
Check whether the application is running. If necessary, stop the application in BigFarmNet Manager by clicking on the "Stop" button.

2. Click on the "Action" button in the "Equipment" or "View" tab.

   This opens the dialog window "Manual action".



3. In the upper area, enter the "Source" and the "Target" of the respective feed move and select the feed move from the list.



4. Configure the temporary setting under "End condition", " Pump" and "Agitator speed".

   Depending on the feed move and the installed system components, the corresponding parameters for the action become active.

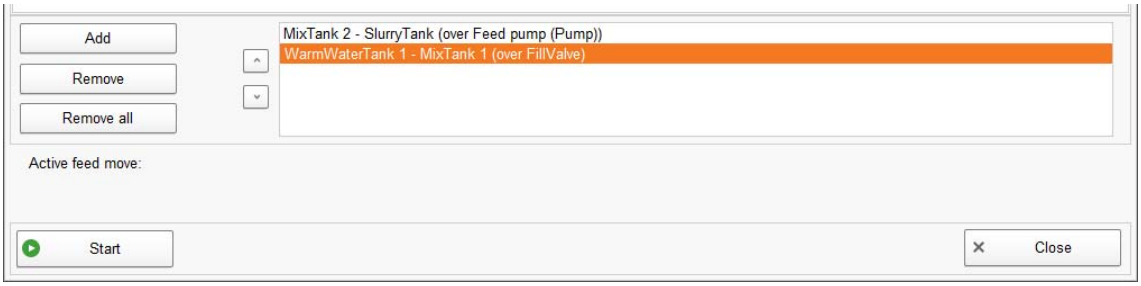
   If you click on the button "<= Until minimum weight", the system turns off as soon as the minimum weight has been reached in the mixing tank. The weight is defined in the settings under "Min. amount", see chapter 6.4 ”Feed preparation (mixing tank, agitator)”.

5. Click on "Start" in the lower command bar to start the action for the selected feed move immediately.

   OR:

   Click on "Add" in the lower area if you want to add actions for other feed moves.

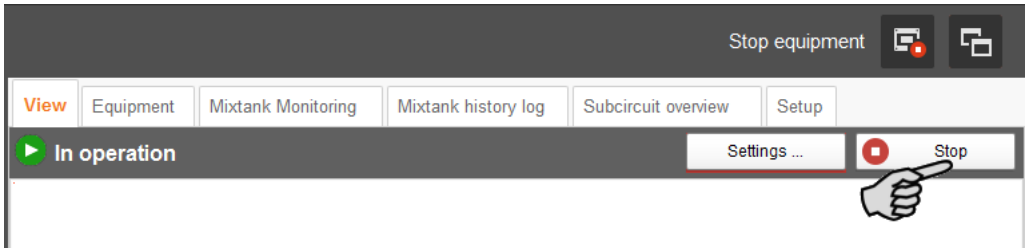
   Feed moves with defined actions are listed in the field on the right. Use the arrows pointing upwards and downwards to sort the actions in the correct order for execution.



6. Click on "Start" in the lower command bar to start the action(s).
7. Click on "Close" in the lower command bar to close the dialog window.

3.8 Stopping the system and canceling an action

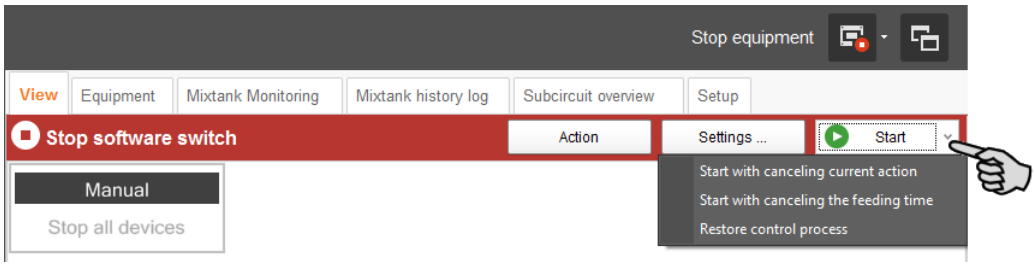
You may stop the system during operation by clicking on "Stop" in the upper bar in the tabs "View" or "Equipment". If you click on "Start" again, the system continues to operate with the current action or task.



However, if you do not want to continue the current action, start the system again as follows:

1. Click on the arrow pointing downwards next to the "Start" button" and select the correct option from the context menu.
   - **Start with canceling current action:** The system starts, cancels the current action and continues with the next action that was defined in the Task Manager.
   - **Start with canceling the feeding time:** The system starts and cancels the current task, e.g. feeding or cleaning.

– **Restore control process:** In case of control errors of the BigFarmNet Manager, use this option to restart the entire system including all processes.

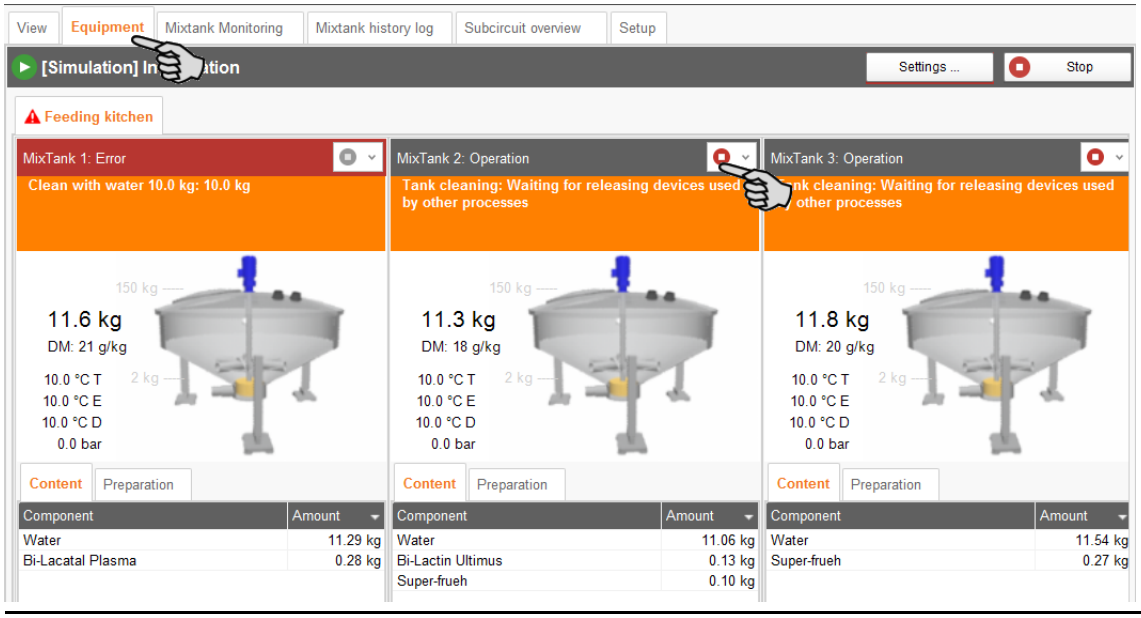


3.9 Stopping the mixing tank and canceling an action

The mixing tanks are displayed in the "Equipment" tab based on the configured system. The CulinaMix*pro* mixing tanks are sub-applications. The graphical depiction provides the following information, for example:

- Current actions of the mixing tank
- Current temperatures for mixing in the mixing tank (T), for the heat exchanger (E) and for distribution (D)
- Current pressure in the pipelines
- "Content" shows the components in the mixing tank, including their amount. For water, no difference is made between warm and cold.
- "Preparation" shows the current preparation, including information on the currently available amount and the missing amount of the components.

You can stop each mixing tanks individually during operation by clicking on the corresponding stop button. If you click on "Start" again, the mixing tank continues to operate with the current action.



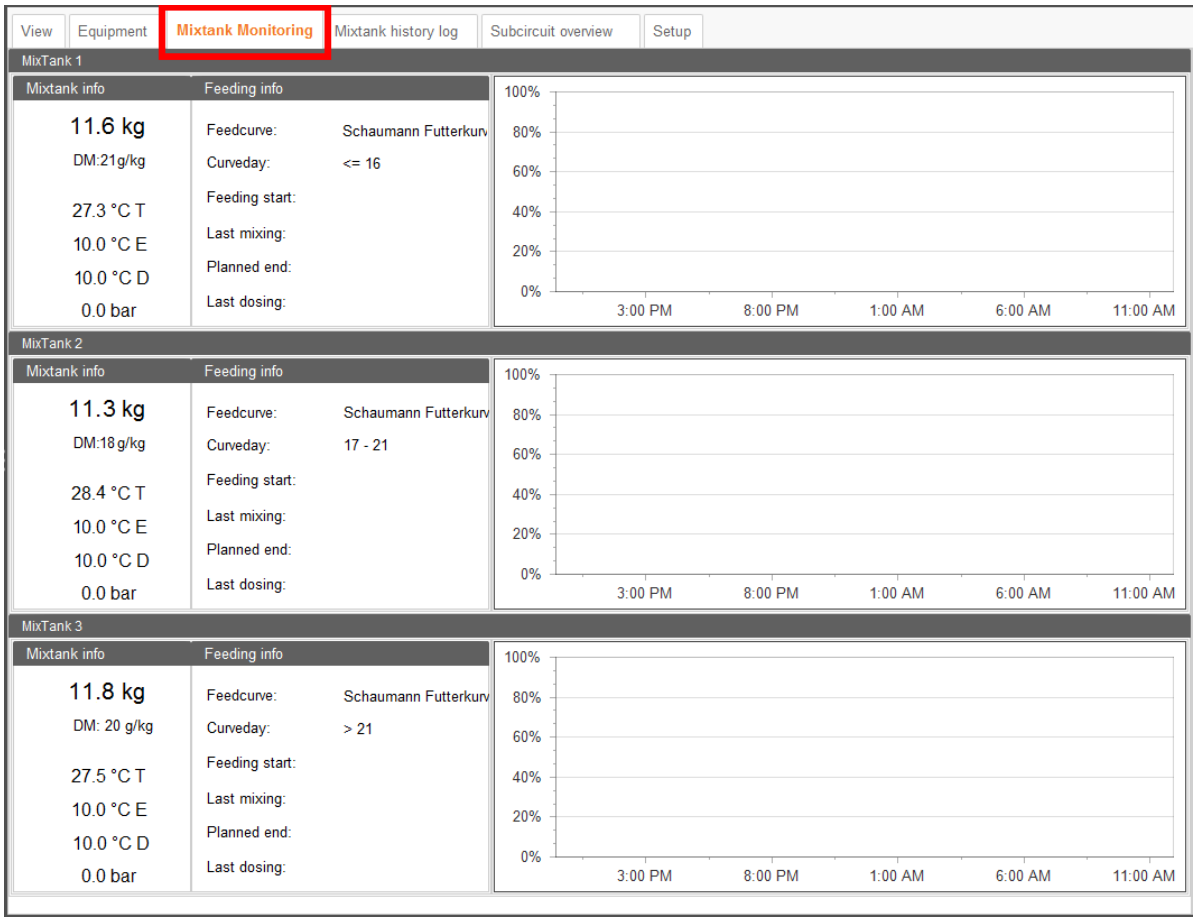
However, if you do not want to continue the current action, start the mixing tank as follows:

1. Click on the arrow pointing downwards next to the start button and select the correct option from the context menu.
   - **Start with canceling current action:** The mixing tank starts, cancels the current action and continues with the next action defined in the Task Manager.
   - **Start with reset total feeding time:** The mixing tank starts and cancels the current task, e.g. feeding or cleaning.
   - **Start with new mixture:** The mixing tank starts and mixes a new recipe. A dialog to indicate the amount opens.

3.10 Mixing tank monitoring

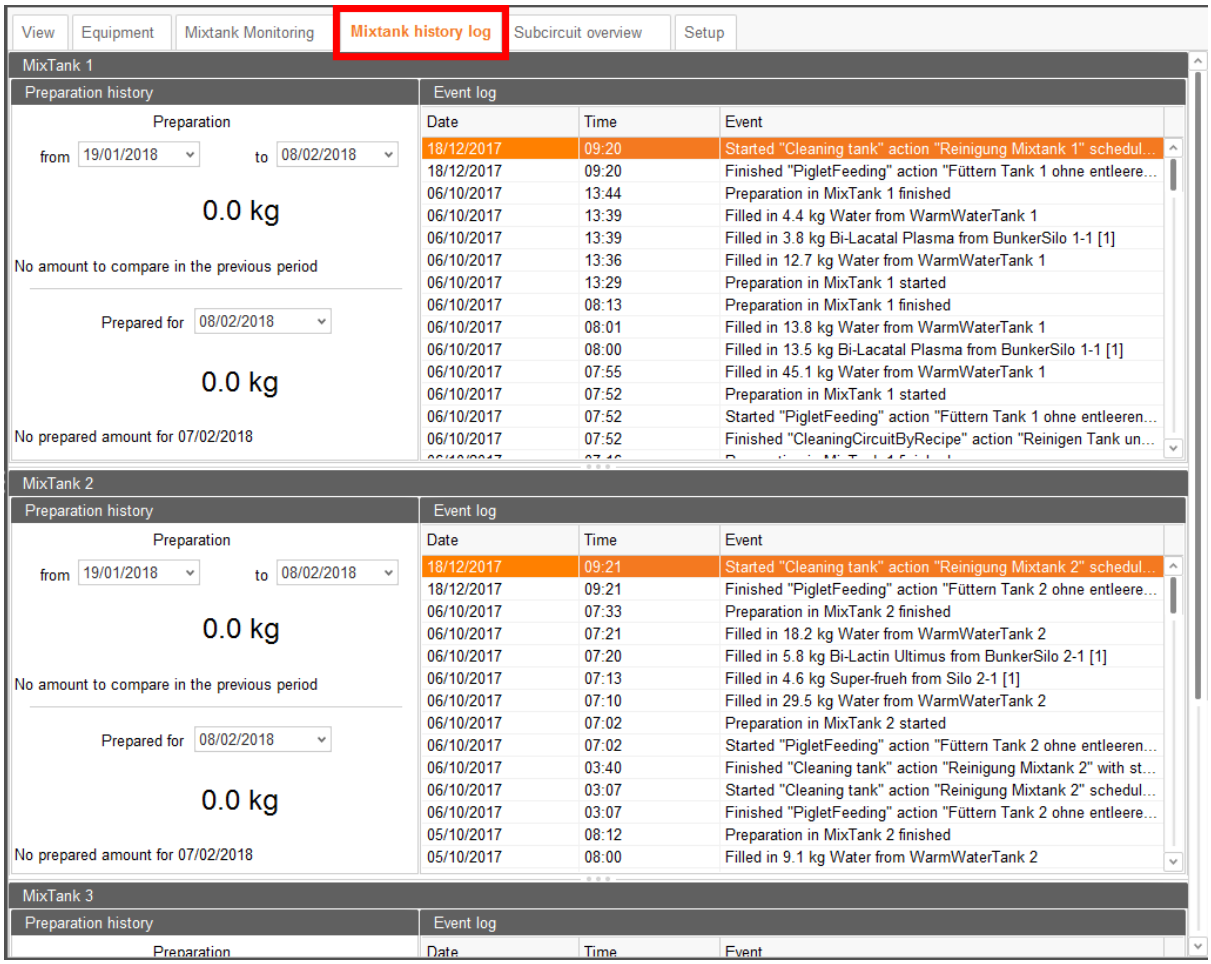
The tab "Mixing tank monitoring" indicates the contents of each tank for the past 24 hours. The diagram shows at which times of the day weight changes occurred.

Click into the diagram to change the 24-hour view with the scroll wheel of your mouse (see longer or shorter periods). The timeline changes accordingly.



3.11 Mixing tank history log

The "Mixing tank history log" shows a log for each individual action of each mixing tank. This makes it easy to identify unusual actions.



3.12 Subcircuit overview

You can lock circuits and valves under the tab "Subcircuit overview". Parameters with the pen icon can be edited:

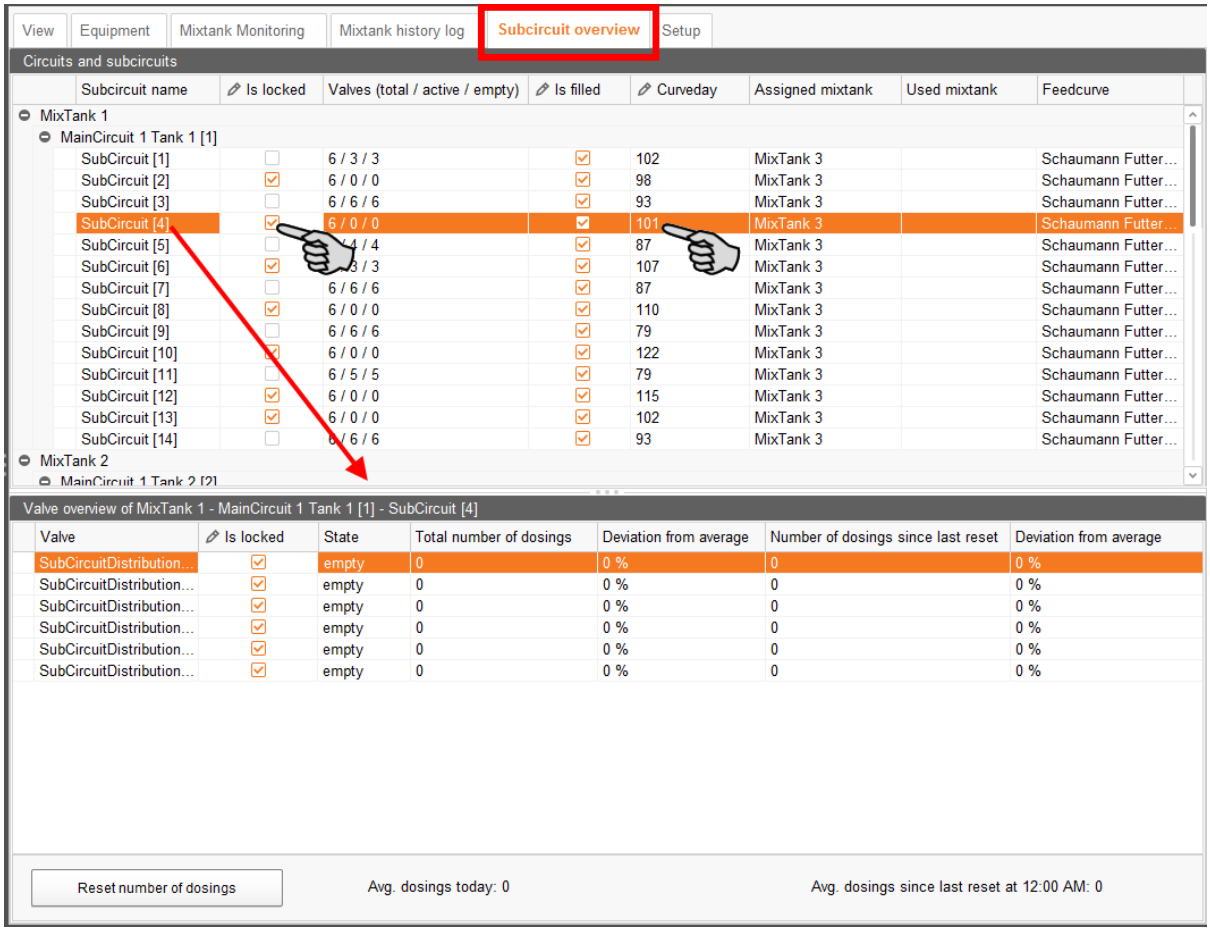
- In the upper part, you can lock an entire circuit directly if you do not want it to supply feed or if the corresponding section is empty.

  Marked a circuit by clicking to view all corresponding valves in the lower part of the window. Lock individual valves of a circuit, for example if some pens are not occupied.

- Define the correct feed curve and the animals' age based on the curve day.

The "Valves" parameter shows

- the total number of connected valves at the first position ("total");
- the number of active valves at the second position ("active);
- the number of active valves with the status "Empty" at the third position ("empty").



4 Feed curve

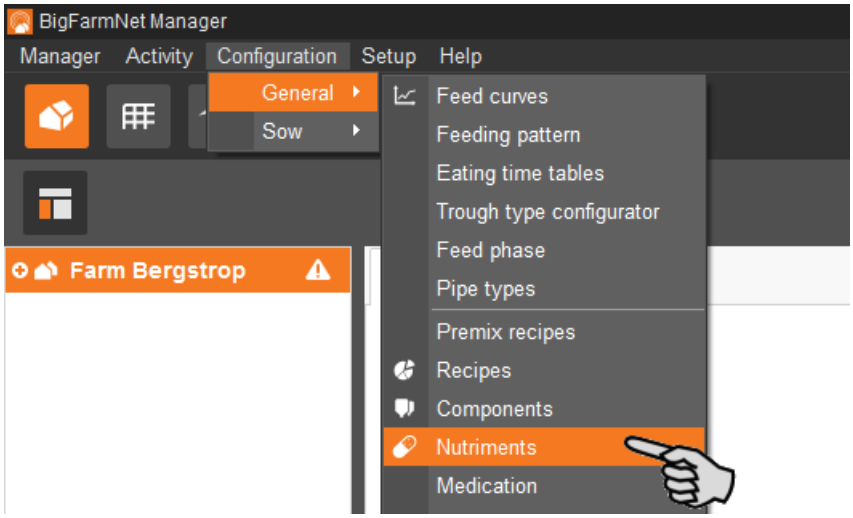
To meet the feed demand of the animals, use a feed curve to define which feed components are dispensed at which ratio and during which time periods. Daily rations are adapted automatically as required by the individual growth states.

Before you define a feed curve, you need to determine (feed) components as well as nutrients ("nutriments") as required.

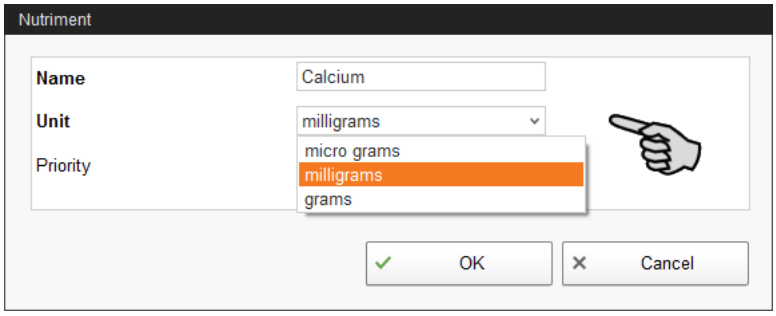
4.1 Creating nutrients

Nutrients include carbohydrates, fats and proteins, but also vitamins and minerals. The nutrients you create determine the nutritional value of the components. When you create a new component, all nutrients you created before will be listed. You can then enter the corresponding values per component, see chapter 4.2 ”Creating components”.

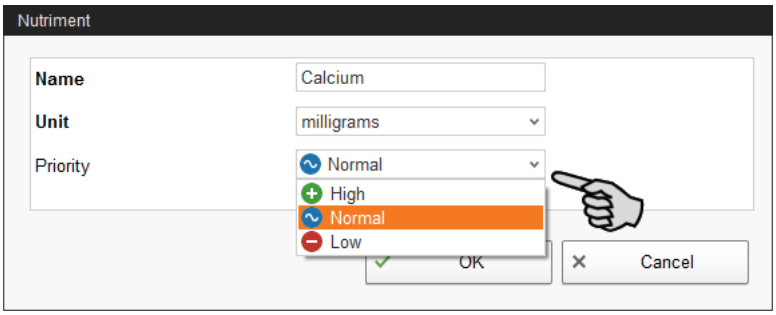
1. In the menu "Configuration" > "General", click on "Nutrients".



2. In the dialog window "Nutrients", click on "Add".
3. Enter a name for the nutrient and determine the unit.



4. As an option, you can also determine a priority for each nutrient. The nutrients can then be listed in ascending or descending order according to priority later on.

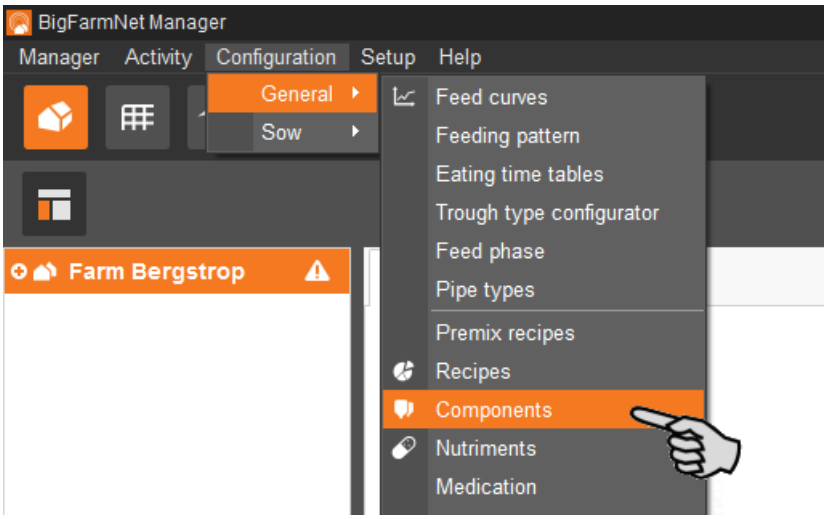


5. Accept these inputs by clicking on "OK".

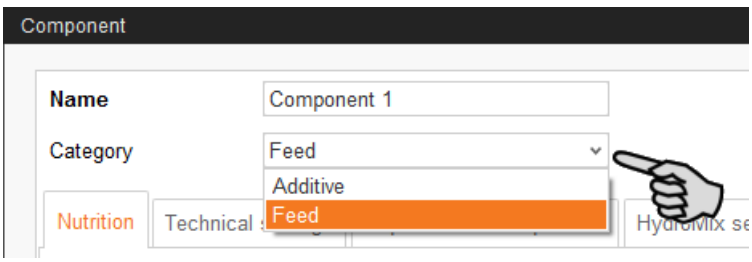
4.2 Creating components

Use the "Component" dialog to create different components and to add any corresponding information. Components are classified into the categories "Feed" and "Additive". Components in the category "Feed" can be the individual ingredient of a feed mix or a complete compound feed.

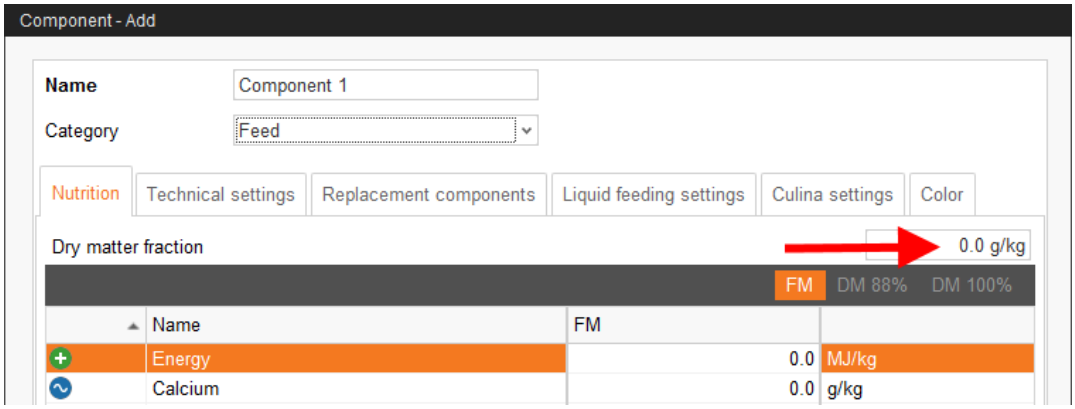
1. In the menu "Configuration" > "General", click on "Components".



2. In the dialog window "Components", click on "Add".
3. Enter a name for the component and select a category.



4. Under the first tab "Nutrition", enter the dry matter fraction of the component.



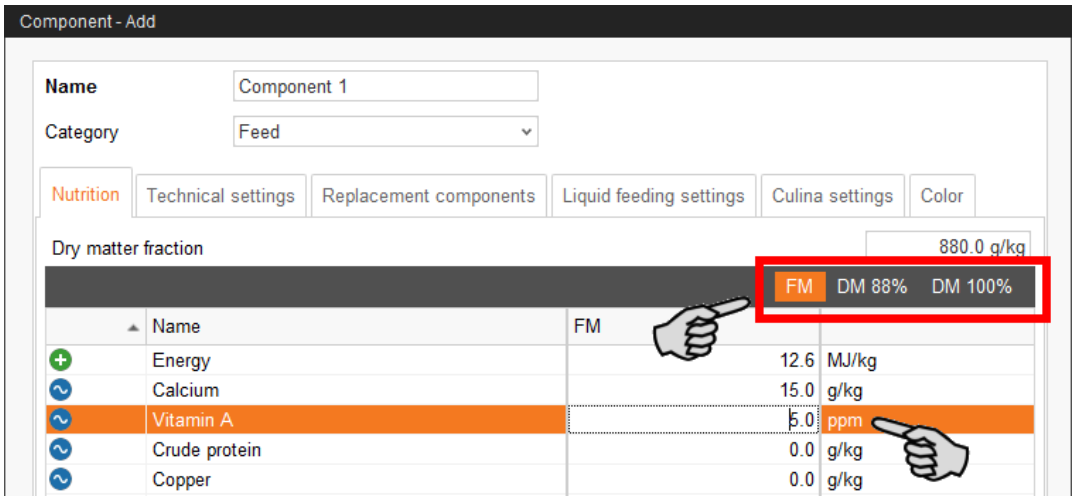
5. Only after entering the dry matter fraction can you choose one of the following quantities:

   – FM = per fresh matter

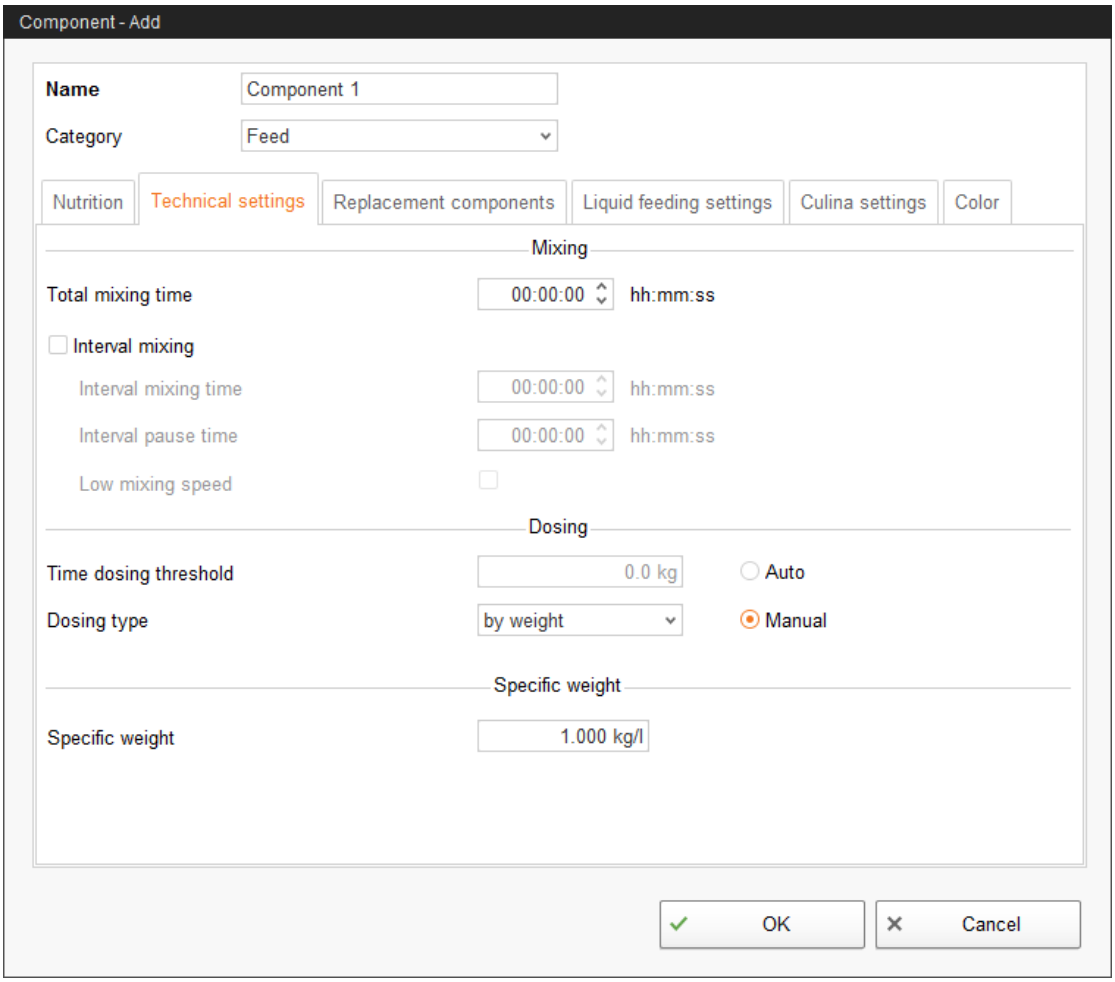
   – DM 88 % = in relation to 88 % dry matter

   – DM 100 % = in relation to 100 % dry matter

   If required, enter the energy content and the individual nutrient fractions in the table below (see 4.1 ”Creating nutrients”).



6. Define parameters for feed preparation in the mixing tank and dosing under the tab "Technical settings".



– Under **Total mixing time**, determine a time frame for mixing the component. If several components are mixed together, the mixing time will correspond that of the component with the longest mixing time.

– If a component needs to macerate first, click on **Interval mixing** and enter the required value.

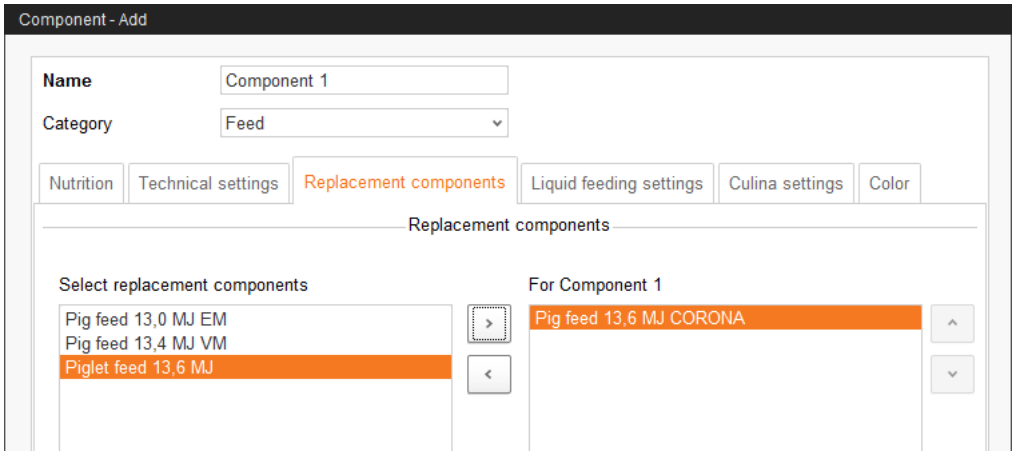
– Under the section **Dosing**, select either **Auto** or **Manual**.

  The automatic mode works based on the determined weight. Below this threshold weight, a time-dosing method is used automatically, and a weight-based method above this weight.

  In the manual mode, select either "by weight" or "by time".

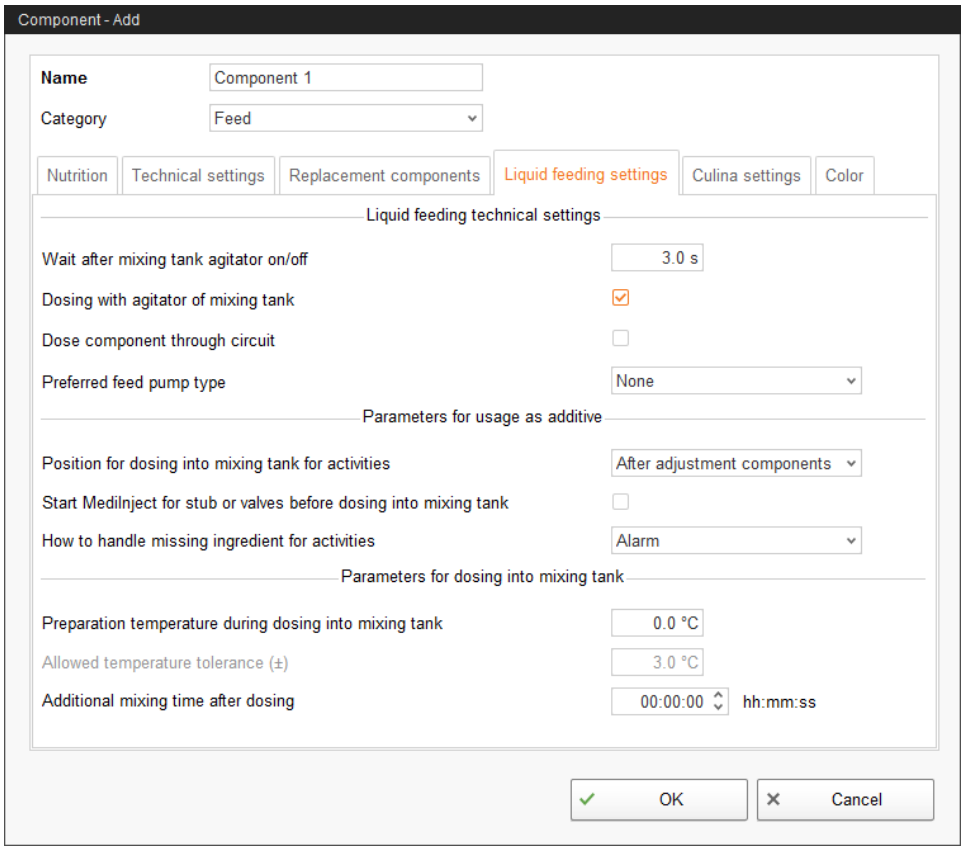
– If the component is dissolved in water, change the presetting under **Specific weight**, if necessary.

7. Select one or more replacement components from the tab "Replacement components" in case the component you entered is used up before a new order arrives. If you select more than one replacement, you may sort them in descending order according to priority.



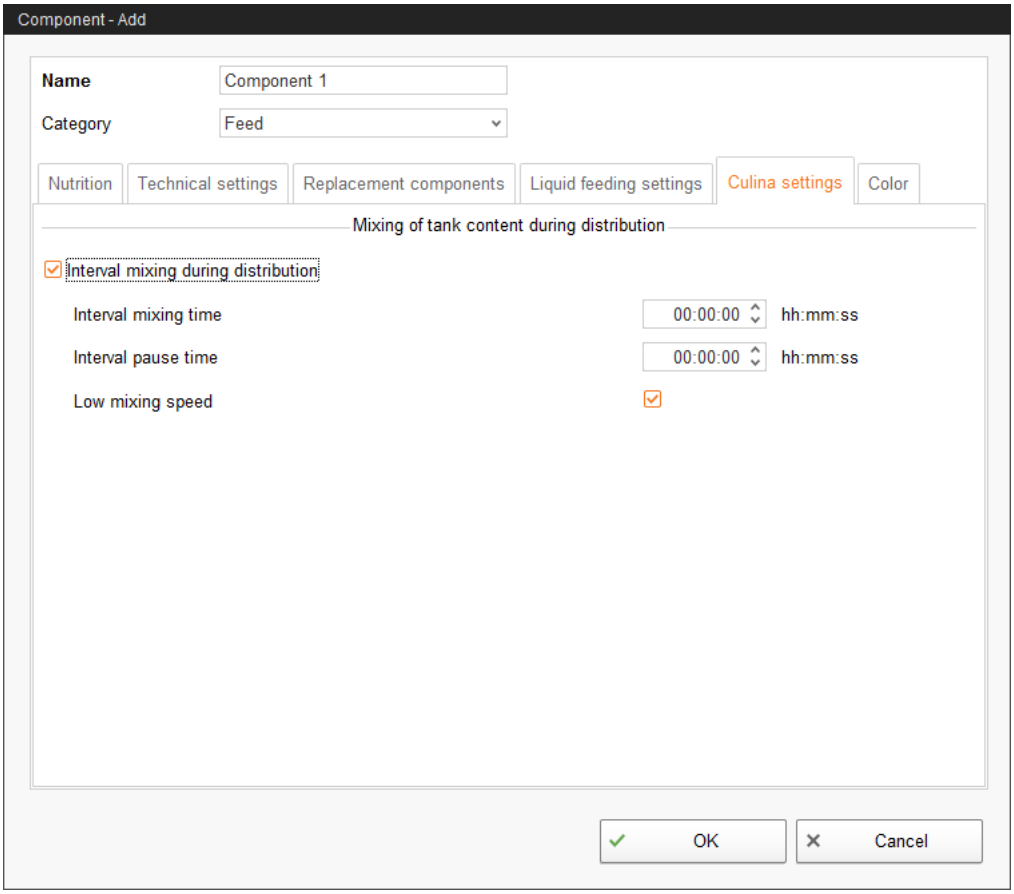
8. Configure the necessary settings under the tab "Liquid feeding settings".
   – The bottom part, **Parameters for dosing into mixing tank**, applies to the CulinaMix*pro* application:

     The temperature values that must be defined are target values. The parameter **Additional mixing time after dosing** ensures that the component can dissolve at the stated temperature.

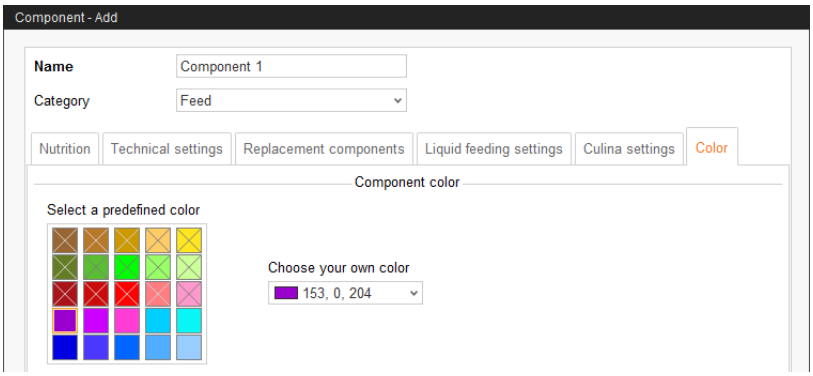


9. Define the values for the agitator during distribution under the tab "Culina settings":
   – If the box **Interval mixing during distribution** is not checked, the agitator will mix permanently.

   The system uses the longest mixing time and the shortest pause time when mixing multiple components.



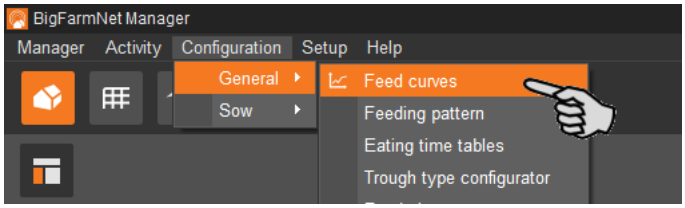
10. Select a color for the component under the tab "Color". This makes recognizing components in the feed curve easier and lets you distinguish specific components from others during evaluation.



11. Click on "OK" after you have configured all settings.

4.3 Defining a feed curve

1. In the menu "Configuration" > "General", click on "Feed curves".

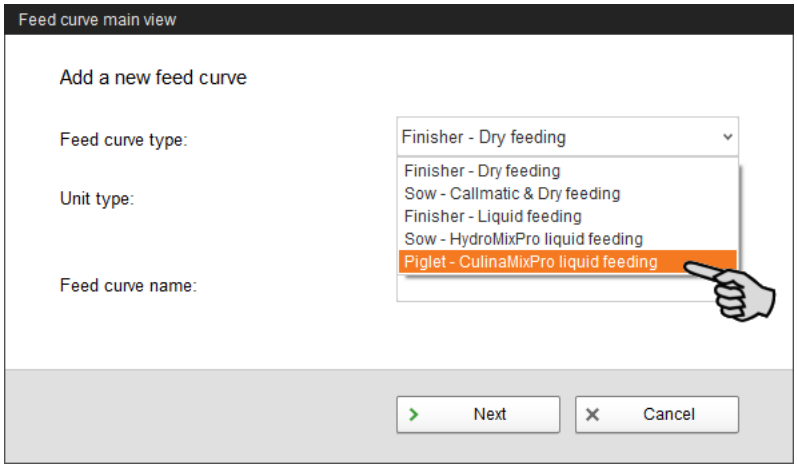


2. In the dialog window "Feed curve list", click on "Add".

   You can edit, copy or remove created feed curves later on, if necessary.

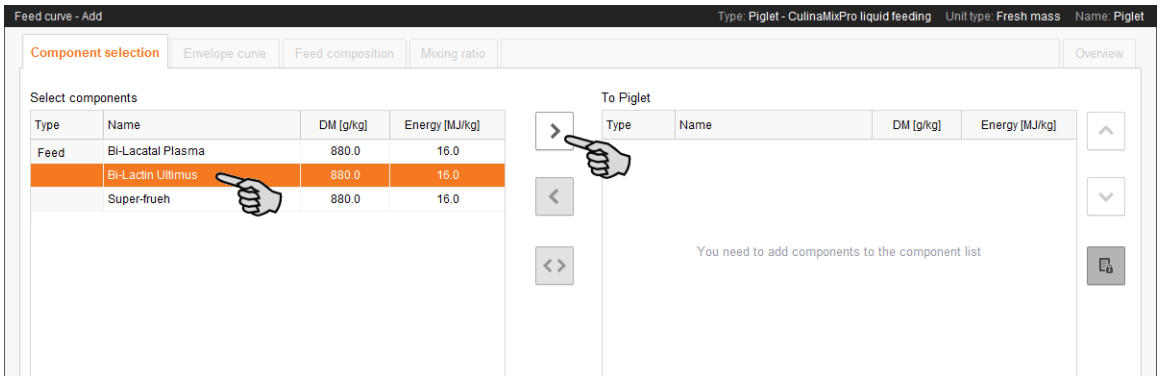
3. In the next window, select the feed curve type "Piglet – CulinaMixPro liquid feeding" and enter a name for the feed curve.

   The unit type is set to "Fresh matter" automatically.



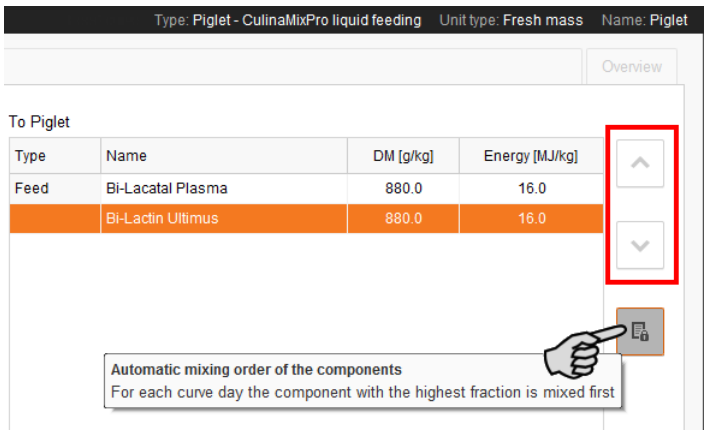
4. Click on "Next".

5. From the component list in the upper left-hand part of the window, select the dry components for your feed curve by either double clicking on the component in the list or by clicking on the arrow button.



6. If necessary, define an order for the components.

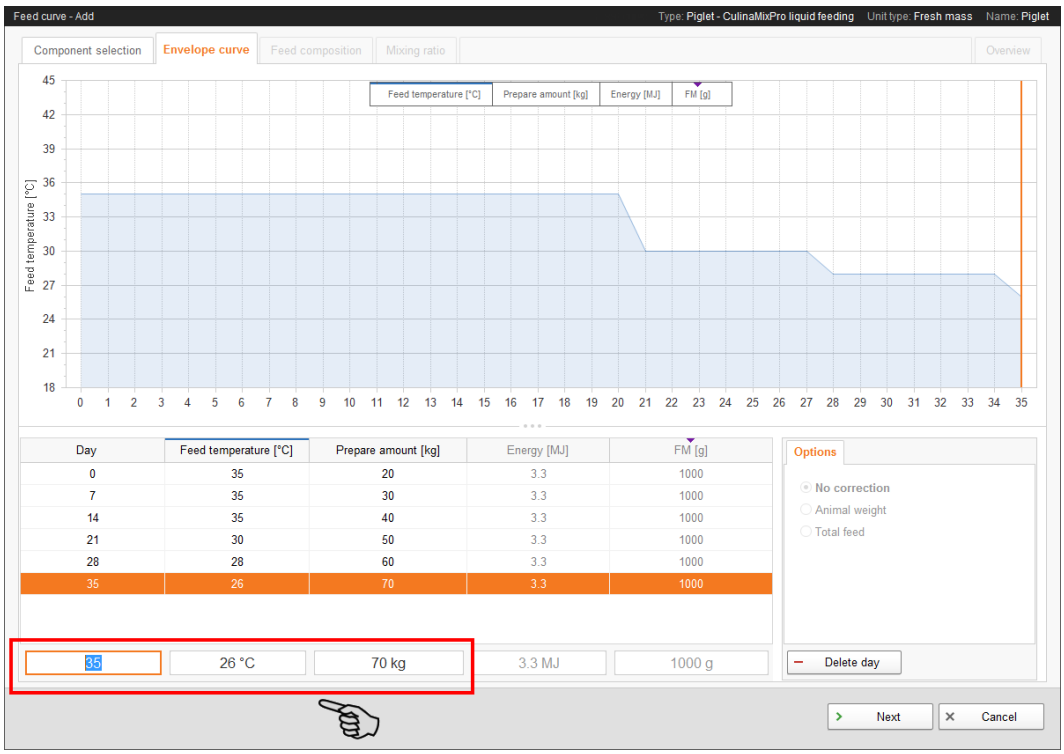
   By default, the function "Automatic mixing order of the components" is active (button highlighted in gray). This means that the component with the largest fraction always enters the mixing tank first. Click on the button to deactivate the function and to define a different order using the arrows.



7. Click on "Next".

8. Define the feed curve under the tab "Envelope curve".

   a) Enter values for the following parameters in the input fields below the table: **(Curve) Day**, **Feed temperature** (distribution temperature), **Preparation amount** for each mixture plus pipe content (amount that is actually supplied to the animals)..



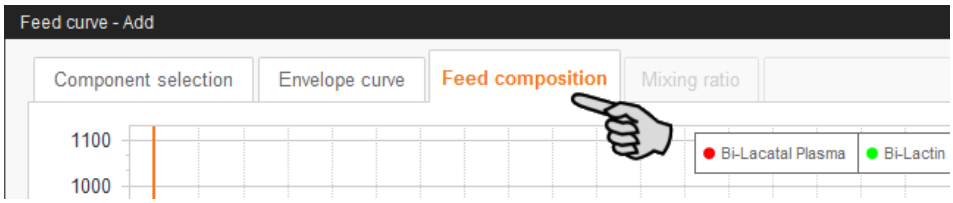
b) Press Enter after you have determined a time period for the curve.

c) Continue by entering further curve days.

The curve in the diagram will take shape the more curve days you enter.

9. Click on "Next" after you have completed all inputs.

10. Define the percentage share of the different components for one curve period under "Feed composition". The fractions always add up to 100 %.



a) Click on the desired curve day in the list.

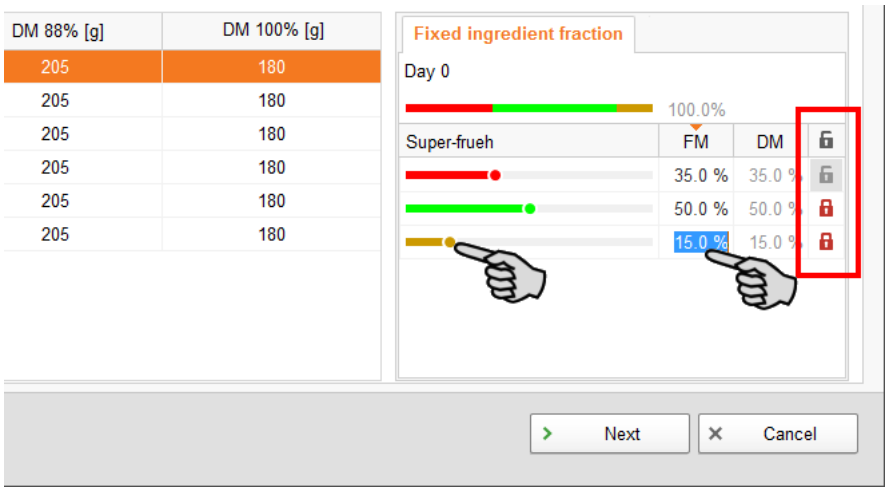
You can also edit multiple curve days at the same time: Press and hold down the Ctrl key, then click on all curve days you want to assign the same percentage.

b) In the pane "Fixed ingredient fraction", enter the value into the field next to the colored line for the component.

Or:

Define the value by extending or shortening the colored line: Click on the dot and hold the mouse button. Move the mouse into the desired direction.

c) If there are more than two components, click on the padlock icon to fix component fractions. Such locked values will not be changed when defining further component fractions.



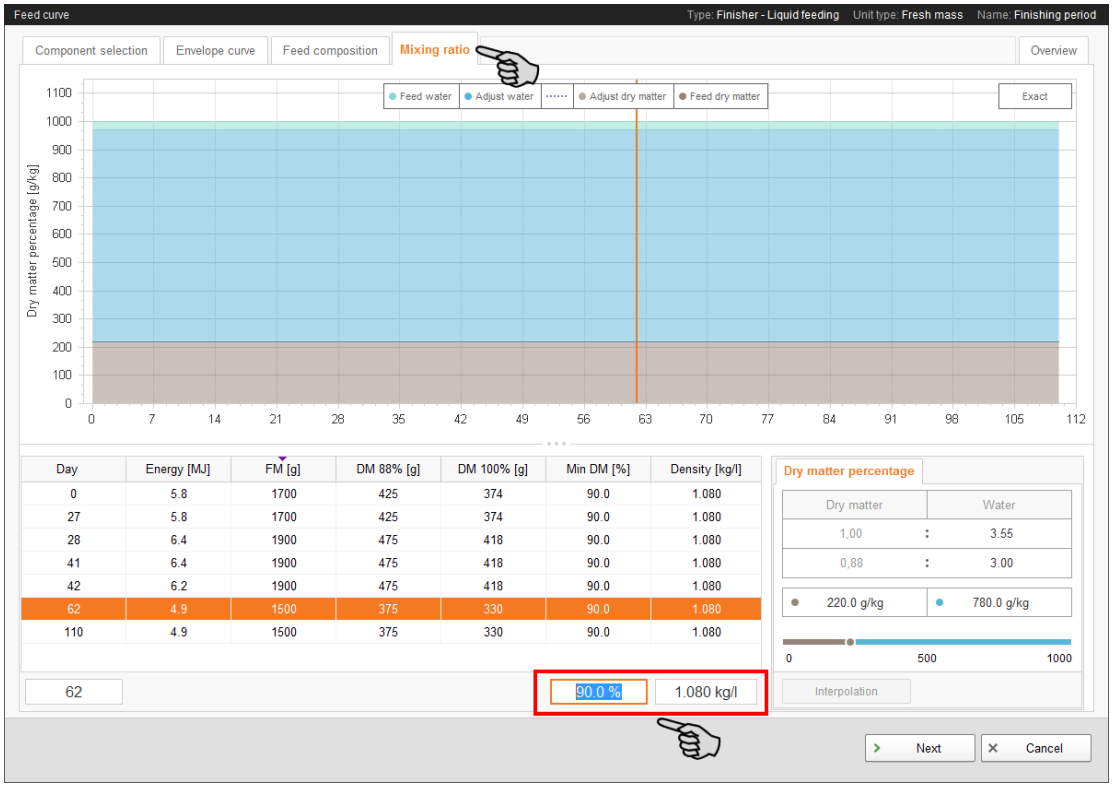
11. Under the tab "Mixing ratio", define the dry matter (feed) and water percentages for the corresponding curve time period.

    a) Click on the desired curve day in the table.

    You can also edit multiple curve days at the same time: Press and hold down the Ctrl key, then click on all curve days you want to assign the same percentage.

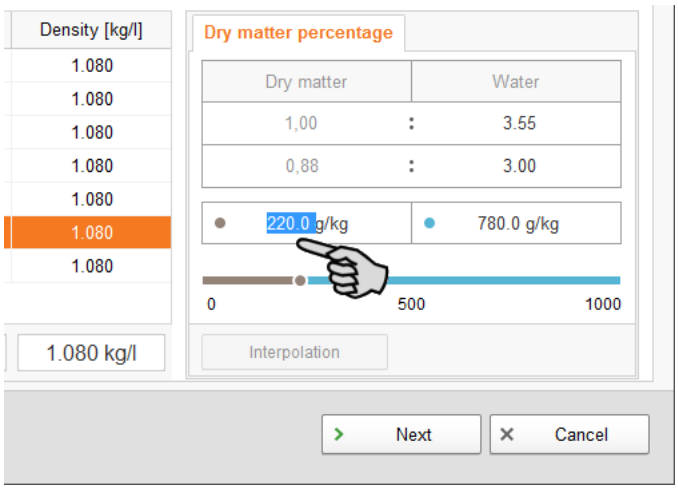
    b) Enter the minimum dry matter percentage (Min DM) into the input field below the respective column.

    c) Enter the density into the input field below the respective column, if necessary.

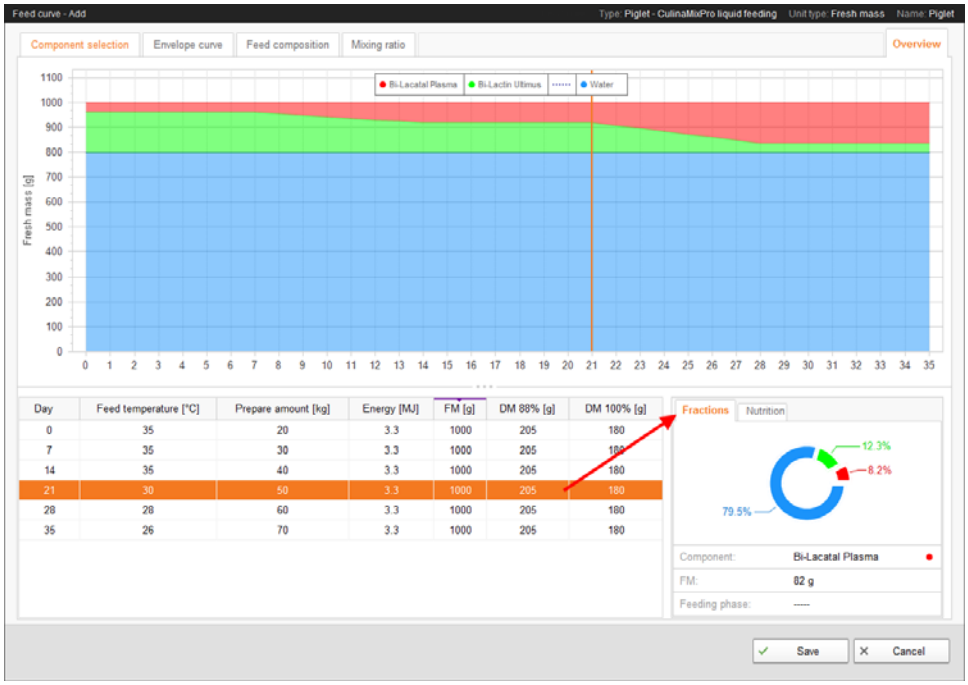


d) In the pane "Dry matter percentage", enter either the value for dry matter or for water.

The other value and the ratio are calculated automatically.



12. Click on "Next" to move to the "Overview" tab.



This tab shows a summary of the feed curve you created. Use the overview to verify your settings. It is, however, not possible to make any changes here.

Click on the individual curve days to see the corresponding information in the "Fractions" window, and the nutritional values under the "Nutrition" tab.

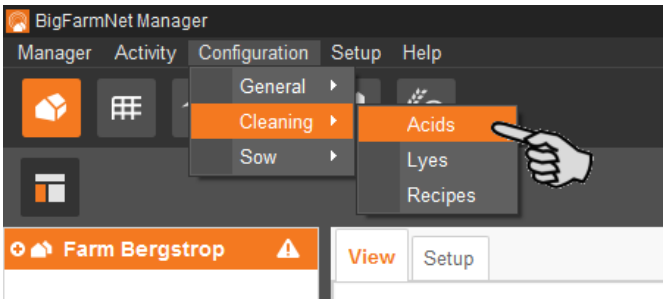
13. Click on "Save" to save all settings.

5 Cleaning components

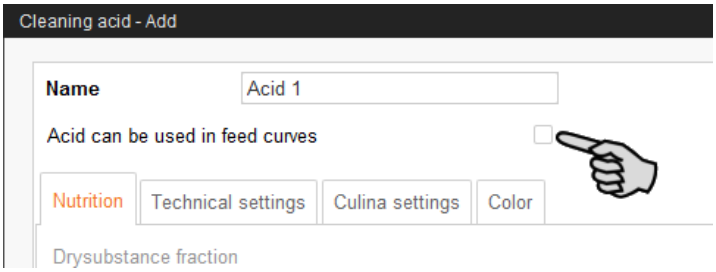
5.1 Creating an acid / a lye

Acids and lyes are treated separately in BigFarmNet Manager. However, menu navigation for adding acids and lyes is identical. The following instructions explain how to create an acid as an example.

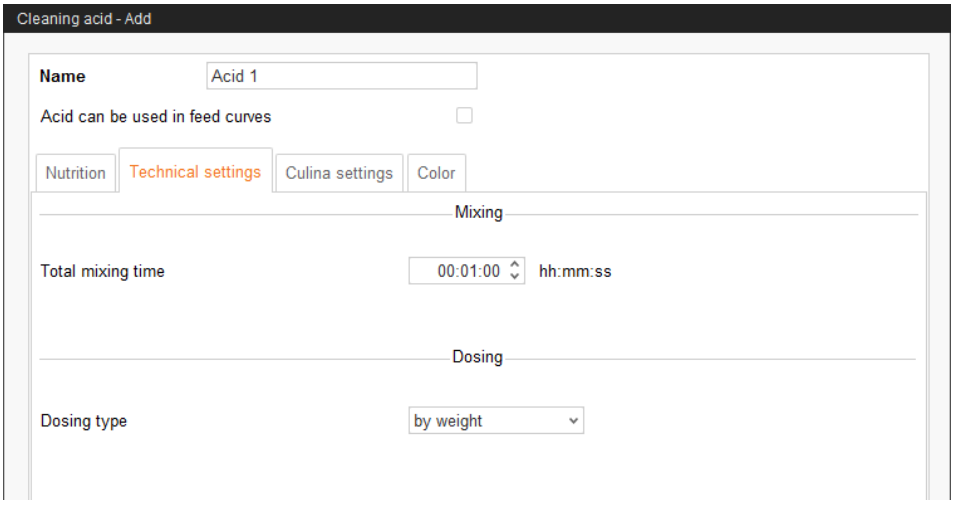
1. In the menu "Configuration" > "Cleaning", click on "Acids".



2. In the next dialog window, click on "Add".
3. Enter a name for the acid and activate the option that the acid may be used in feed curves by checking the box, if necessary. This option does not exist for lyes and is therefore not displayed in the corresponding dialog!



4. Define parameters for feed preparation in the mixing tank and dosing under the tab "Technical settings".

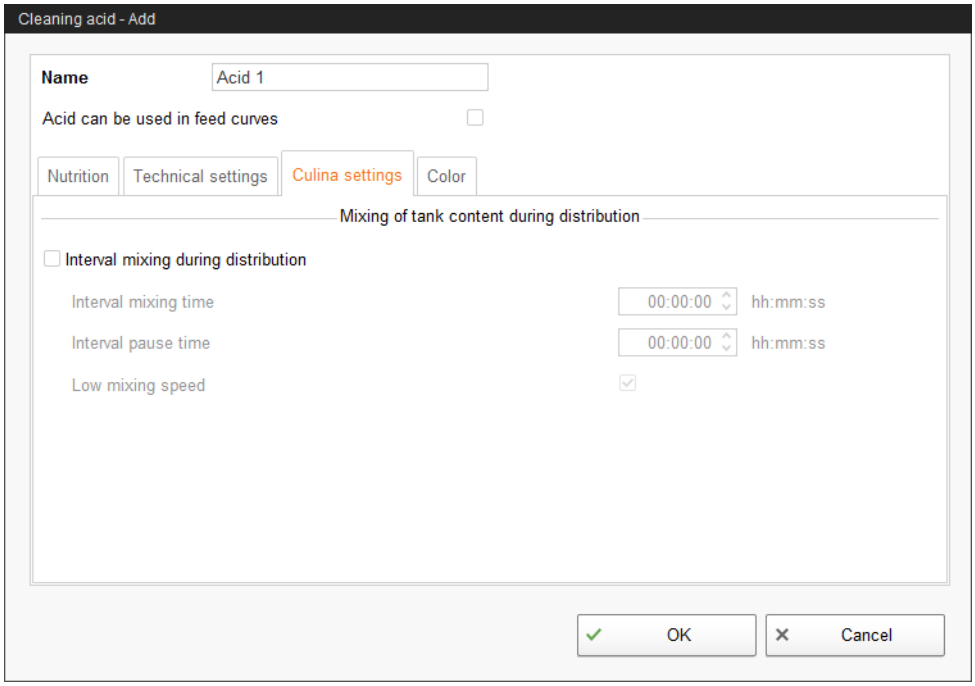


– Under **Total mixing time**, define a duration for mixing of the acid.

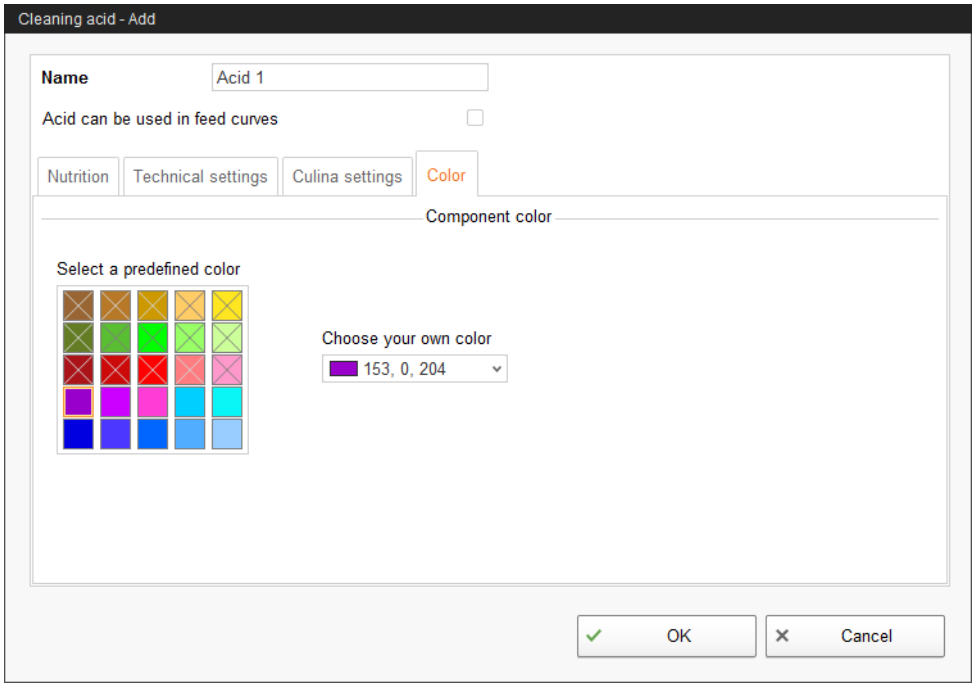
– Select the **Dosing type**, either "by weight" or "by time".

5. Define the values for the agitator during distribution under the tab "Culina settings":

– If the box **Interval mixing during distribution** is not checked, the agitator will mix permanently.



6. Select a color for the acid under the tab "Color".

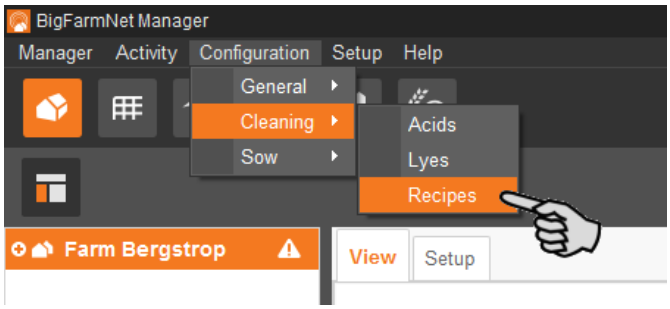


7. Click on "OK" after you have configured all settings.

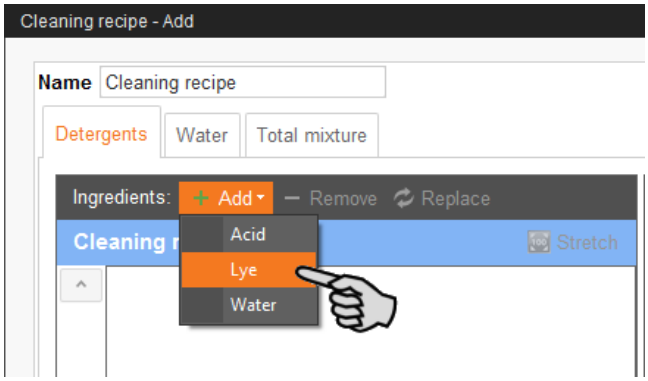
5.2 Creating a cleaning recipe

Use the acids and lyes you have set up to create a recipe for cleaning. Observe the instructions on the packaging of the cleaning component, e.g. regarding temperature. Recipes for cleaning are used in the task "Circuit cleaning according to a recipe", for example, see chapter 7.1.5.

1. In the menu "Configuration" > "Cleaning", click on "Recipes".



2. In the dialog window "Cleaning recipe", click on "Add".
3. Enter a name for the recipe.
4. Add the correct cleaning component under the first tab "Detergents".

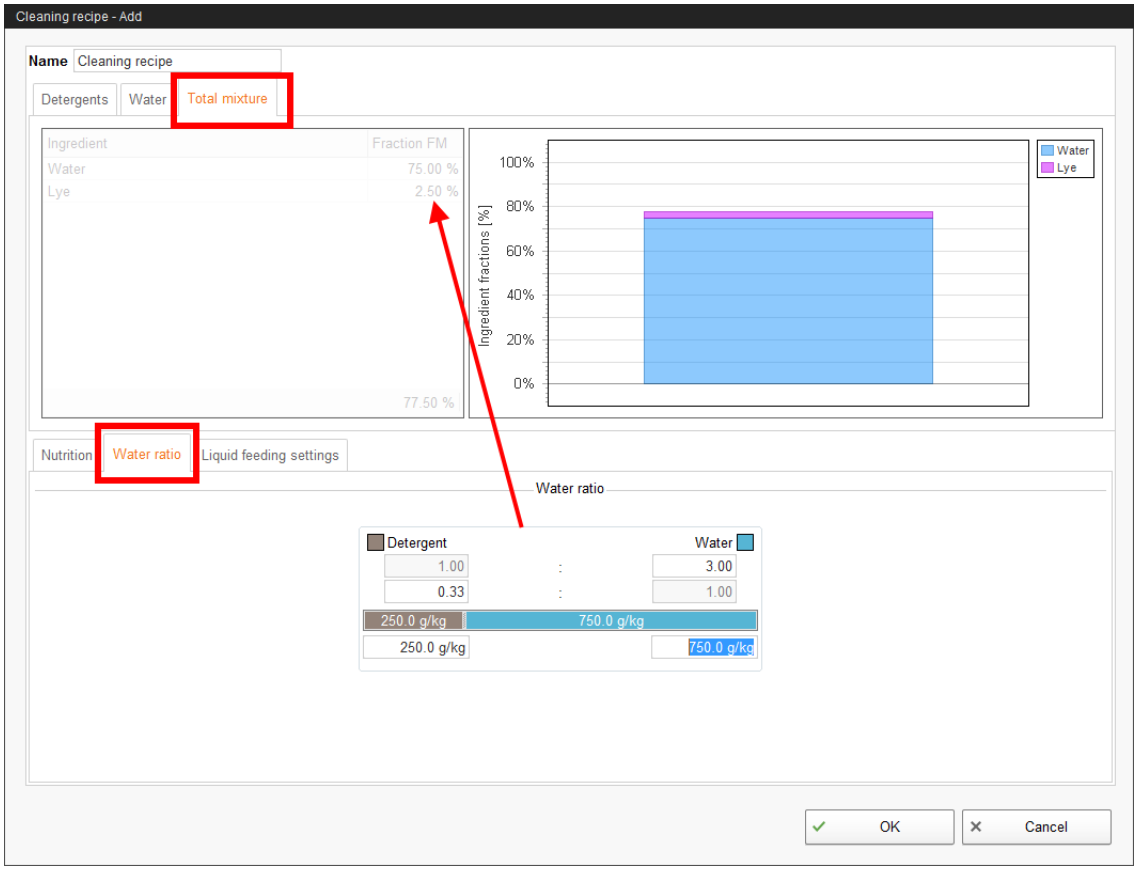


5. Define the mixing ratio between the cleaning component and water:

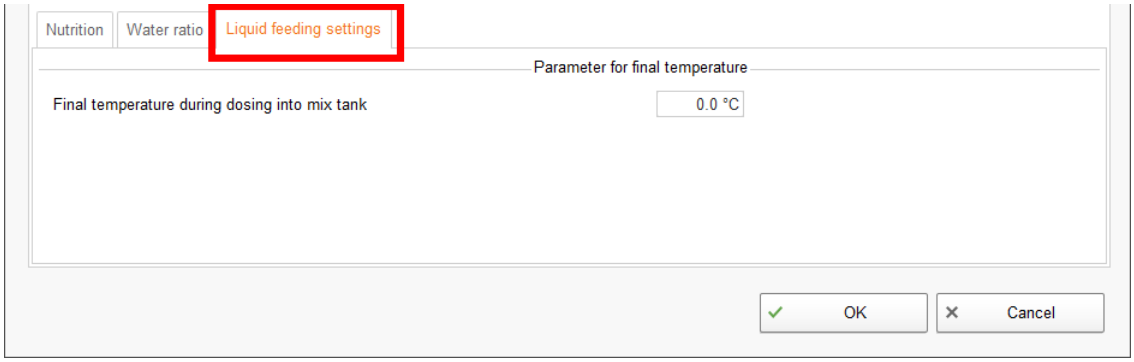
   a) Click on the tab "Total mixture", and in the lower part of the window on the tab "Water ratio".

   b) Enter the amount of the cleaning component.

   The ratio is calculated automatically and the percentages are indicated in the upper part of the window, also automatically.



6. In the lower part of the window, define the temperature of the mixture under "Liquid feeding settings".



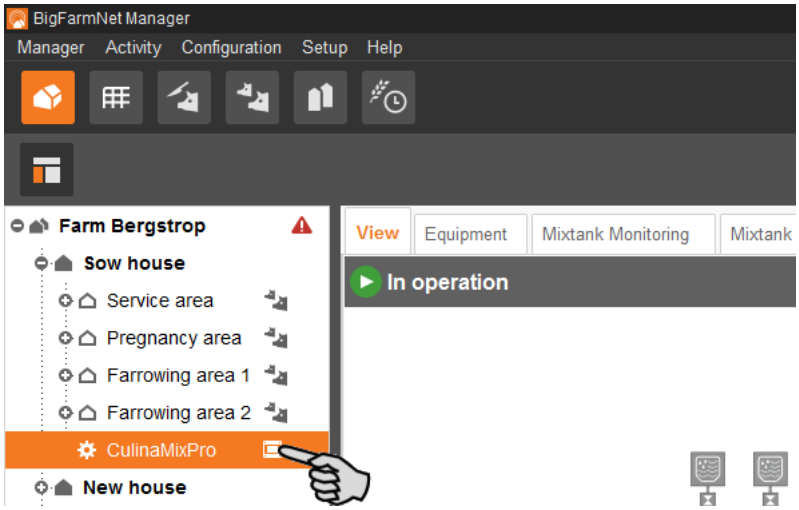
7. Click on "OK" after you have configured all settings.

6 Configuration of the application

Settings for the application are configured under the "Equipment" tab. Parameter values can be changed as necessary at any time to meet individual requirements.

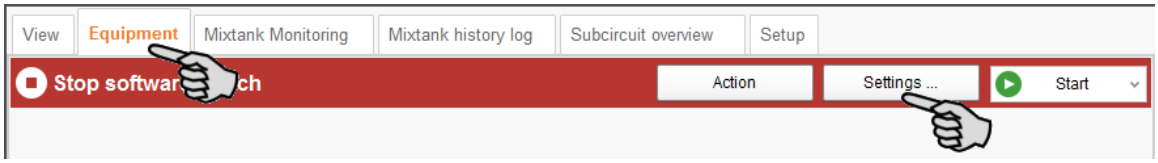
Open the setting parameters as follows:

1. In the farm structure, click on the controller icon of the system you want to edit.

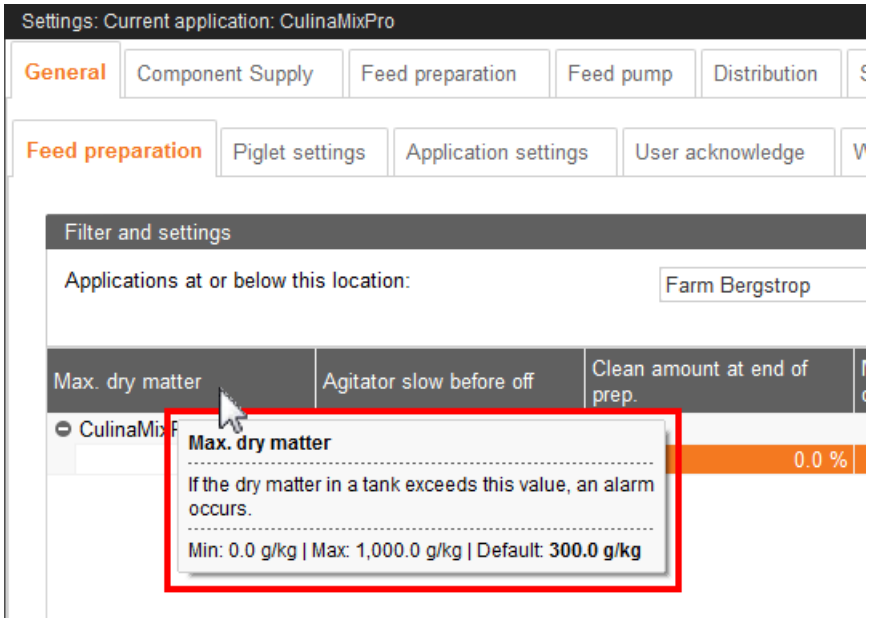


Check whether the application is running. If necessary, stop the application in BigFarmNet Manager by clicking on the "Stop" button.

2. In the upper right corner under the "Equipment" tab, click on "Settings...".



The settings dialog opens with multiple tabs. The first open tab is called "General". All parameters for the functions of the system components you created beforehand in the Composer become active in the different tabs. These parameters are described in the following chapters. Define the corresponding values for the parameters. Change pre-set values, if required.



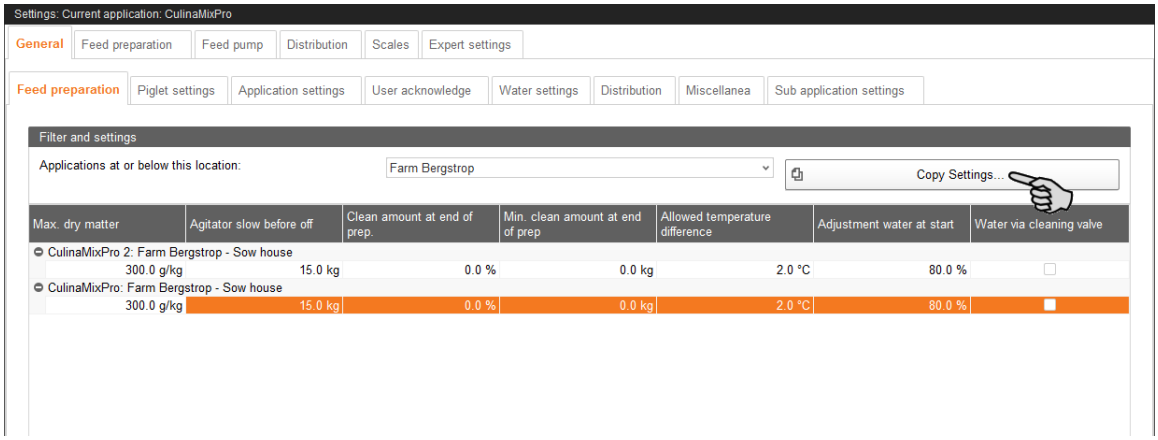
	Tooltips available! Move the mouse pointer over input fields or parameters in tables to see detailed descriptions for this parameter.

6.1 Copying the settings of a system

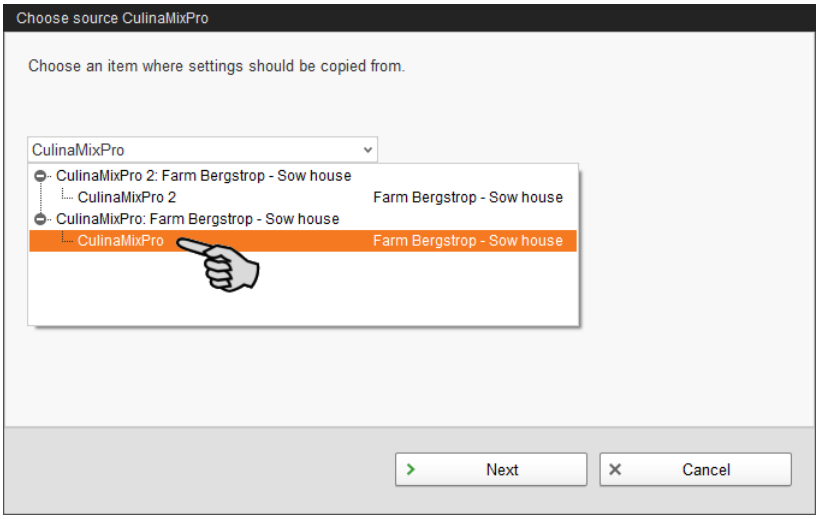
If multiple systems (applications) of the same type are to be configured with the same settings, you can define the settings for one system and copy them to other systems. The copy function is permanently available in the settings dialog.

Proceed as follows:

1. Configure the settings for one system.
2. Click on the button "Copy Settings..." in the top part of the window.



3. In the next dialog window, select the system whose settings you want to copy.



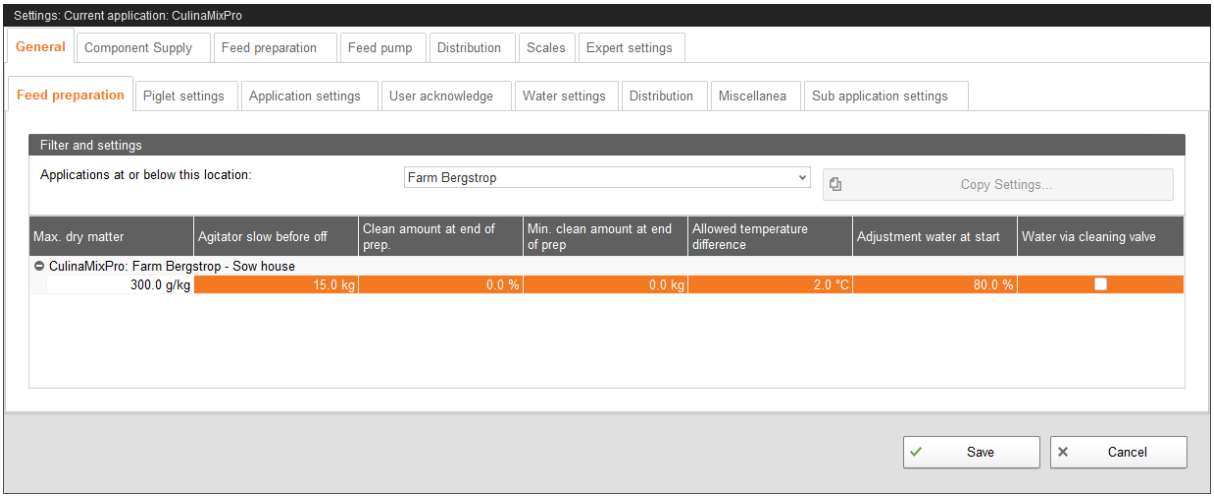
4. Click on "Next".
5. Select all systems to which you want to transfer these settings in the next dialog window.

6. Click on "Copy". The settings are now transferred to all selected systems.

	Only click on the "Save" button after having set all necessary parameters in the available tabs. Clicking on the "Save" button closes the entire settings dialog, which must be reopened to make further edits. Saved changes are immediately applied to the respective system(s)!

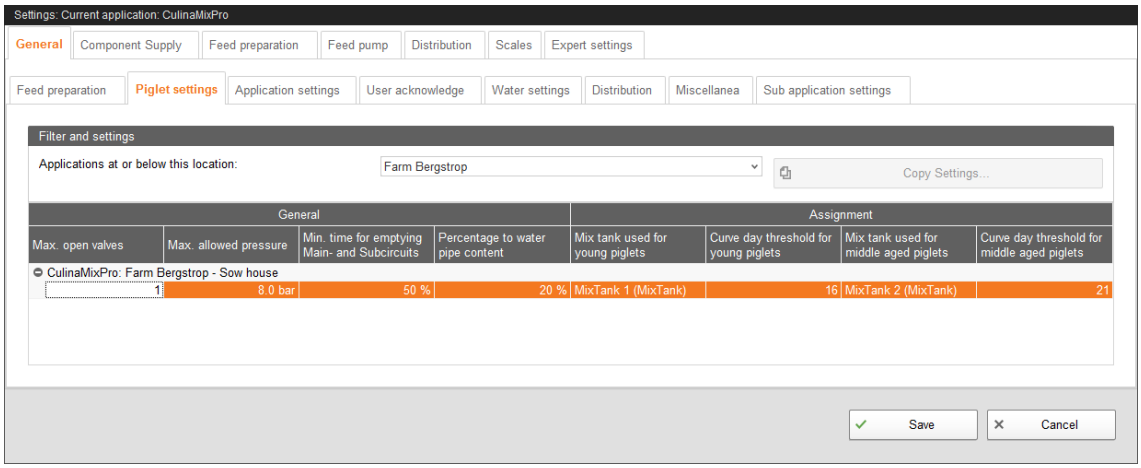
6.2 General

6.2.1 Feed preparation (general)



- **Maximum dry matter:** If this value is exceeded during filling of the mixing tank, an alarm is generated.
- **Agitator slow before off:** When a component is conveyed into a mixing tank or a pre-mixer while the agitator is running (a setting for the component), the agitator mixes quickly at first. As soon as the remaining amount that still needs to be dispensed corresponds to the value given here, the agitator switches to a slower mode. If the value given here is greater than the total amount, the agitator mixes slowly from the beginning.
- **Cleaning amount at end of preparation:** If water is used as replacement component, the amount of water given here is dispensed by the cleaning valve after preparation. This requires that the amount is greater than the given minimum amount, see "Minimum cleaning amount at end of preparation".
- **Minimum cleaning amount at end of preparation:** If the calculated percentage "Cleaning amount at end of preparation" is below this value, no water is dispensed by the cleaning valve after preparation.
- **Allowed temperature difference** in the mixing tank during mixing.
- **Adjustment water at start** is used to regulate the temperature. The remaining amount is also used to reach the correct temperature, e.g. if feed is added manually.
- **Water via cleaning valve:** Instead of the normal water valve, the cleaning valve dispenses the water into the mixing tank.

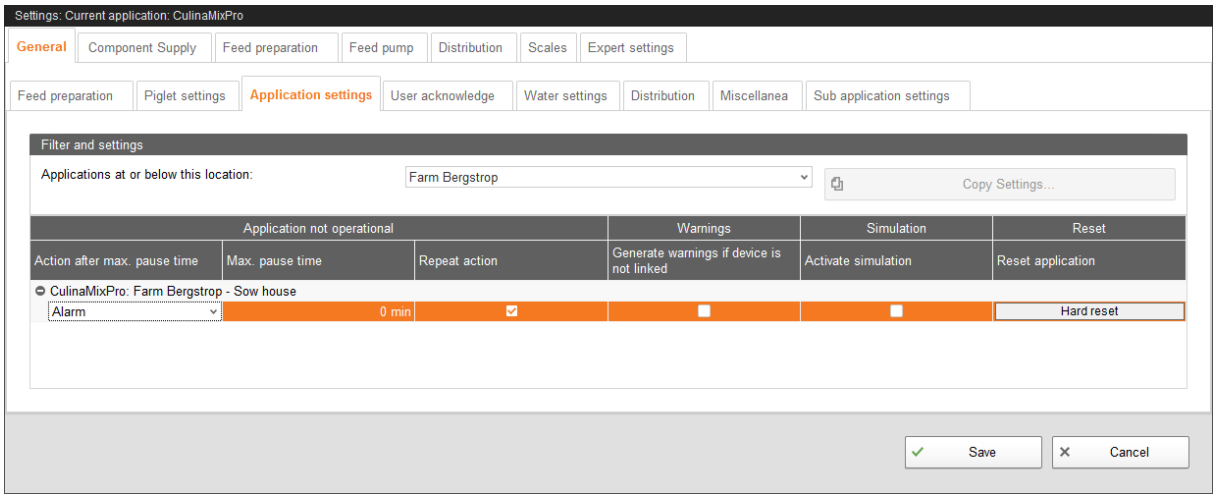
6.2.2 Piglet settings



- **General**
  - **Maximum open valves:** Number of valves that are open at the same time.
  - **Maximum allowed pressure:** This parameter is a safety function. The system measures the conveying pressure in the pipes, which must not exceed the set value.
  - **Minimum time for emptying main and subcircuits**, based on the filling time.
  - **Percentage to water pipe content** to dilute the pipe contents in steps. The percentage refers to the pipe volume, which can be found in the expert settings. This parameter is only applicable where pipes are cleaned with water only.
- **Assignment**

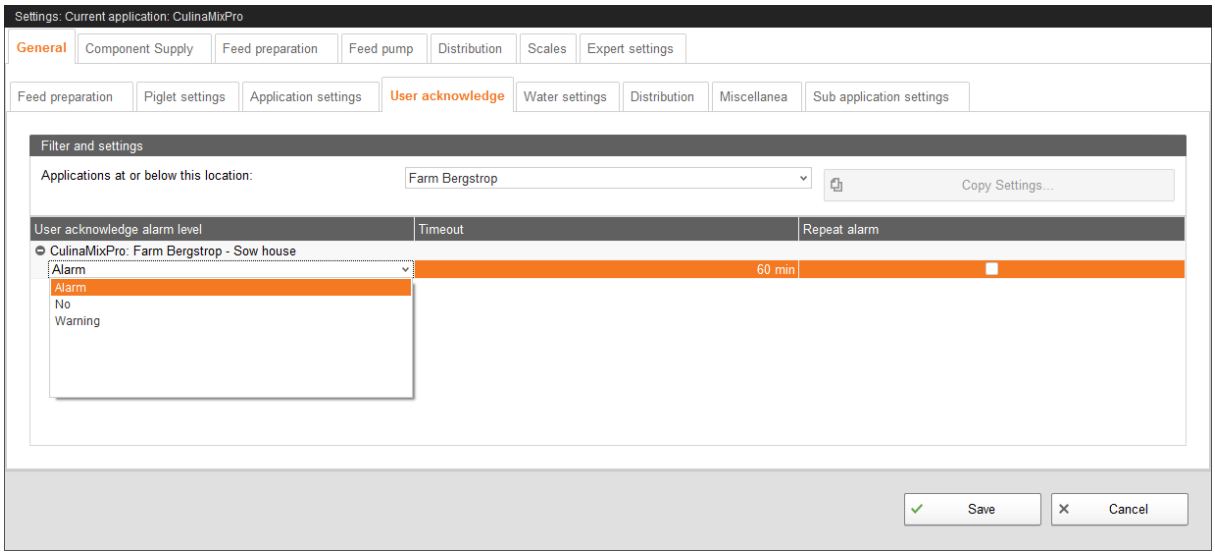
  Use the curve days to define the order of the mixing tanks emptied to feed piglets of different ages under "Assignment".
  - **Mixing tank used for young piglets**
  - **Curve day threshold for young piglets:** Feed is taken from the "mixing tank used for young piglets" until the curve day entered here. This means that piglets that are younger or of the same age as the indicated curve day receive feed from the "mixing tank for young piglets".
  - **Mixing tank used for middle-aged piglets**
  - **Curve day threshold for middle-aged piglets:** Feed is taken from the "mixing tank used for middle-aged piglets" until the curve day entered here. This means that piglets that are younger or of the same age as the indicated curve day receive feed from the "mixing tank for middle-aged piglets".

6.2.3 Application settings



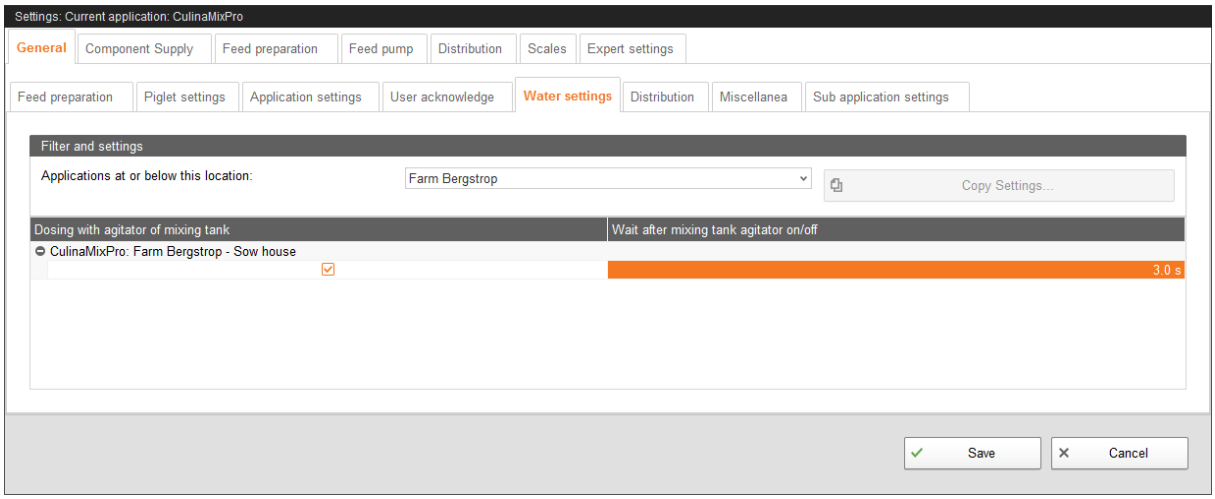
- **Application not operational**
  - **Action after maximum pause time** can be set to be either an alarm, a warning or no action at all ("No").
  - **Maximum pause time:** If the application does not run for a time longer than set here (pause or error), an alarm or a warning (depending on what is set for "Action after maximum pause time") is issued. If the time is set to 0 minutes, there is no maximum pause time.
  - **Repeat action:** When this box is checked, the action (alarm, warning or no action) is repeated every time the maximum pause time expires.
- **Warnings**
  - **Generate warnings if device is not linked**
- **Simulation**
  - **Activate simulation:** You need to restart the control process when you activate the simulation. The control process starts when you click on the button "Restart application" in the IO Manager. Mainly the scales, the sensors and the flow meters are simulated. For example, feeding or tank cleaning can be simulated without hardware with this function. When you deactivate the simulation, you need to restart the control again by clicking on the button "Restart application".
- **Reset**
  - **Reset application**

6.2.4 User acknowledgement



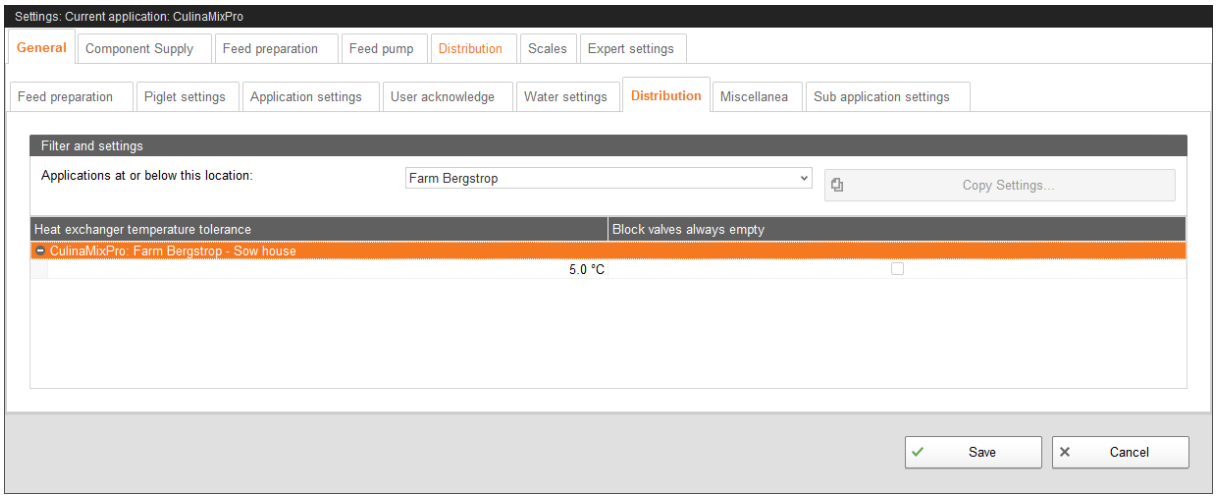
- **User acknowledgement alarm level**
- **Timeout:** You need to manually confirm the action, e.g. the manual filling of components, within the time set here. Otherwise, the status "User acknowledgement alarm level" will be issued.
- **Repeat alarm** after the period under "Timeout" has been exceeded.

6.2.5 Water settings



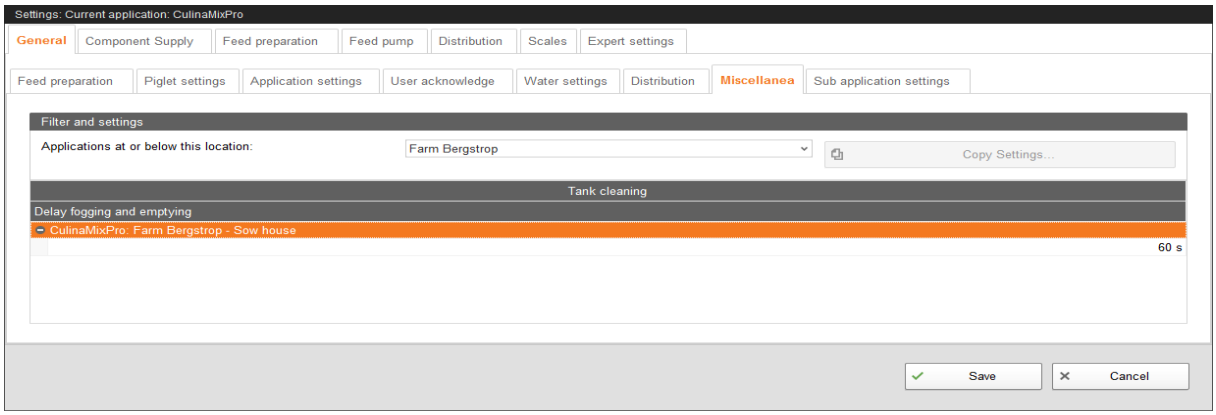
- **Dosing with agitator of mixing tank:** Use this setting to define whether the system uses water for mixing, e.g. if cold and warm water are used to regulate the temperature in a specific way.
- **Wait after mixing tank agitator on/off:** When the agitator is switched from "on" to "off" (and vice versa), the agitator waits for the time indicated here before water is filled into the mixing tank.

6.2.6 Distribution (heat exchanger)



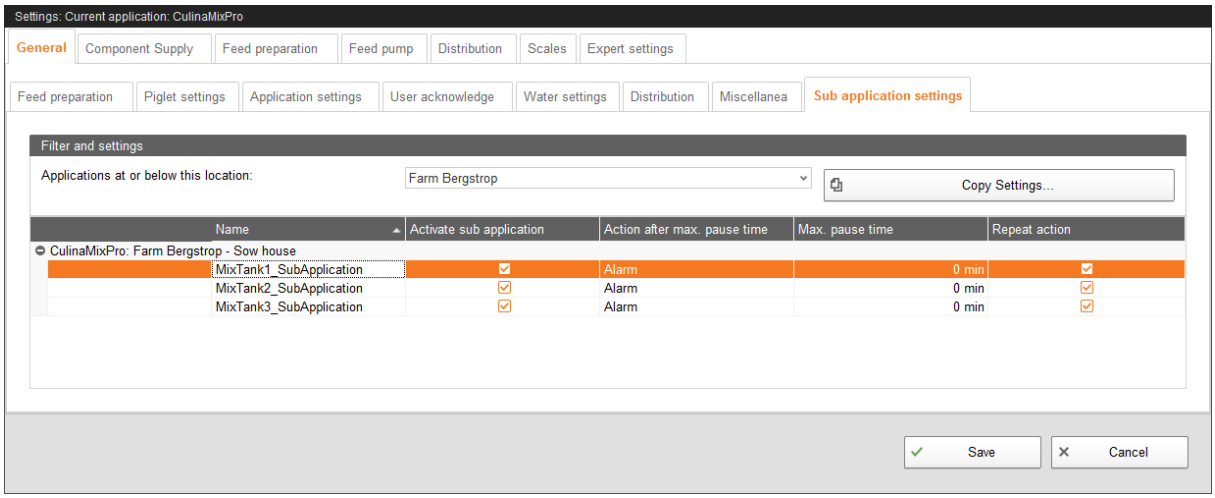
- **Heat exchanger temperature tolerance** is a switching threshold for the heat exchanger. If the feed temperature drops below this tolerance value, the heat exchanger is activated.

6.2.7 Miscellaneous (tank cleaning)



- **Delay fogging and emptying:** Waiting time between two cleaning processes to allow the compressor to build up pressure.

6.2.8 Sub-application settings

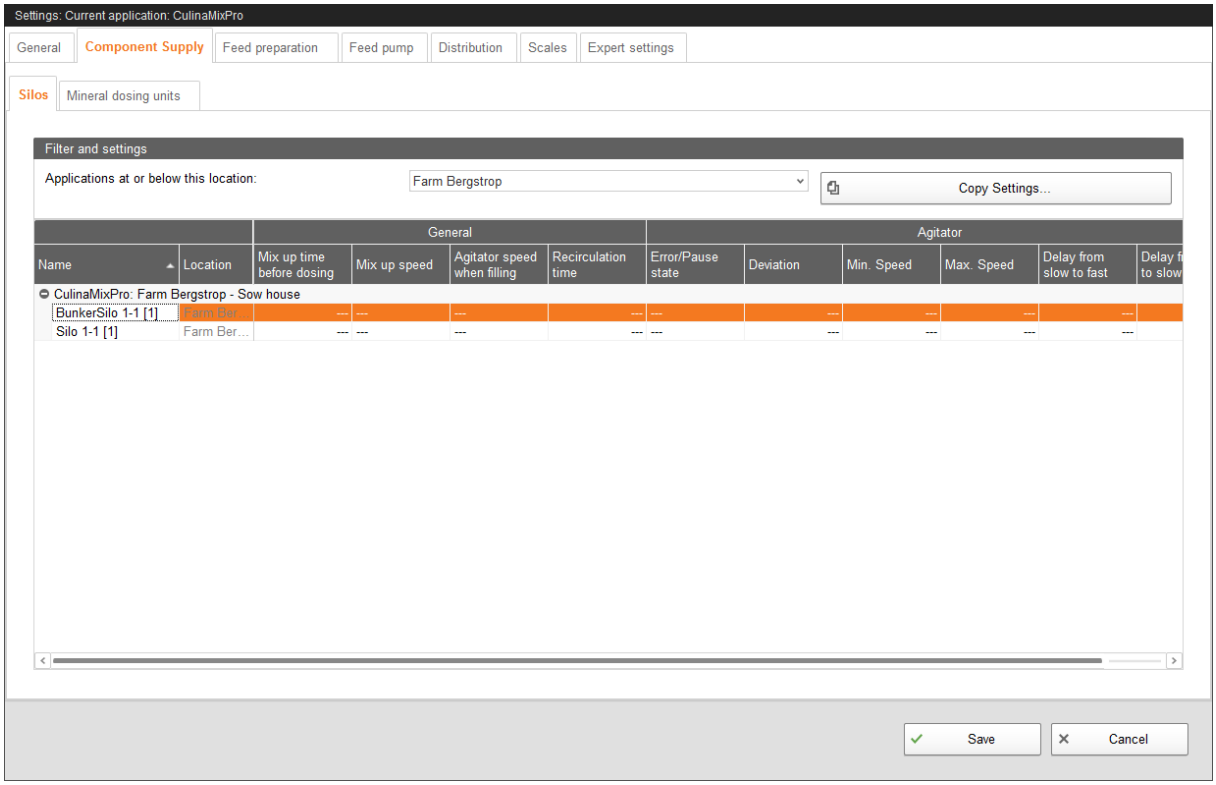


The CulinaMix*pro* mixing tanks are individual sub-applications. Mixing tanks can be locked for a specified time period, e.g. in case of damage.

- **Activate sub-application:** The mixing tanks are active by default. Click into the box to remove the checkmark if you want to lock the mixing tank.
- **Action after maximum pause time** can be set to be either an alarm, a warning or no action at all ("No").
- **Maximum pause time:** If the application does not run for a time longer than set here (pause or error), an alarm or a warning (depending on what is set for "Action after maximum pause time") is issued. If the time is set to 0 minutes, there is no maximum pause time.
- **Repeat action:** When this box is checked, the action (alarm, warning or no action) is repeated every time the maximum pause time expires.

6.3 Component supply

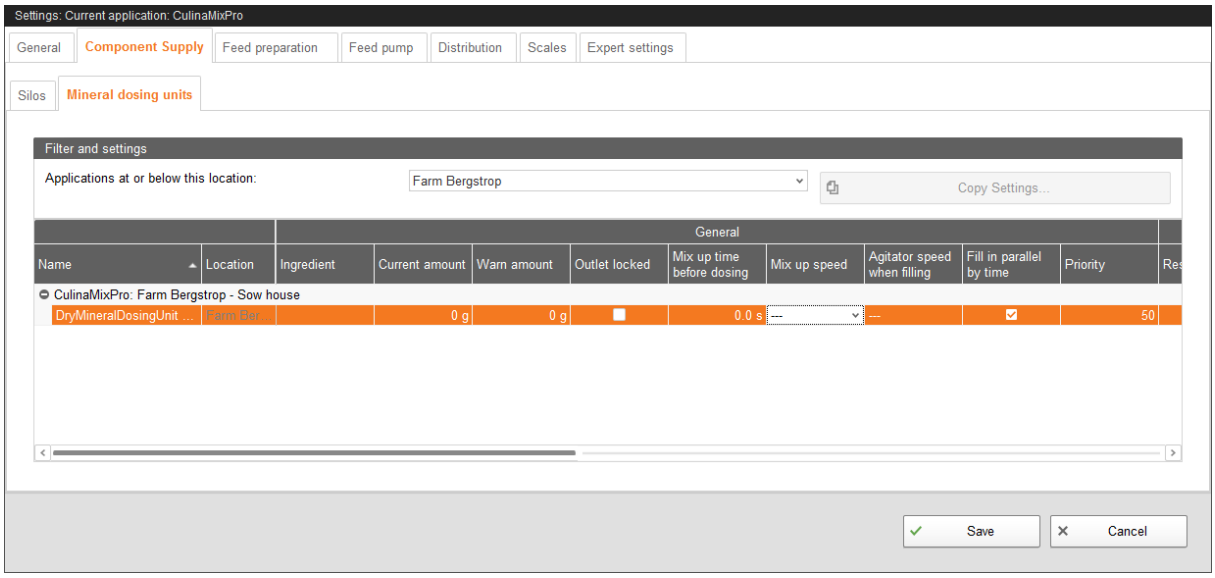
6.3.1 Silos



- **General** (applicable for the mixing tank)
  - **Mix-up time before dosing:** This setting only applies to silos with agitator. The parameter defines the duration for which the silo contents are mixed before the component is dispensed into the mixing tank or pre-mixer.
  - **Mix-up speed:** This setting only applies to silos with agitator. The parameter defines the speed at which the agitator mixes before dosing. For an agitator with direct start, only the option "On" is available. For double-stage agitators with tapped winding or for agitators with frequency inverter, select either the option "Slow" or "Fast".
  - **Agitator speed when filling:** This setting only applies to silos with agitator. The parameter defines the agitator speed during dosing into the mixing tank. The options "on/off" or "fast/slow/off" are available.
  - **Recirculation time:** This is the duration for which the components are recirculated in the liquid silo before the component is dispensed into the mixing tank. If mixing is also planned for the liquid silo, the contents are recirculated after mixing. This setting only applies for a liquid silo if recirculation is possible in the silo.

- **Agitator**
  - **Error/Pause state**
  - **Deviation:** This setting only applies to agitators in weighed silos and is necessary if a curve has been created for the agitator. The deviation is the tolerance value ensuring that the agitator is not switched regularly because the weight deviates from the value of the curve point.
  - **Minimum speed:** This setting only applies to agitators with frequency inverter. Set the maximum frequency here. If the tank is not weighed, the maximum frequency is used for fast mixing.
  - **Maximum speed:** This setting only applies to agitators with frequency inverter. Set the minimum frequency here. If the tank is not weighed, the minimum frequency is used for slow mixing.
  - **Delay from slow to fast / Delay from fast to slow:** These delay times ensure that there is no direct switching from minimum to maximum speed and vice versa.

6.3.2 Mineral dosing units



- **General**
  - **Name:** Name of the system component
  - **Ingredient:** Indicates the content of the mineral dosing unit.
  - **Current amount:** Indicates the current fill level in the mineral dosing unit. The control adjusts this amount when ingredients are removed.

- **Warning amount:** A warning is issued when the content drops below this warning amount.
- **Outlet locked:** No ingredients are removed from the mineral dosing unit as long as this box is checked.
- **Mix-up time before dosing:** This setting only applies to mineral dosing units with agitator. The parameter defines the duration for which the contents are mixed before the component is dispensed into the mixing tank or pre-mixer.
- **Mix-up speed:** This setting only applies to silos with agitator. The parameter defines the speed at which the agitator mixes before dosing. For an agitator with direct start, only the option "On" is available. For double-stage agitators with tapped winding or for agitators with frequency inverter, select either the option "Slow" or "Fast".
- **Agitator speed when filling:** This setting only applies to silos with agitator. The parameter defines the agitator speed during dosing into the mixing tank. The options "on/off" or "fast/slow/off" are available.
- **Fill-in parallel by time**
- **Priority:** Priority is a whole number between 0 and 100, with 100 meaning the highest priority. If a component can be removed from multiple tanks during preparation, the tank with the highest number is selected. If the priority is identical, the component is removed from the tank from which it was removed during the last preparation.

- The **Calibration** process is carried out as follows:

  a) Define a period for which the mineral dosing unit should run, e.g. 10 seconds, under **Time calibration**.

  b) Place a container underneath the mineral dosing unit to collect the dispensed amount.

  c) Click on "Start" under **Start calibration** and the mineral dosing unit starts dispensing for the set time.

  d) Weigh the amount dispensed into the container after the mineral dosing unit has completed dosing.

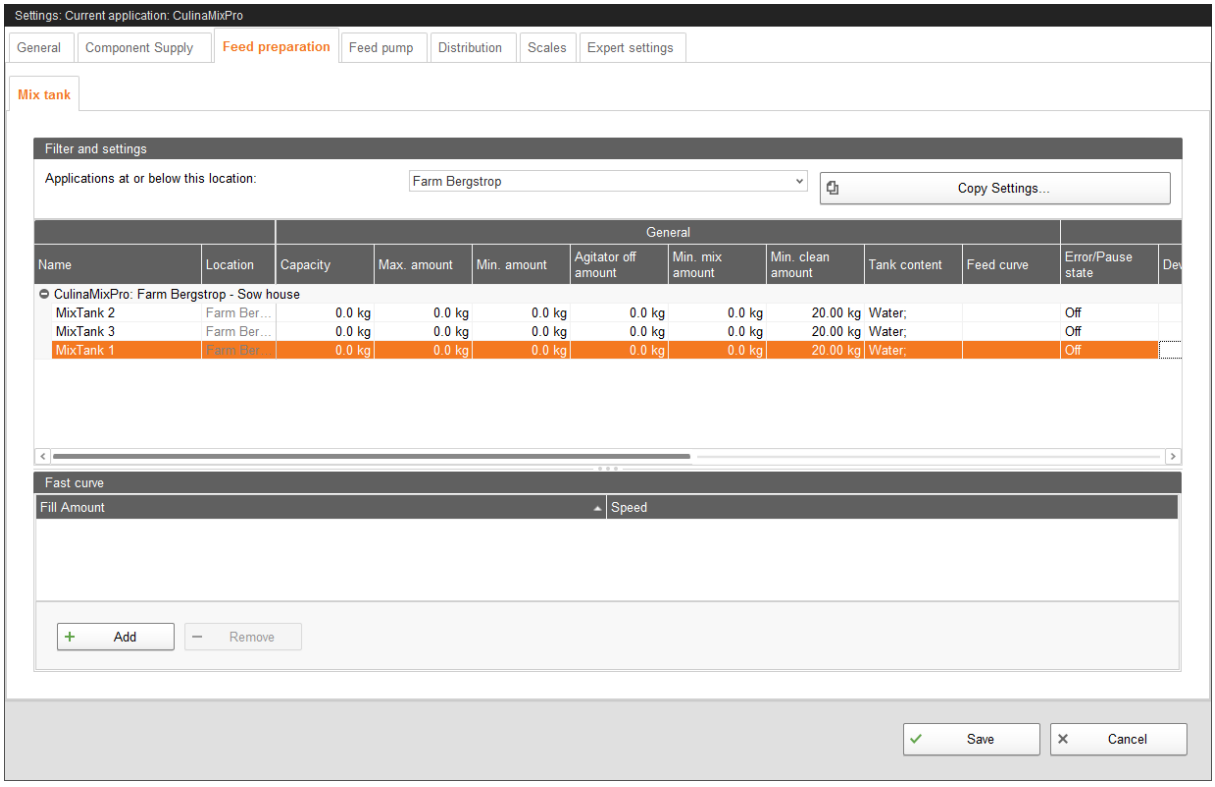
  e) Enter the weight under **Result amount**.

  The **Speed** is only an information calculated from the values **Result amount** and **Time calibration**.

- **Agitator**
  - **Error/Pause state**

- **Deviation:** This setting only applies to agitators in weighed silos and is necessary if a curve has been created for the agitator. The deviation is the tolerance value ensuring that the agitator is not switched regularly because the weight deviates from the value of the curve point.
- **Minimum speed:** This setting only applies to agitators with frequency inverter. Set the maximum frequency here. If the tank is not weighed, the maximum frequency is used for fast mixing.
- **Maximum speed:** This setting only applies to agitators with frequency inverter. Set the minimum frequency here. If the tank is not weighed, the minimum frequency is used for slow mixing.
- **Delay from slow to fast / Delay from fast to slow:** These delay times ensure that there is no direct switching from minimum to maximum speed and vice versa.

6.4 Feed preparation (mixing tank, agitator)



- **General**
  - **Capacity** of the mixing tank
  - **Maximum amount** defines the maximum amount that can be filled into the mixing tank. The maximum amount should be slightly lower than the capacity due to the residual flow volume.

- **Minimum amount** defines the minimum amount that always remains in the mixing tank.
- **Agitator off amount:** The agitator is switched off if the amount in the tank reaches or is below this value during distribution. This is to prevent air from being drawn in, for example.
- **Minimum mix amount:** The minimum amount required for mixing. Mixing is not possible below this amount for technical reasons.
- **Minimum clean amount:** The minimum amount of water required for tank cleaning.
- **Tank content:** Use this parameter to adjust the mixing tank content manually.
- **Feed curve:** Use this parameter to assign a feed curve to the mixing tanks.

• **Agitator**

- **Error/Pause state:** Use this parameter to define how an agitator behaves if the application or the sub-application is in error or pause mode. However, this setting only applies if pause or error occur during feeding.
- **Deviation:** This setting only applies to agitators in weighed silos and is necessary if a curve has been created for the agitator. The deviation is the tolerance value ensuring that the agitator is not switched regularly because the weight deviates from the value of the curve point.
- **Minimum speed:** This setting only applies to agitators with frequency inverter. Set the maximum frequency here. If the tank is not weighed, the maximum frequency is used for fast mixing.
- **Maximum speed:** This setting only applies to agitators with frequency inverter. Set the minimum frequency here. If the tank is not weighed, the minimum frequency is used for slow mixing.
- **Delay from slow to fast / Delay from fast to slow:** These delay times ensure that there is no direct switching from minimum to maximum speed and vice versa.

• **Pause distribution settings**

- **All full time span:** If all valves linked to this mixing tank indicate that they are full for the period defined here, the system goes into pause mode for the time defined under "Pause time span".
- **Pause time span**, see "All full time span"

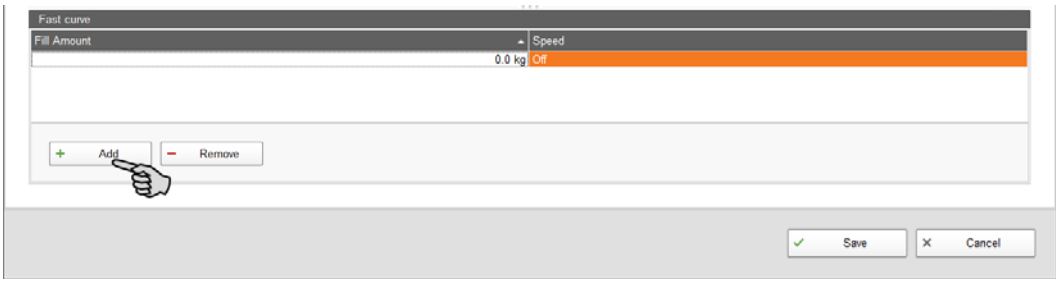
- **Fast/slow curve**

  Depending on the switching of the used agitator, you can create a fast and/or a slow curve in the lower part of the dialog window.

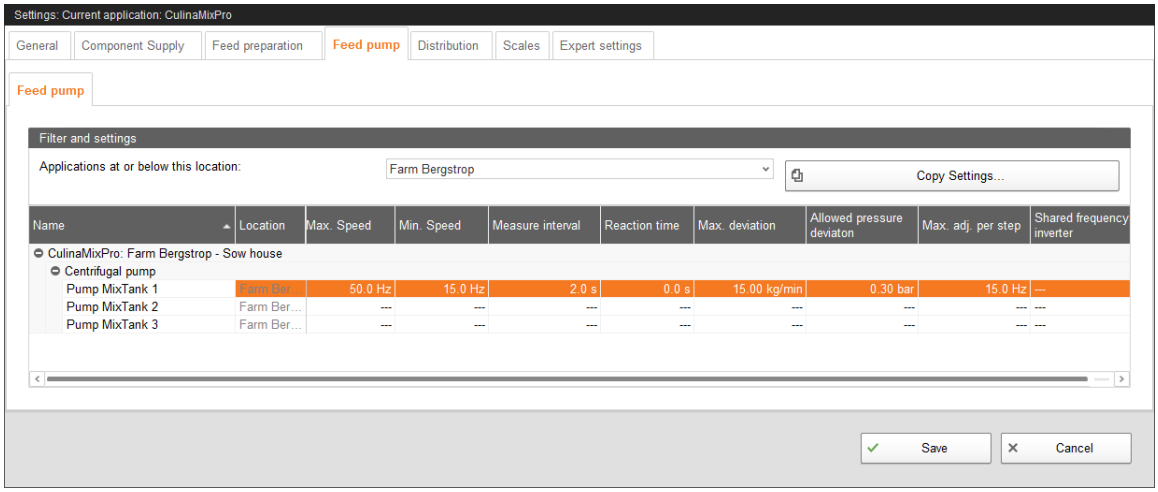
  a) Click on "Add".

  b) Enter the fill amount and select the corresponding speed.

  c) To make another input, click on "Add" again.



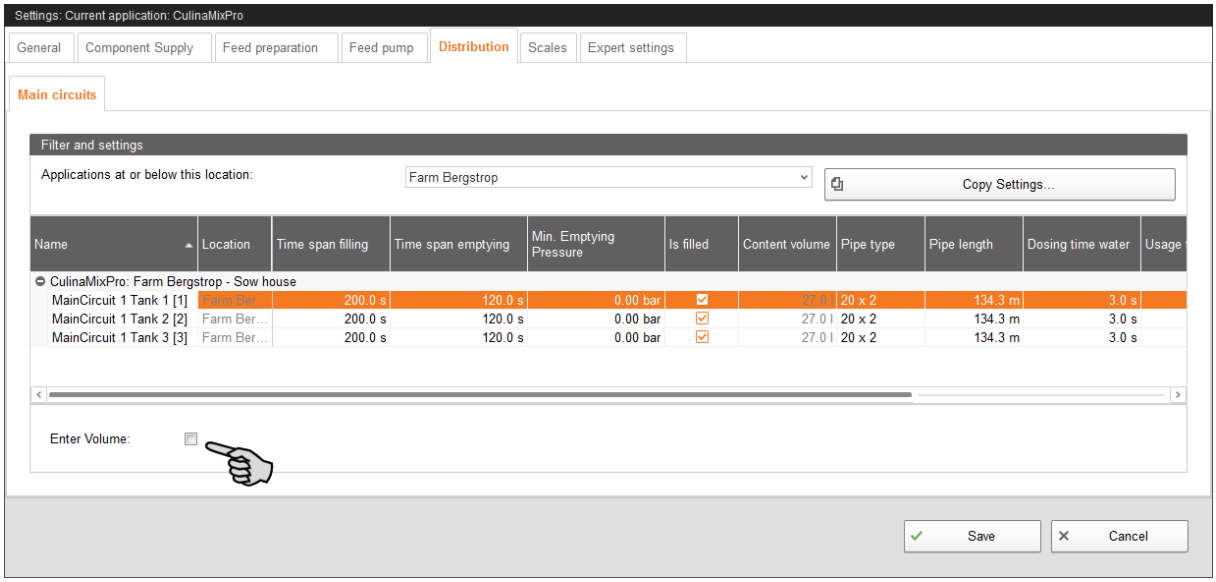
6.5 Feed pump



- **Maximum speed:** Setting of the maximum frequency of the pump's frequency inverter.
- **Minimum speed:** Setting of the minimum frequency of the pump's frequency inverter.
- **Measure interval** to control the speed.
- **Reaction time** or waiting time is the duration for which the system waits after adjusting the speed before the next speed measurement starts with the set measuring interval.
- **Maximum deviation** from the target speed. If the measured speed deviates from the target speed by more than this value, a new frequency is set so the measured speed meets the target speed more closely.

- **Allowed pressure deviation:** Tolerance value for deviation from the allowed pressure in the pipe. This parameter ensures that feed is conveyed constantly, which is important for time-controlled feed metering.
- **Maximum adjustment per step:** This parameter is used to keep the control from changing the frequency too much at each adjustment. This may specifically make sense for centrifugal pumps.
- **Shared frequency inverter:** Setting of the frequency inverter that controls the pump. This parameter only applies if the pump is controlled by a shared frequency inverter. "Shared" means that two system components use (share) the same frequency inverter, provided that these components never run at the same time, such as the feed pump and the component supply. For example, a shared frequency inverter cannot be used for agitator and feed pump.

6.6 Distribution (main circuits)



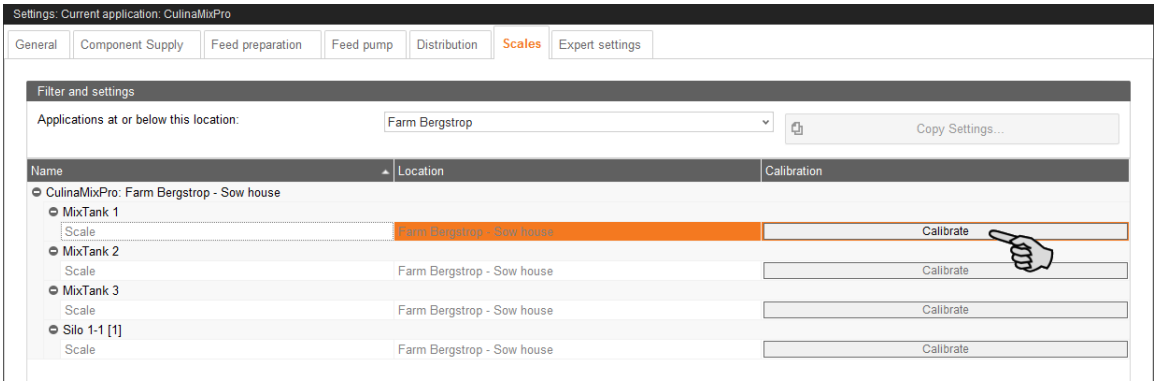
- **Time span filling:** The time period required to fill the main circuit completely at the start of feeding.
- **Time span emptying:** The time period required to empty the main circuit completely after the end of feeding.
- **Minimum emptying pressure**
- **Is filled** indicates whether the main circuit is filled or not. This setting can be adjusted manually.

- **Content volume** (pipe content) is calculated automatically from "Pipe type" and "Pipe length". The volume can also be entered directly if the box "Enter volume" is checked. The parameter "Pipe length" is deactivated in this case.
- **Pipe type**
- **Pipe length:** If the box "Enter volume" is checked, it is not possible to make inputs for the pipe length.
- **Dosing time water** is the water valve's opening time. This parameter play a role for cleaning. The pipes are cleaned by water within this time. Afterwards, air is pushed through the pipes, see the next parameter, "Usage time air".
- **Usage time air:** Air is pushed through the pipes during this time after they have been flushed with water.
- **Clean amount mix:** In case of cleaning with recipe, this amount is mixed additionally.
- **Recirculate after pause time:** After a pause, the pipe content recirculates for this time before it is distributed. This parameter refers to "Feed preparation" parameters or to the manual pause (by stopping the system).

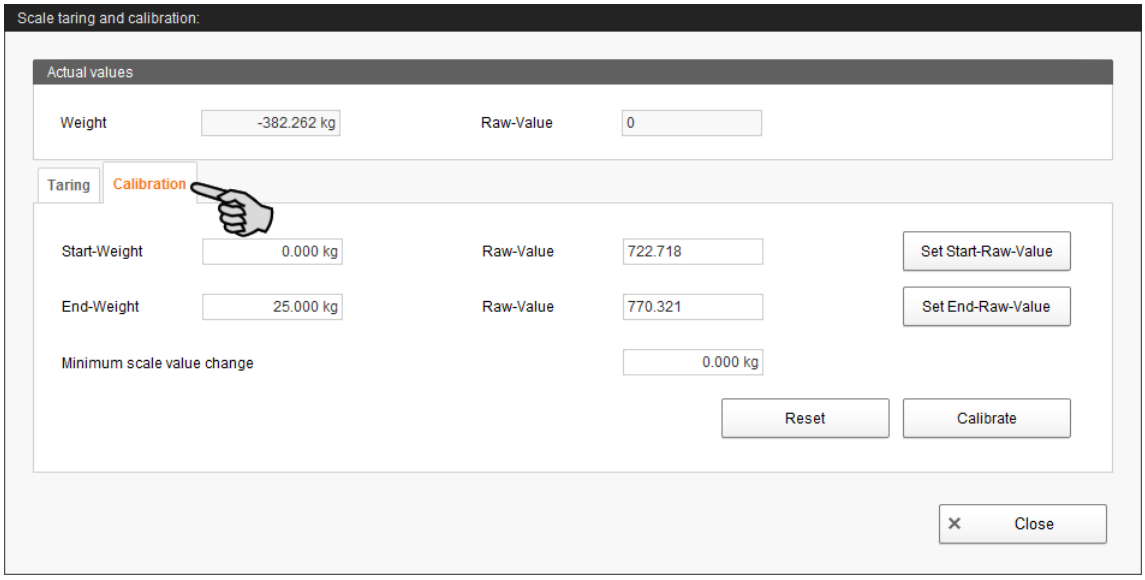
6.7 Scales

Use this tab to tare and calibrate each mixing tank individually.

1. Click on "Calibrate" next to the correct mixing tank.



2. To calibrate, click on the "Calibration" tab.

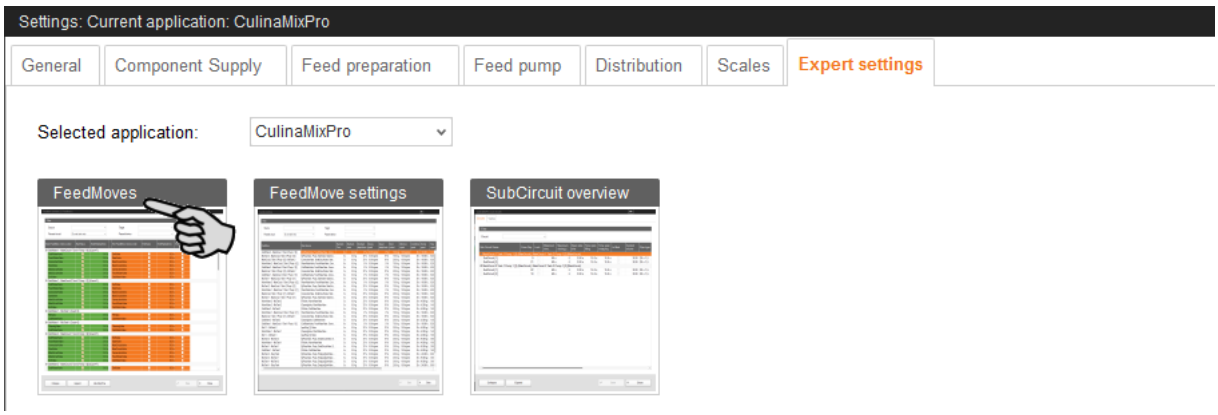


3. Enter the start weight (usually the value 0) and confirm the value by clicking on the button "Set start raw value".
4. Enter the end weight and confirm the value by clicking on the button "Set end raw value".
5. Click on the "Calibrate" button to complete the calibration process.
6. Click on "Close" to close the dialog.

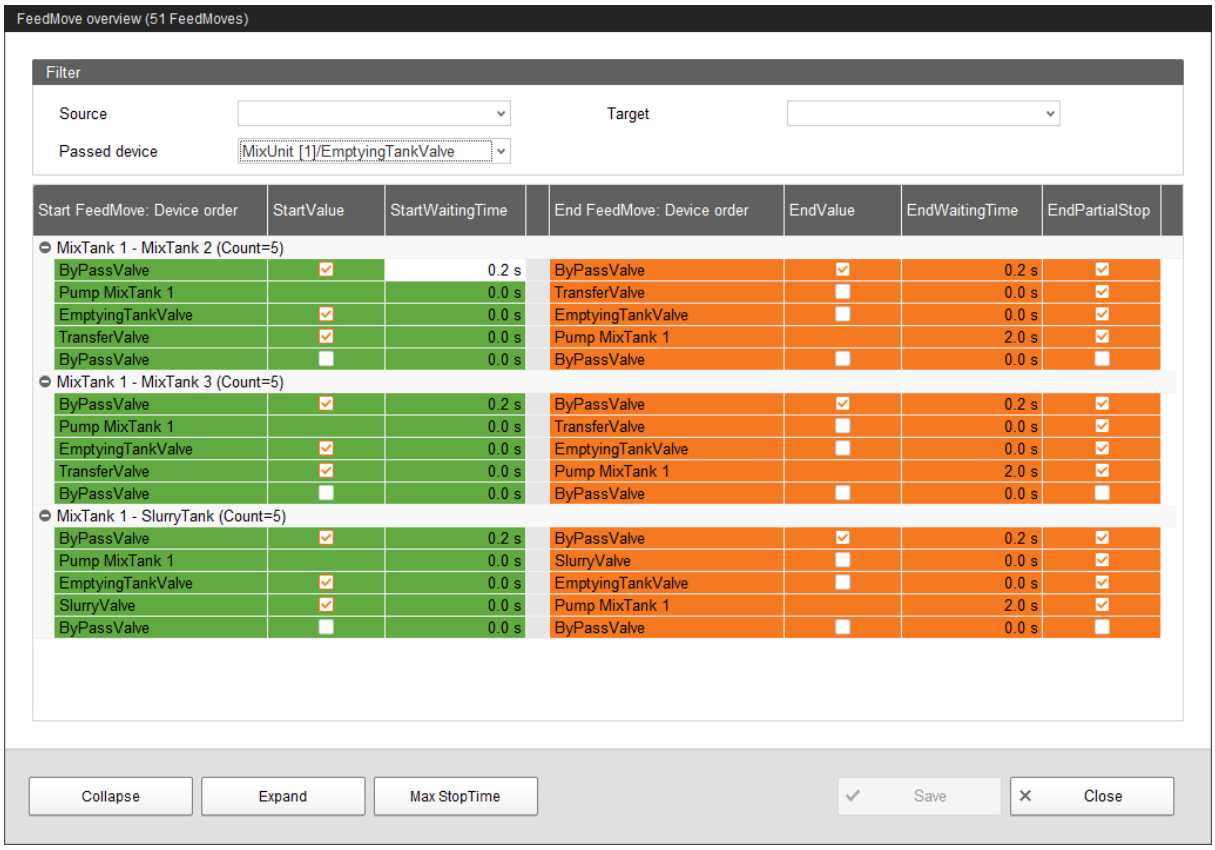
6.8 Expert settings

6.8.1 Feed moves

Define switch times and the switch order for feed moves in the dialog window "Feed move overview".



	These settings should only be configured by a service technician.



1. Filter the necessary feed moves, if required, e.g. for their start (source), target or device.

   Use the buttons "Collapse" and "Expand" in the lower command bar to show or hide the devices included in the feed move.

2. Define new switch times by entering the times directly into the input fields of the columns "Start waiting time" and "End waiting time".

   The values in the green area on the left refer to the start of the feed moves. The values in the orange area on the right refer to the end of the feed moves. The system moves from the first to the last device while starting and ending feed moves. After a device has been switched, the system waits for the waiting time before switching the next device.

3. Define partial stops for the switch from one feed move to the next:

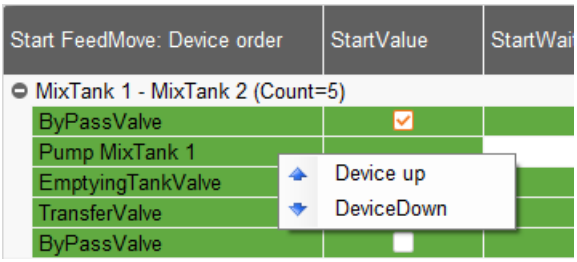
a) Check the box in the column "End partial stop" for the corresponding devices.

A partial stop is carried out when the system switches directly from one feed move to another. First, all devices of the old feed move for which "End partial stop" has been activated are switched. In case both feed moves use the same feed pump, all devices of the new feed move are switched all the way to the feed pump in the next step. This is to prevent the pump from running dry. Next, all devices of the old feed move for which "End partial stop" has not been activated and which are not part of the new feed move are switched. All as of yet unswitched devices of the new feed move are switched as the last step.

4. If necessary, define a new switch order for the devices.

   a) Right-click on the corresponding device.

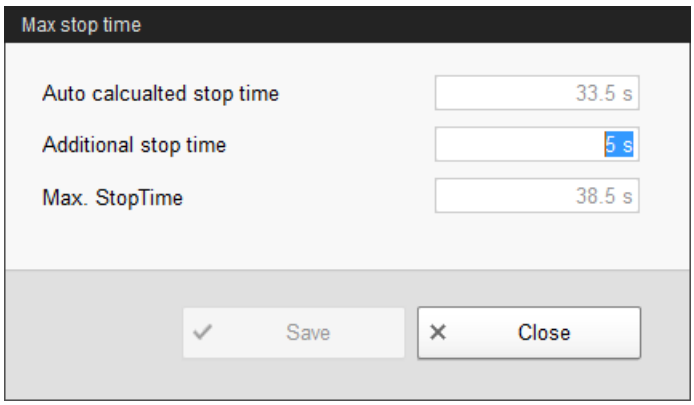
   b) Change the position of the device using the options "Device up" or "Device down".



5. Define the stop time, i.e. indicate how long the stopped system should maximally wait for an end of the feed moves:

   a) Click on the "Max. stop time" button in the bottom command bar.

   b) In the next dialog window, change the time displayed for "Additional stop time", if necessary.



c) Click on "Save".

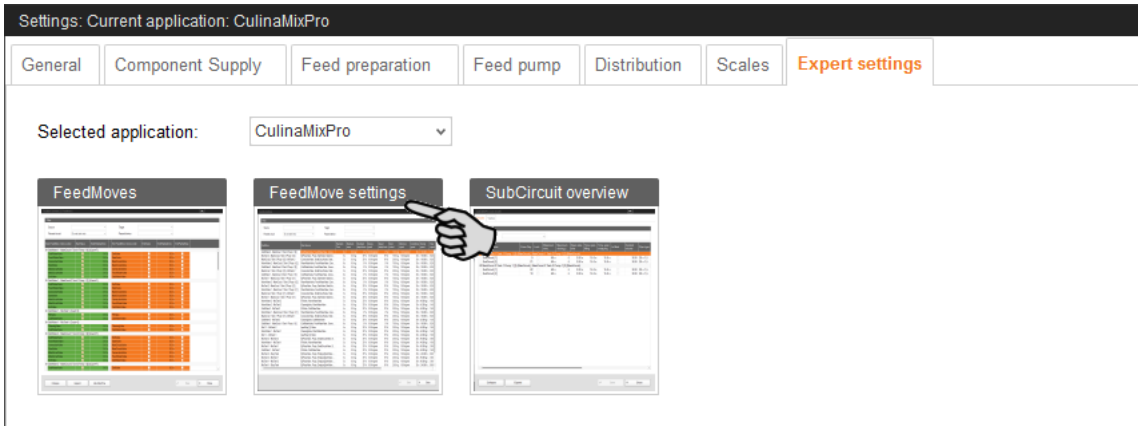
The maximum stop time results from the sum of all feed move waiting times plus the residual flow time for the feed move.

The stop time is currently determined automatically. The additional stop time is added to the automatically calculated stop time, resulting in the maximum stop time.

6. Click on "Save" to save all settings.

6.8.2 Feed move settings

In the dialog window "Feed move settings", define different parameters for the feed moves as described in the following.



1. Filter the necessary feed moves, if required, e.g. for their start (source), target or device.

   Drag the horizontal scroll bar at the bottom all the way to the right to see any hidden parameters.

2. If you want to define the same setting (value) for multiple feed moves, use one of the following options for multi-editing:

   a) Select multiple feed moves:

      Hold the Shift key and click on the first and last position to select all positions inbetween.

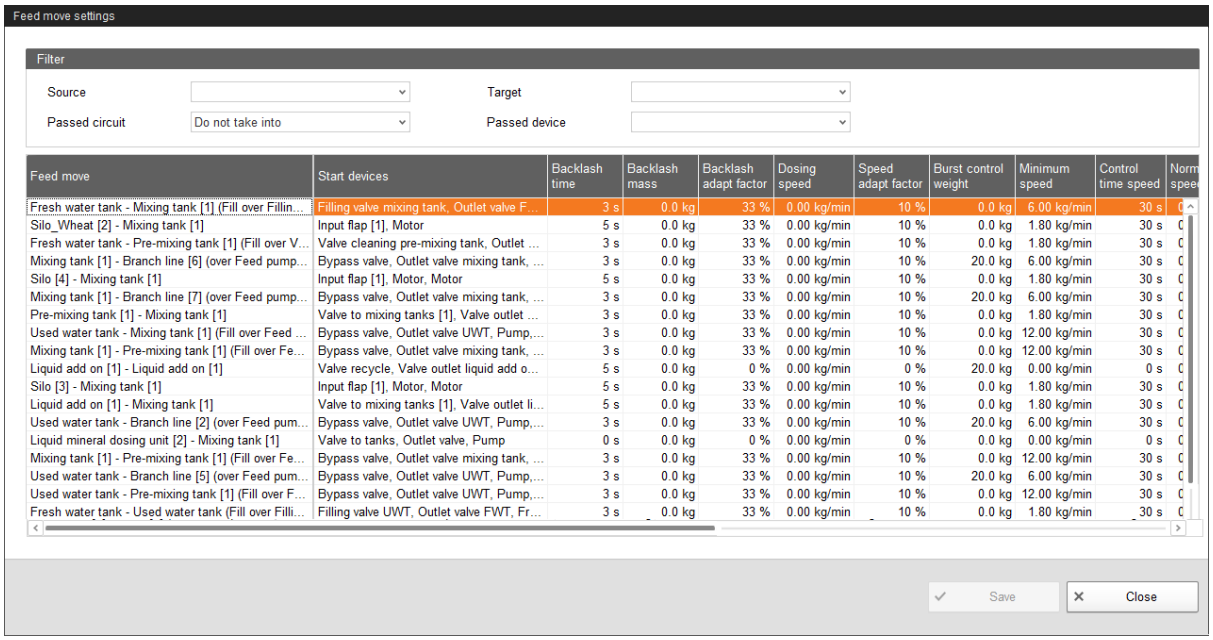
      Hold the Ctrl key and click on the individual positions to select multiple positions.

   b) Right-click into the marked area.

   c) Click on "Multi edit".

      This opens a dialog you can use to change the values.

3. Change the values either in the multi-edit dialog or directly in the respective input field when editing individual values.
4. Click on "Save" to save all settings.



Parameter definition

- Individual feed moves and the corresponding devices to be started and stopped are displayed under **Feed move** and **Start devices**.
- **Backlash time** to measure the residual flow.

  This time does not apply to feed moves for feeding or watering at a valve or to push to a valve. The corresponding times in the general settings are used for this purpose.
- **Backlash mass:** The residual flow volume determined by the control.
- **Backlash adapt factor:** Weighting of the new value to calculate the residual flow.
- **Dosing speed:** The dosing speed is determined and set automatically for dosing based on weight. Calculate and enter the dosing speed if the system doses based on time.
- The **speed adapt factor** is the weighting of the new factor to calculate the dosing speed.
- **Burst control weight:** This setting is only important for feed moves
  - from one weighed tank to another weighed tank;
  - from one weighed tank to itself (recirculation);

– through a flow meter whose source or target tanks are weighed;

If a weight deviation larger than the value set here is determined while these feed moves are carried out, the alarm "Unexpected weight loss" is generated.

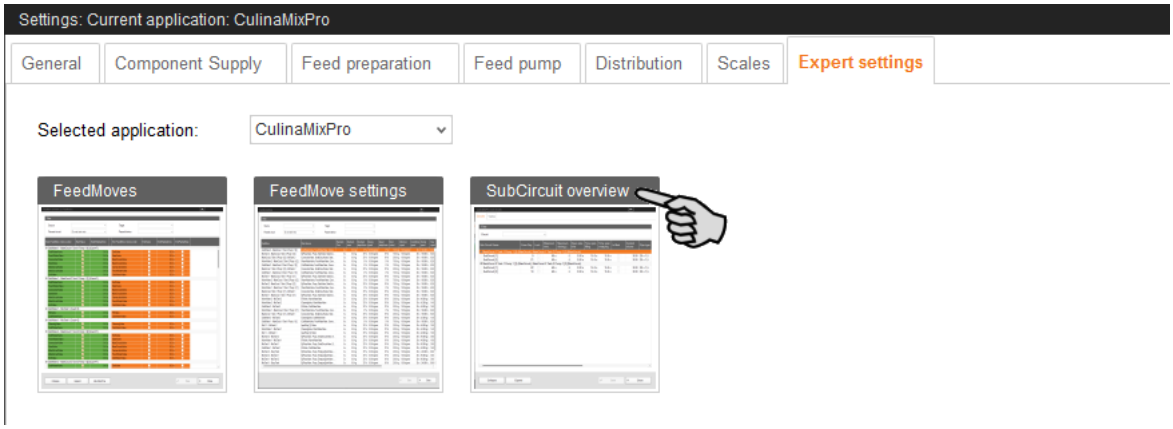
- **Minimum speed:** If this speed is not reached, an alarm is generated, e.g. empty silo, clogging.
- **Control time speed** are time intervals in which the minimum speed is checked.
- **Normal speed:** The target speed of the feed move.
- **Slow speed:** The target speed of the feed move in case of fine dosing.
- **Fine dosing amount:** If the remaining amount to be dispensed is smaller than this amount, the system switches to fine dosing.
- **Minimum mass fast dosing:** This is the minimum amount to be dispensed at normal speed. If the entire amount to be dispensed is smaller than the sum of "Fine dosing amount" and "Minimum mass fast dosing", the entire amount is dispensed with fine dosing.
- **Normal frequency** indicates the frequency inverter's frequency for normal speed. The normal speed is adjusted by the control.
- **Slow frequency:** This setting indicates the frequency inverter's frequency for fine dosing speed. The normal speed is adjusted by the control.
- **Maximum jet drain speed deviation:** This percentage refers to the target speed for jet emptying ("normal speed" and "slow speed"). Compressed air for the jet is switched on when the measured speed is below the target speed by this percentage. Compressed air for the jet is switched off as soon as the speed is above the target speed by this percentage.
- **Target pressure:** This pressure should be applied to the pipe during the entire feeding process. The frequency inverter controls the target pressure. Use the target pressure parameter to regulate for which feed moves feed should be pumped/supplied more quickly.

*****The parameters **normal speed, slow speed, fine dosing amount** and **minimum mass fast dosing** are only relevant for the following feed moves:

- feed moves with a pump controlled by a frequency inverter which have a weighed source or target tank or which include a flow meter;
- feed moves to empty a branch line with jet into a weighed tank, see also the parameter "Maximum jet drain speed deviation".

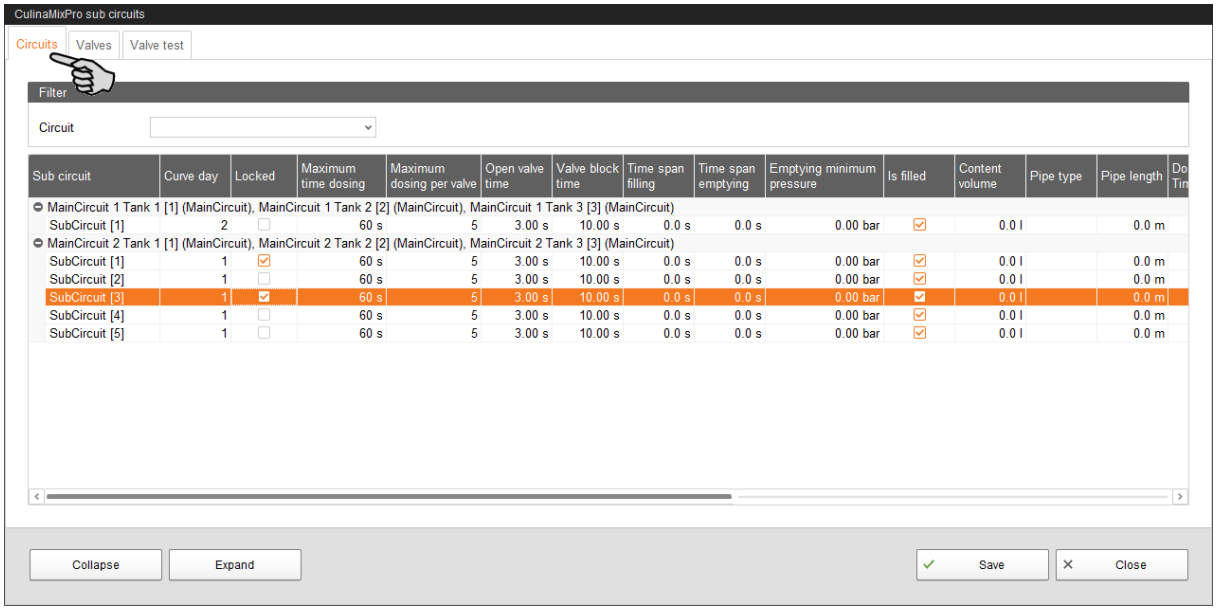
6.8.3 Subcircuit overview

In the "Subcircuit overview", you can define specific parameters, lock valves and carry out valve tests for each subcircuit.



Circuits

Each mixing tank supplies only one subcircuit. All valves of the subcircuit are treated identically.



Sub circuit	Curve day	Locked	Maximum time dosing	Maximum dosing per valve	Open valve time	Valve block time	Time span filling	Time span emptying	Emptying minimum pressure	Is filled	Content volume	Pipe type	Pipe length
MainCircuit 1 Tank 1 [1] (MainCircuit), MainCircuit 1 Tank 2 [2] (MainCircuit), MainCircuit 1 Tank 3 [3] (MainCircuit)													
SubCircuit [1]	2	☐	60 s	5	3.00 s	10.00 s	0.0 s	0.0 s	0.00 bar	☑	0.0 l		0.0 m
MainCircuit 2 Tank 1 [1] (MainCircuit), MainCircuit 2 Tank 2 [2] (MainCircuit), MainCircuit 2 Tank 3 [3] (MainCircuit)													
SubCircuit [1]	1	☑	60 s	5	3.00 s	10.00 s	0.0 s	0.0 s	0.00 bar	☑	0.0 l		0.0 m
SubCircuit [2]	1	☐	60 s	5	3.00 s	10.00 s	0.0 s	0.0 s	0.00 bar	☑	0.0 l		0.0 m
SubCircuit [3]	1	☑	60 s	5	3.00 s	10.00 s	0.0 s	0.0 s	0.00 bar	☑	0.0 l		0.0 m
SubCircuit [4]	1	☐	60 s	5	3.00 s	10.00 s	0.0 s	0.0 s	0.00 bar	☑	0.0 l		0.0 m
SubCircuit [5]	1	☐	60 s	5	3.00 s	10.00 s	0.0 s	0.0 s	0.00 bar	☑	0.0 l		0.0 m

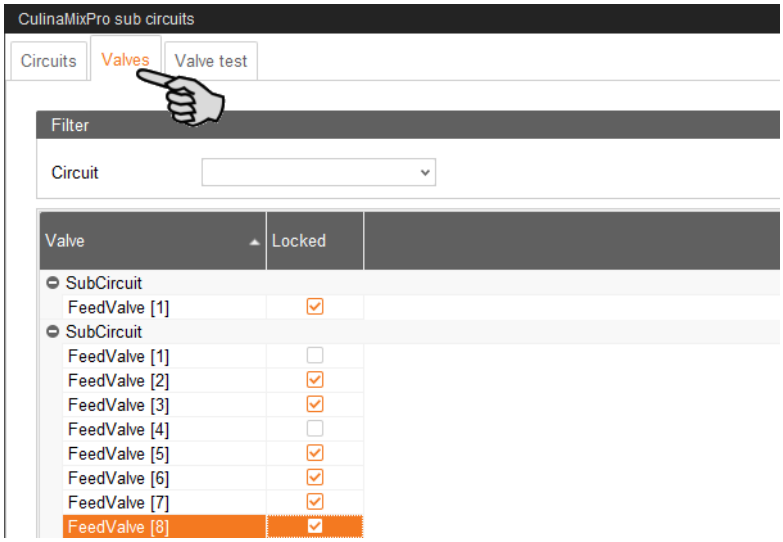
- **Maximum time dosing:** The time period for which feed is dispensed in the subcircuit until the system switches to the next subcircuit. A valve reporting "empty" is irrelevant. The cup should fill up within this time.
- **Maximum dosing per valve:** Maximum number of times a valve can be used for dosing before it is locked. This value refers to one feeding cycle.
- **Open valve time:** Time during which feed is dispensed.
- **Valve block time:** The empty sensor is ignored and the valve is considered full during this time.

- **Time span filling:** The time period required to fill the main circuit completely at the start of feeding or cleaning.
- **Time span emptying:** The time period required to empty the main circuit completely after the end of feeding.
- **Emptying minimum pressure:** If the pressure reaches this value while pushing the (last) portion through the pipe, the pipe is empty.
- **Is filled** indicates whether the main circuit is filled or not. This setting can be adjusted manually.
- **Content volume** (pipe content) is calculated automatically from "Pipe type" and "Pipe length". The volume can also be entered directly if the box "Enter volume" is checked. The parameter "Pipe length" is deactivated in this case.
- **Pipe type**
- **Pipe length**
- **Dosing time water** is the water valve's opening time. The pipes are cleaned by water within this time.
- **Usage time of air**: Air is pushed through the pipes during this time after they have been flushed with water.
- **Clean amount mix**: In case of cleaning with recipe, this amount is mixed additionally.
- **Amount valve clean**: Amount for valve or drop pipe cleaning.
- **Time valve clean**: The time period for which the valves opens for cleaning. The "Amount valve clean" may pass through the valve during this time.
- **Squeeze valve dosing delay:** When switching to the subcircuit, the system waits for this time before the pinch valve is opened again.
- **Recirculation time pre dosing:** When switching e.g. from circuit 1 to circuit 2, feed recirculates in circuit 2 for this time before it is dispensed.
- **Target pressure:** This pressure should be applied to the pipe during the entire feeding process. The frequency inverter controls the target pressure. Use the target pressure parameter to regulate for which feed moves feed should be pumped/supplied more quickly.
- **Dose with closed end valve** for better application of the pressure / less pressure loss with long pipes.

- **Adjustment factor:** This factor is a percentage used to adjust the amount for valve cleaning. The adjustment depends on the remaining amount. The percentage is subtracted from the total cleaning amount used beforehand. Example: From a cleaning amount of 20 liters, an amount of 5 liters remained. At an adjustment factor of 50 %, a total amount of 17.5 liters will be used for the next cleaning.
- **Recirculate after pause time:** After a pause, the pipe content recirculates for this time before it is distributed. This parameter refers to "Feed preparation" parameters or to the manual pause (by stopping the system).

Valves

This tab allows locking individual valves.



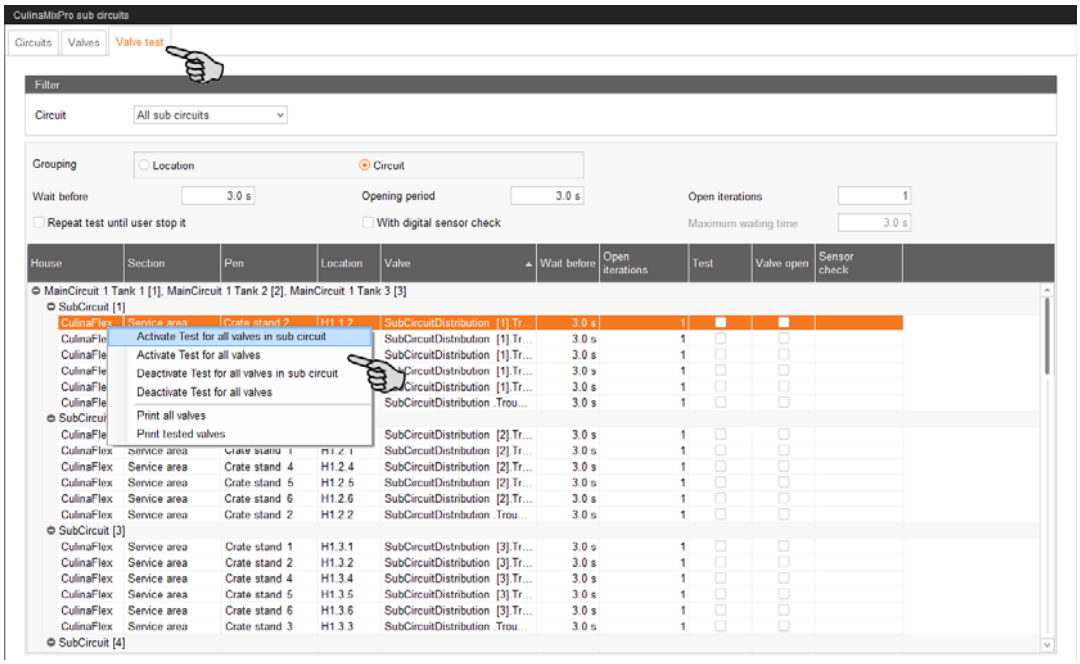
Valve test

This tab allows testing individual valves.

1. In the column **Wait before**, define the waiting time for the switch between valves.
2. Activate the correct valves individually.

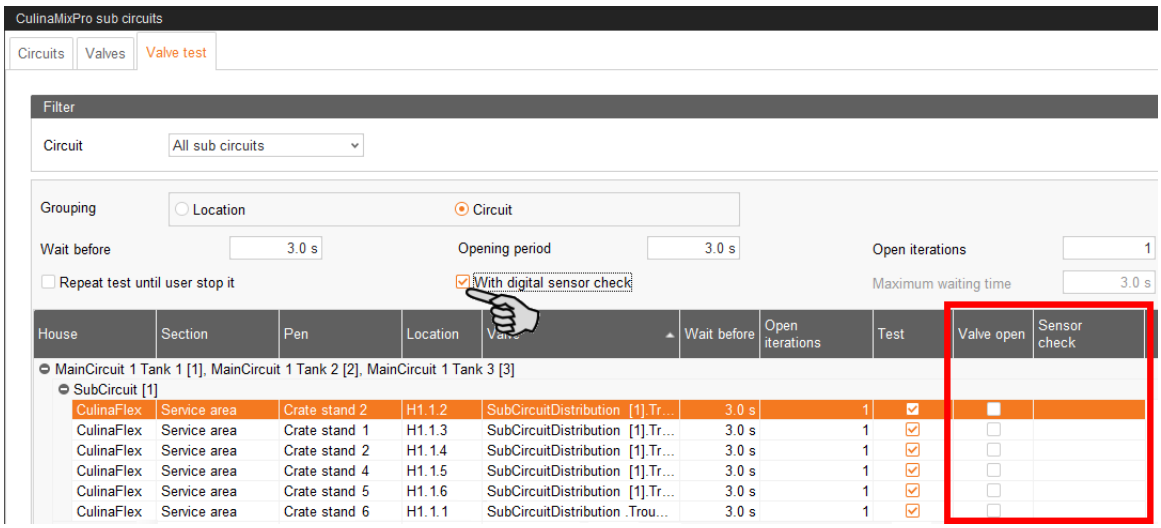
   OR

   Activate multiple valves at the same time by right-clicking to open the context menu and select the correct valves.



Valve open and **Sensor check** only show how the progress of the test. **Valve open** indicates the currently tested valve.

Sensor check shows the corresponding sensor value. The information under "Sensor check" is displayed if the box **With digital sensor check** was checked.



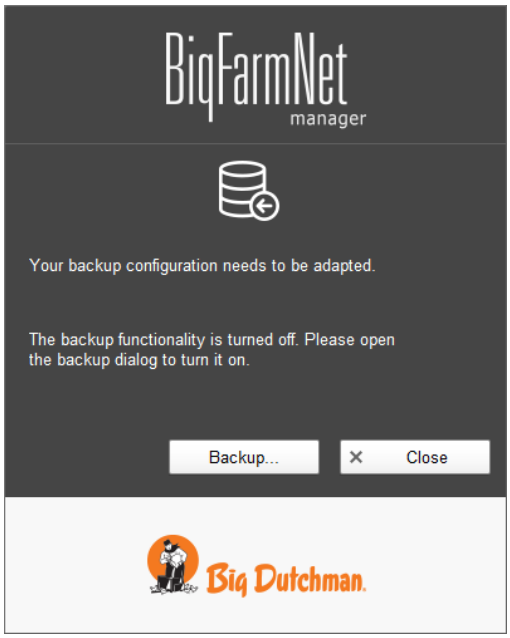
3. Click on "Start" in the lower command bar to start the test.
4. To stop the test, click on "Stop".
5. Deactivate valves you had activated for the test, if necessary.

6.9 Data backup

From BigFarmNet Manager version 3.2.0, the following message regarding data backup configuration appears after installation or an update. If you only close this message, it will reappear after a short time.

☝	The system requires an external storage location for data backup, e.g. a network drive, an external hard drive or a USB flash drive. As soon as an external storage location has been indicated, the message no longer appears, irrespective of whether automatic data backup has been enabled or disabled.

If an external storage location has already been defined before updating to version 3.2.0, the message does not appear at all.



We recommend data backups in regular intervals. In case of a data loss, the backup can then be used to retrieve saved data.

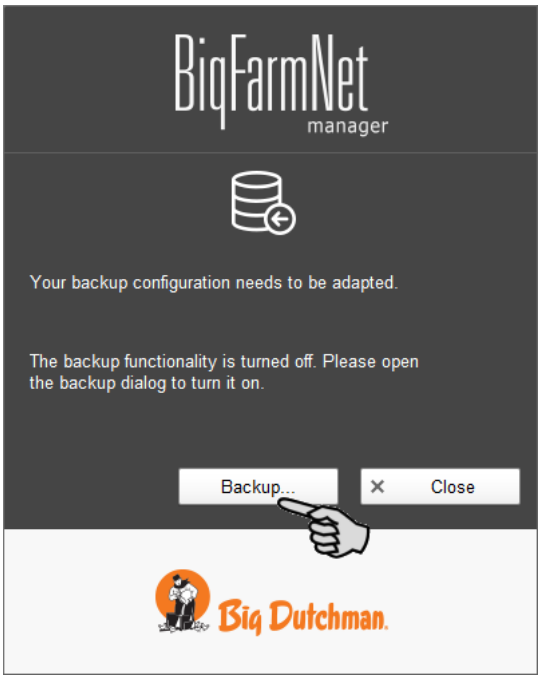
Remember that you can only retrieve the last data backup. Everything you have created or changed since then is not included in this backup. This means that the backup period should be determined depending on the amount of data you produce. You should find the ideal compromise between acceptable data loss and frequency of backups based on your individual needs.

The BigFarmNet Manager provides the following options for data backups:

- Manual backup, which you may carry out at any time when necessary.
- Automatic backup, for which you define a fixed backup period. The data is then backed up automatically according to the settings.

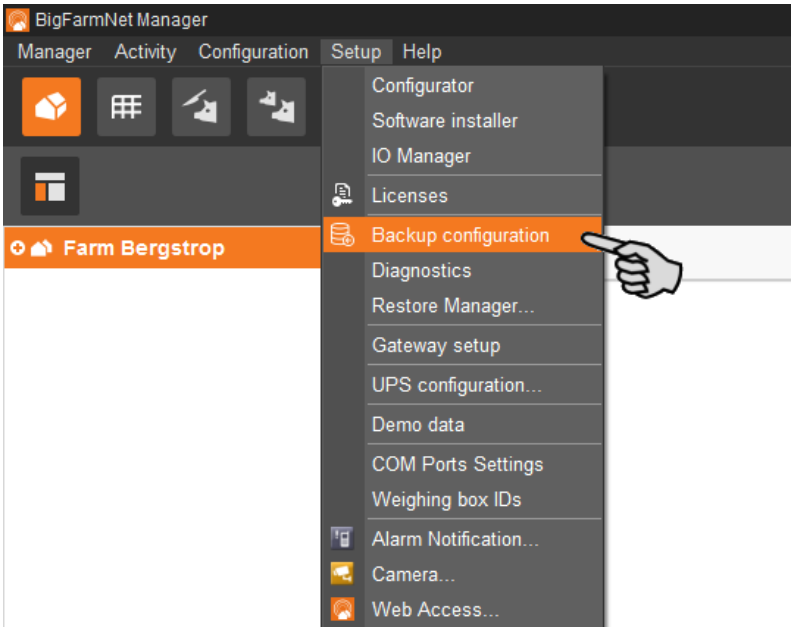
Open the settings dialog as follows:

1. Click on "Backup...".



OR

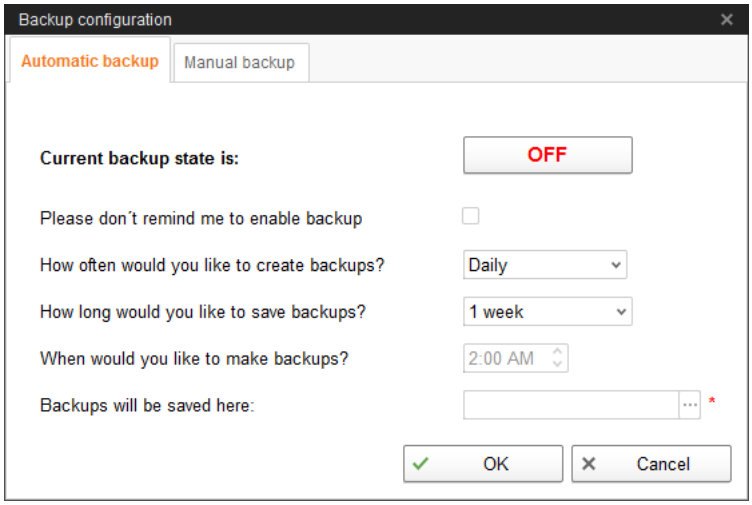
1. Click on "Backup configuration" in the "Setup" menu.



2. In the window "Backup configuration", select the desired process using one of the two tabs:

   Automatic backup

   The automatic backup is pre-set to "OFF".



   a) Click on "OFF" to turn off the deactivation.

      The button then switches to "ON".

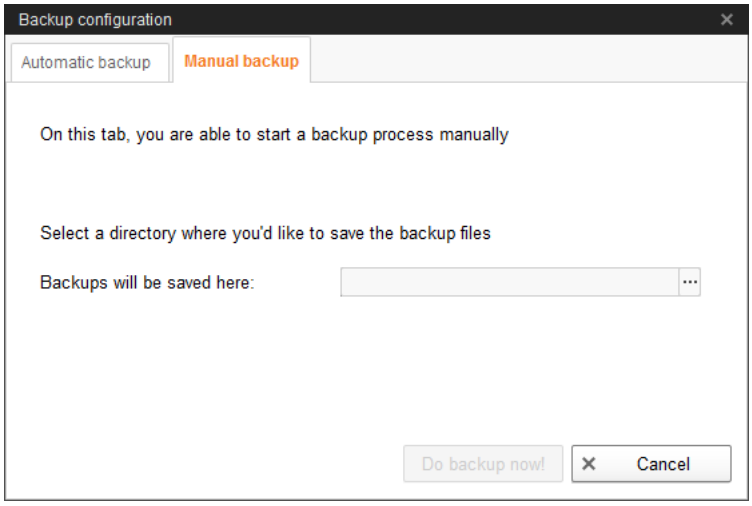
   b) Determine the backup period.

   c) Select an external storage location.

   d) Click on "OK" to accept these settings.

Or:

   Manual backup



   a) Select an external storage location.

   b) Click on the now active button "Create backup now!"

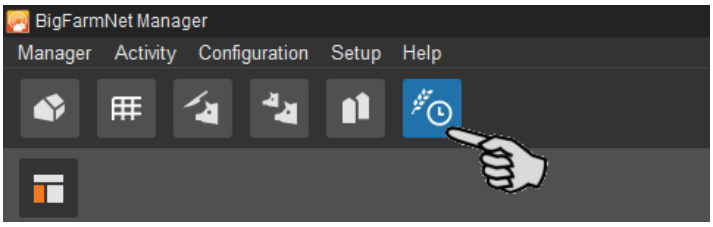
7 Task Manager

The task manager allows you to save feeding and cleaning tasks for your specific feeding system.

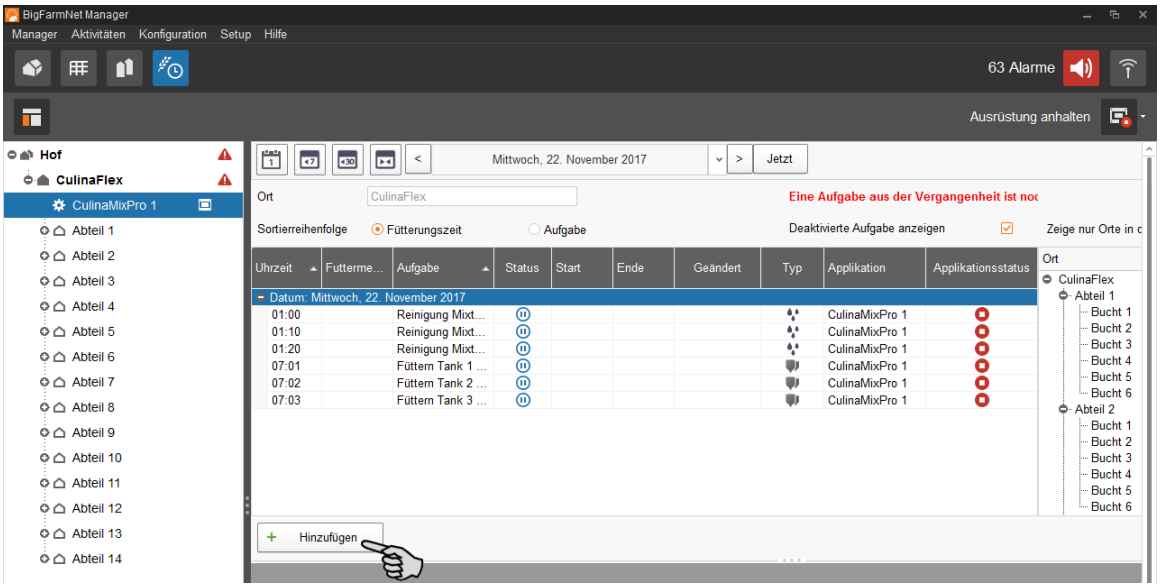
7.1 Defining a task

Depending on the "strategy", you can define times and technical settings for feeding and cleaning in the "Feeding task" dialog.

1. Click on "Task Manager" in the management area.

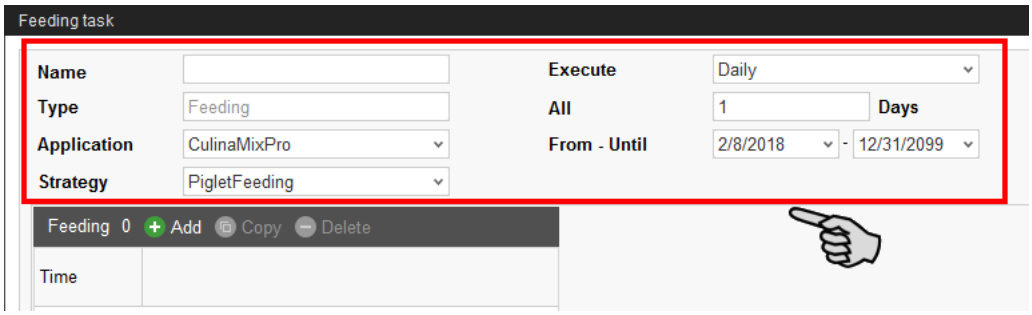


2. In the application window, click on "Add".



3. Define information for the task at the top.

   Fields with bold text are mandatory.



   – **Name** of the task
   – **Type** is pre-set to "Feeding".
   – **Application**
   – **Strategy** is the subject of the task: feeding, cleaning or recirculation. Refer to the following chapters for information on the strategies.
   – **Execute:** Daily > **Every ... day(s):** The task should be executed every nth day.

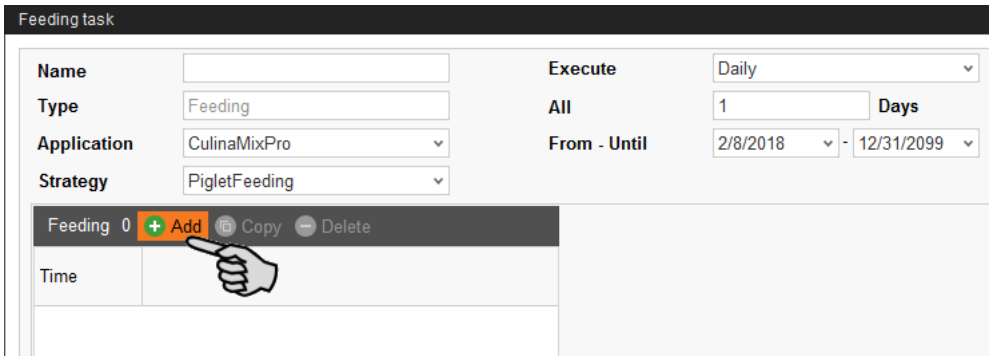
     OR

     Execute: Weekly > **Days:** Select the correct day(s) of the week.
   – **From – Until:** Time period for this task. The task will not be started outside of this time period.

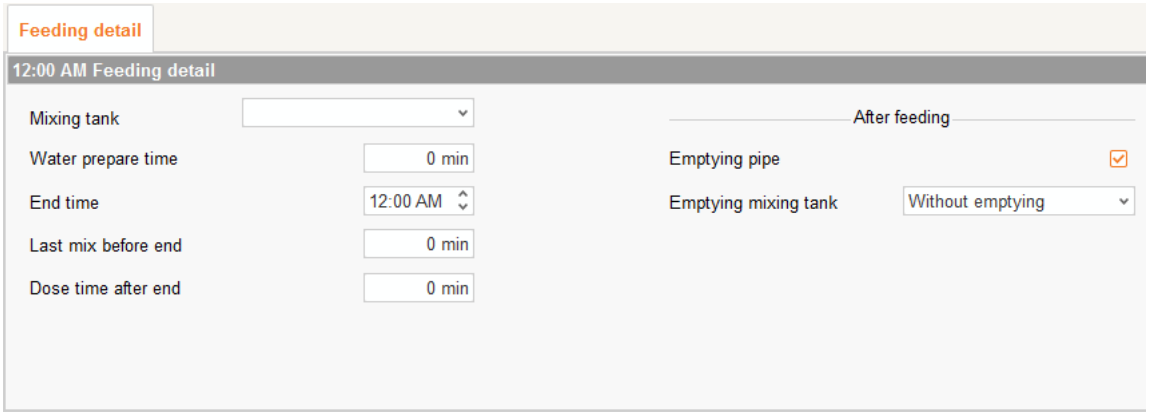
All other settings depend on the selected "strategy". These settings are described in the following chapters.

7.1.1 Piglet feeding

1. Carry out all introductory instructions in 7.1 ”Defining a task”.
2. Click on "Add" and define the start time for the feeding.



3. Configure the settings in the lower part of the window under the "Feeding details" tab:



a) Select the **Mixing tank** and define when the feeding process should end (**End time**).

b) Define when the mixing tank should prepare the last feed mixture before the "End time" (**Last mix before end**).

Example: Feeding ends at 9 p.m. and "Last mix before end" is set to 120 minutes. The tank will prepare the last feed mixture at 7 p.m.

OR

Define the **Water prepare time** if you want to dilute the feed step by step before the feeding process ends.

Example: The feeding process ends at 9 p.m. and "Water prepare time" is set to 120 minutes. Water will be added from 7 p.m.

c) Define for how long feed may be dispensed after the end of the feeding process (**Dose time after end**). If the last feed mixture has been prepared shortly before the end of the feeding process, this feed can still be dispensed to empty the mixing tank as completely as possible. Use "Dose time after end" for this purpose.

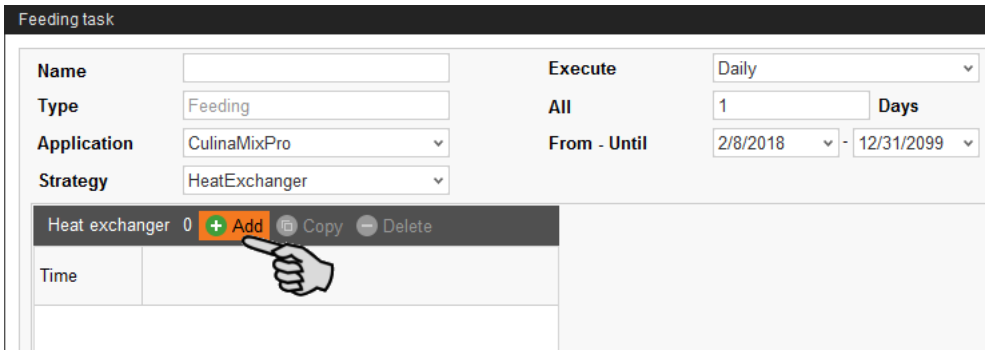
d) Define whether the pipe should be emptied by means of air (**Emptying pipe**) after the feeding process, i.e. after the "End time" and/or the "Dose time after end".

e) Define whether the mixing tank should be emptied (**Emptying mixing tank**) after the feeding process, i.e. after the "End time" and/or the "Dose time after end", e.g. to clean the mixing tank. Select either another mixing tank or the slurry tank for the tank contents. When emptying a mixing tank, the remaining feed is usually supplied to older animals.

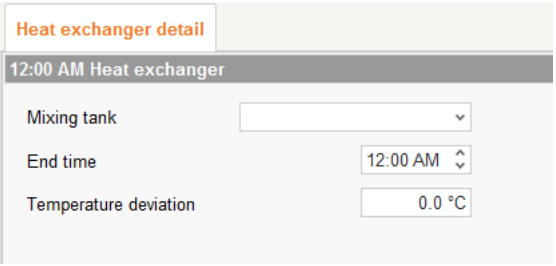
4. Click on "OK" after you have configured all settings.

7.1.2 Heat exchanger

1. Carry out all introductory instructions in 7.1 ”Defining a task”.
2. Click on "Add" and enter the start time.



3. Configure the following settings for the heat exchanger in the lower part of the window:



   a) Select the **Mixing tank**, and thus also the circuit.

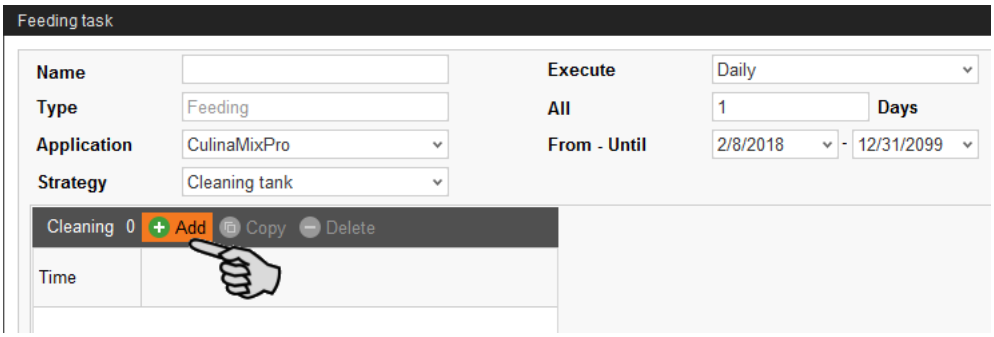
   b) Define the **End time** at which the heat exchanger should stop.

   c) Define the **Temperature deviation**. The temperature in the heat exchanger is slightly higher than in the mixing tank. The heat exchanger is equipped with a temperature sensor. The "Equipment" window of the mixing tank shows the heat exchanger's temperature in the graphical depiction.

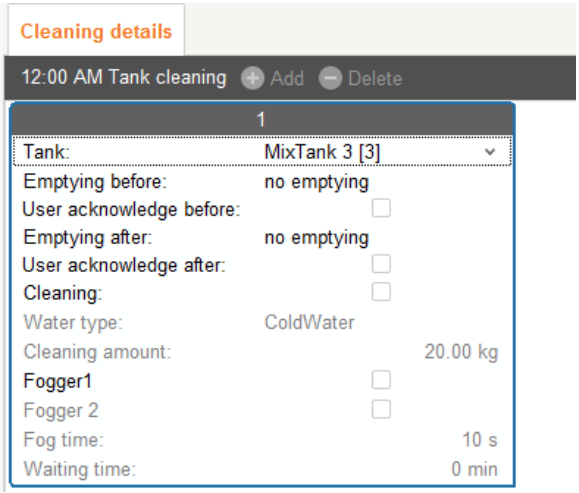
4. Click on "OK" after you have configured all settings.

7.1.3 Tank cleaning

1. Carry out all introductory instructions in 7.1 ”Defining a task”.
2. Click on "Add" and enter the start time.



3. Configure the following settings for tank cleaning in the lower part of the window:



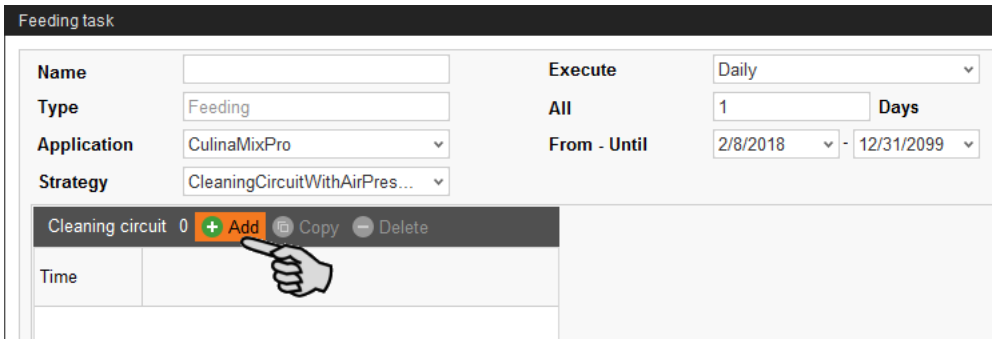
- **Tank:** Selection of the tank to be cleaned.
- **Emptying before:** Indicate whether the tank should be emptied before it is cleaned. If yes, select a different tank or the slurry tank for the tank contents.
- **User acknowledgement before:** If the box "User acknowledgement before" is checked, the system waits for manual confirmation before starting the cleaning process.
- **Emptying after:** Selection of the tank into which the cleaning amount should be emptied.
- **User acknowledgement after:** If the box "User acknowledgement after" is checked, the system waits for manual confirmation before completing the cleaning process.

- **Cleaning** refers to the option of cleaning with water. When choosing this option, select either warm or cold water (**Water type**) and define the **Cleaning amount** of water, which should be greater than the minimum cleaning amount.
- **Fogger 1:** Should the first fogger be used for fogging of the tank?
- **Fogger 2:** Should the second fogger be used for fogging of the tank?
- **Fog time:** Duration of the fogging process. The foggers are started with a delay if fogging is carried out in another tank beforehand.
- **Waiting time** after fogging. The tank to be cleaned is always rinsed with water (minimum clean amount) after the waiting time after fogging has elapsed.

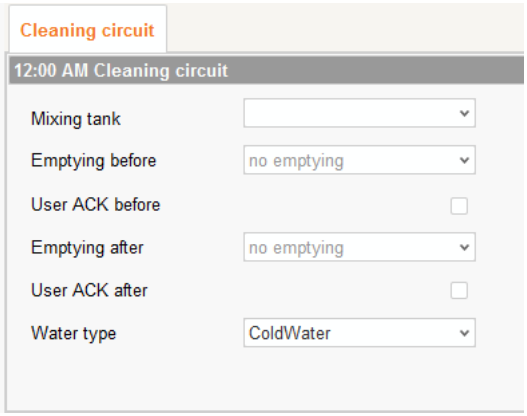
4. Click on "OK" after you have configured all settings.

7.1.4 Circuit cleaning by means of compressed air

1. Carry out all introductory instructions in 7.1 ”Defining a task”.
2. Click on "Add" and enter the start time.



3. Configure the following settings for circuit cleaning in the lower part of the window:



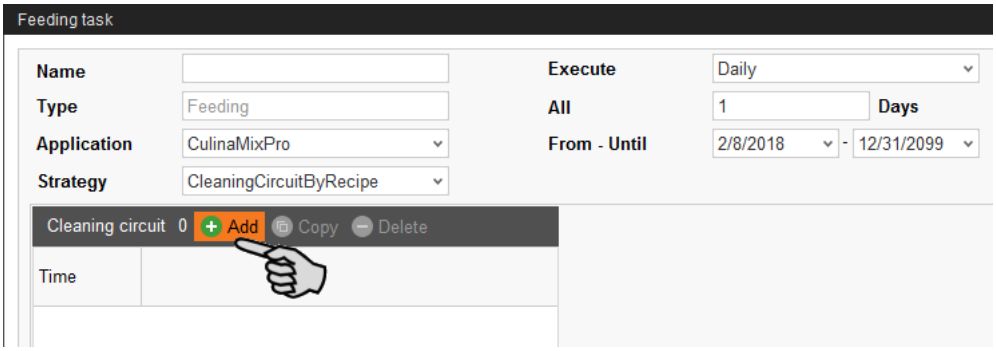
- **Mixing tank:** Selection of the mixing tank whose circuit should be cleaned.
- **Emptying before:** Indicate whether the mixing tank should be emptied before it is cleaned. If yes, select a different mixing tank or the slurry tank for the tank contents.

- **User acknowledgement before:** If the box "User acknowledgement before" is checked, the system waits for manual confirmation before starting the cleaning process.
- **Emptying after:** Selection of the tank into which the cleaning amount should be emptied.
- **User acknowledgement after:** If the box "User acknowledgement after" is checked, the system waits for manual confirmation before completing the cleaning process. Use this parameter to ensure that cleaning has been completed correctly.
- **Water type:** Select either warm or cold water.

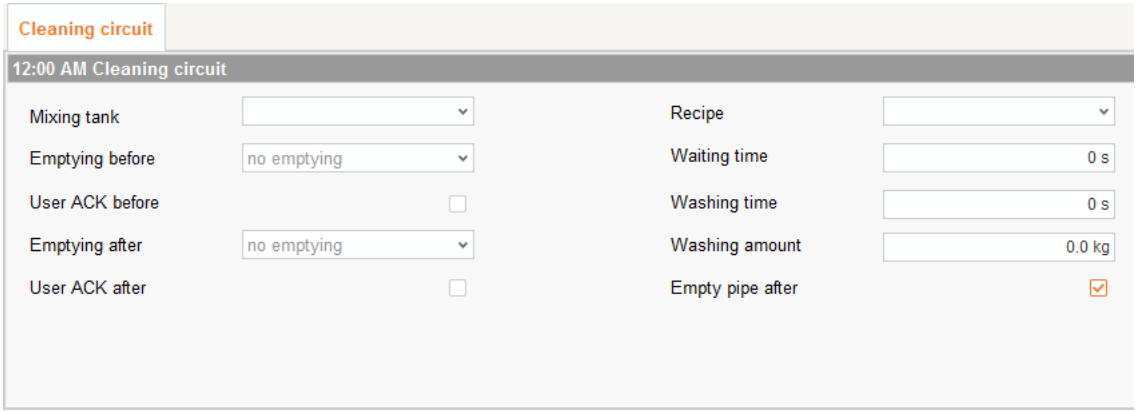
4. Click on "OK" after you have configured all settings.

7.1.5 Circuit cleaning according to a recipe

1. Carry out all introductory instructions in 7.1 ”Defining a task”.
2. Click on "Add" and enter the start time.



3. Configure the following settings for circuit cleaning in the lower part of the window:



- **Mixing tank:** Selection of the mixing tank whose circuit should be cleaned.

- **Emptying before:** Indicate whether the mixing tank should be emptied before it is cleaned. If yes, select a different mixing tank or the slurry tank for the tank contents.
- **User acknowledgement before:** If the box "User acknowledgement before" is checked, the system waits for manual confirmation before starting the cleaning process.
- **Emptying after:** Selection of the tank into which the cleaning amount should be emptied.
- **User acknowledgement after:** If the box "User acknowledgement after" is checked, the system waits for manual confirmation before completing the cleaning process. Use this parameter to ensure that cleaning has been completed correctly.

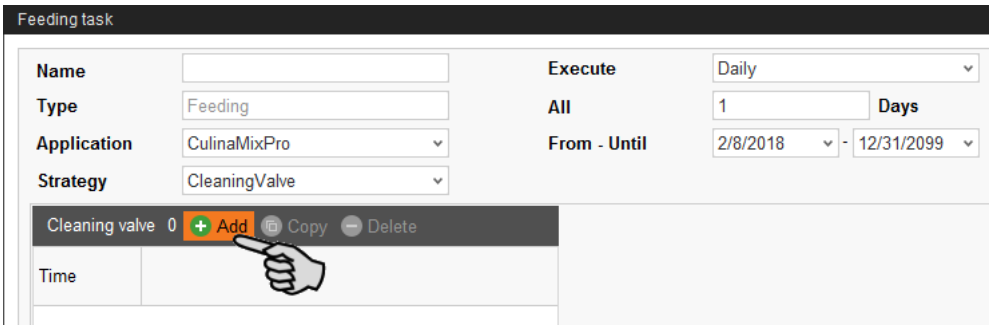
We recommend this setting when cleaning with lyes to ensure that the tank and pipes are empty before feeding starts. Pipes and tank are usually flushed with some water after cleaning with a lye.

- **Recipe:** Selection of a cleaning recipe that was created beforehand.
- **Waiting time:** Time for soaking in the pipes. The cleaning agent remains inside the pipes for this time.
- **Washing time:** The cleaning component is pumped from the mixing tank through the pipes and back into the tank within this time.
- **Washing amount:** The additional amount of the cleaning agent or water used for cleaning.
- **Empty pipe after:** Define whether the pipe should be emptied by means of air after the cleaning process.

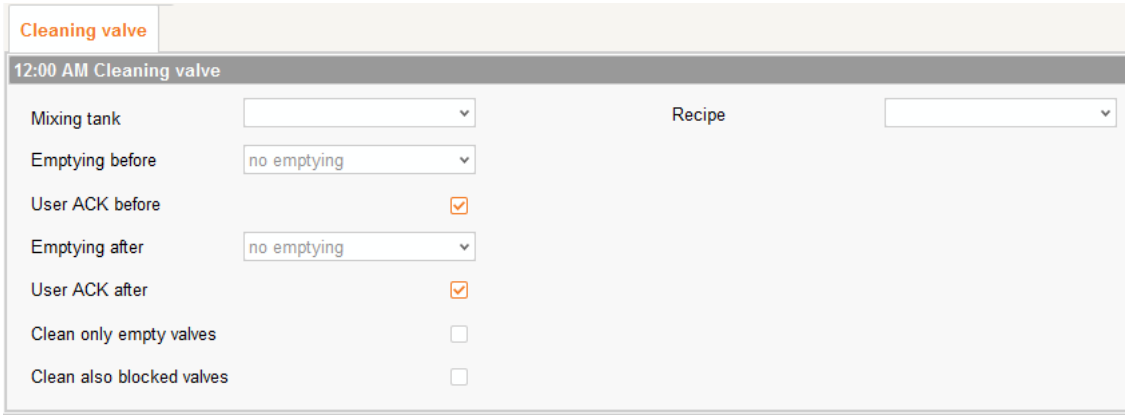
4. Click on "OK" after you have configured all settings.

7.1.6 Valve cleaning (currently cleaning valve)

1. Carry out all introductory instructions in 7.1 ”Defining a task”.
2. Click on "Add" and enter the start time.



3. Configure the following settings for valve cleaning in the lower part of the window:



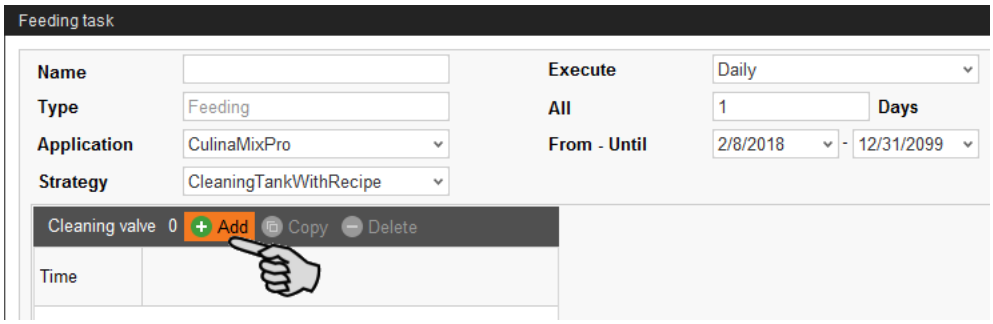
- **Mixing tank:** Select the mixing tank whose circuit, and thus the corresponding valves, should be cleaned.
- **Emptying before:** Indicate whether the mixing tank should be emptied before it is cleaned. If yes, select a different mixing tank or the slurry tank for the tank contents.
- **User acknowledgement before:** If the box "User acknowledgement before" is checked, the system waits for manual confirmation before starting the cleaning process.
- **Emptying after:** Selection of the tank into which the cleaning amount should be emptied.
- **User acknowledgement after:** If the box "User acknowledgement after" is checked, the system waits for manual confirmation before completing the cleaning process. Use this parameter to ensure that cleaning has been completed correctly.

- **Clean only empty valves:** The system only cleans valves with the status "Empty".
- **Clean also blocked valves:** Additionally clean locked valves, e.g. in empty pens.

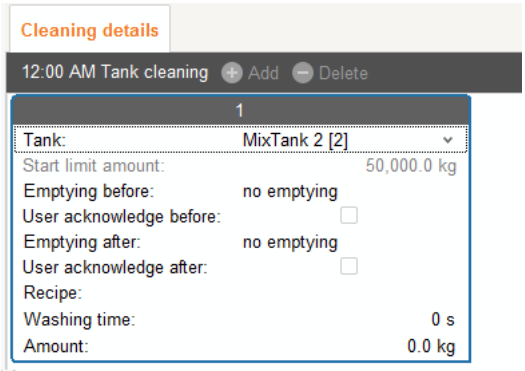
4. Click on "OK" after you have configured all settings.

7.1.7 Tank cleaning according to a recipe

1. Carry out all introductory instructions in 7.1 ”Defining a task”.
2. Click on "Add" and enter the start time.



3. Configure the following settings for tank cleaning in the lower part of the window:



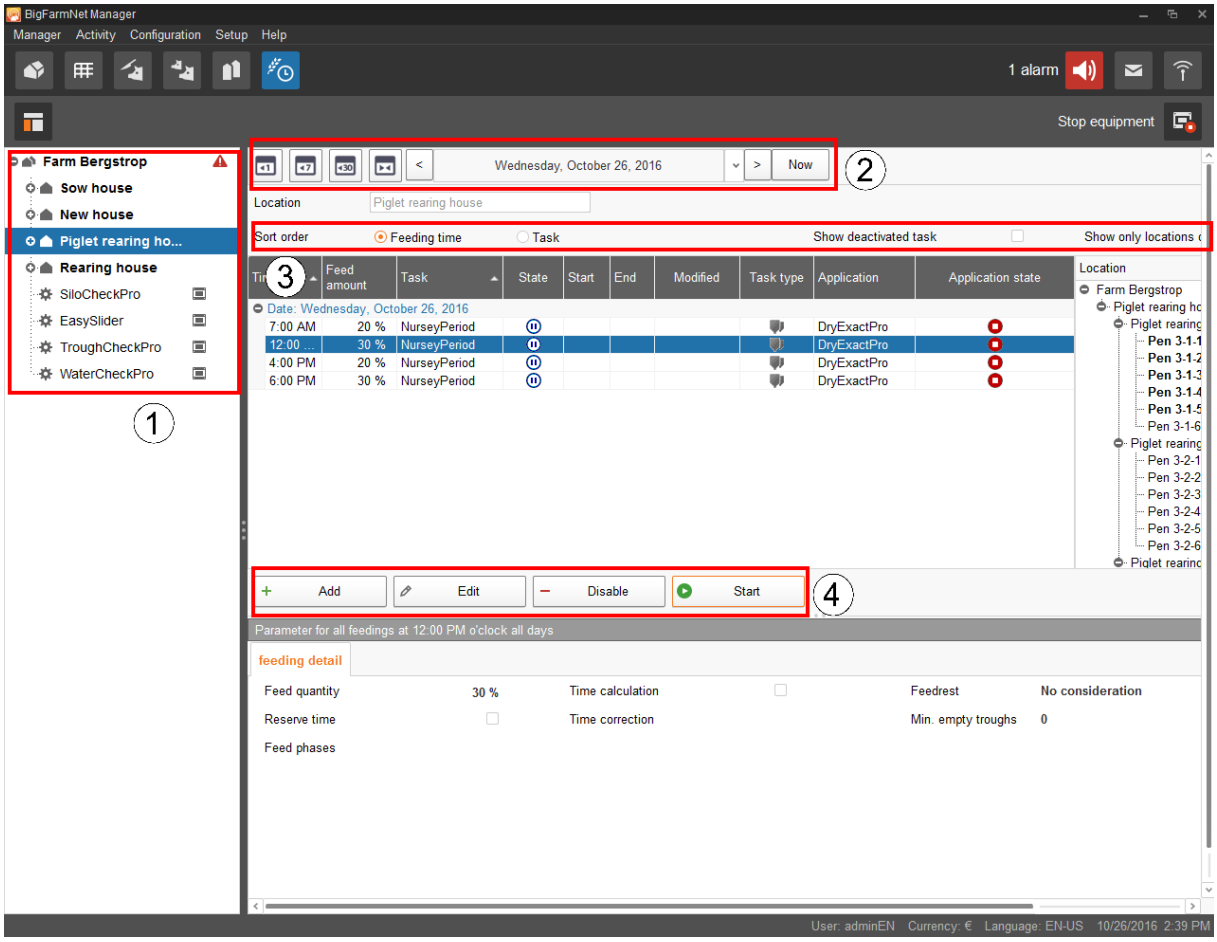
- **Tank:** Selection of the mixing tank to be cleaned.
- **Start limit amount**: only an information
- **Emptying before:** Indicate whether the mixing tank should be emptied before it is cleaned. If yes, select a different mixing tank or the slurry tank for the tank contents.
- **User acknowledgement before:** If the box "User acknowledgement before" is checked, the system waits for manual confirmation before starting the cleaning process.
- **Emptying after:** Selection of the tank into which the cleaning amount should be emptied.

- **User acknowledgement after:** If the box "User acknowledgement after" is checked, the system waits for manual confirmation before completing the cleaning process. Use this parameter to ensure that cleaning has been completed correctly.
- **Recipe:** Selection of a cleaning recipe that was created beforehand.
- **Washing time:** The cleaning component is pumped from the mixing tank through the pipes and back into the tank within this time.
- **Amount:** The cleaning agent amount for this cleaning process. Select an amount as large as possible for effective cleaning.

4. Click on "OK" after you have configured all settings.

7.2 Editing a task

Feeding tasks are shown with their respective feeding details in the application window as soon as they have been created. The following functions are available:

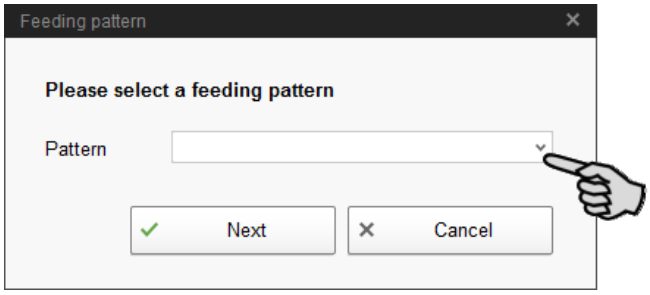


1. If necessary, filter the tasks according to location using the farm structure. Click either on the respective location or directly on the system.

   On the farm level, all tasks of all systems are displayed.

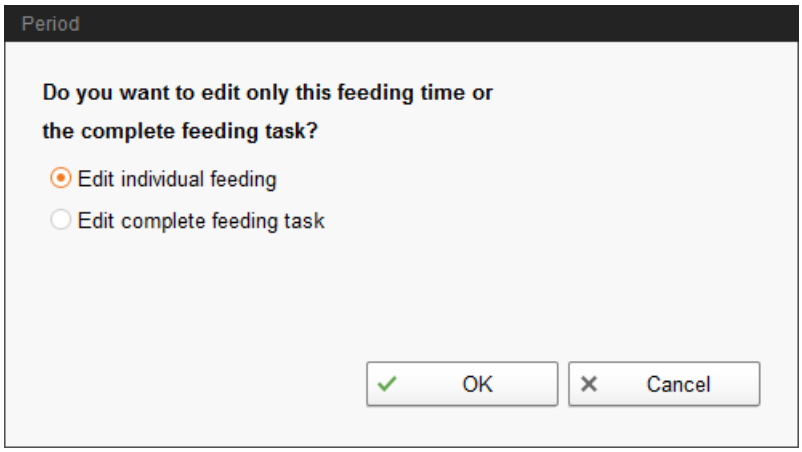
2. Select a time period, if necessary.
   - Tasks of a specific day, week or month, respectively, can be shown.
   - You may also select individual days or a specific time period, as desired.
   - Click on "Now" to get back to the current day.
3. Modify the task view as required.
   - Sort the task order according to "Feeding time" or according to "Task".
   - Activate the function "Show deactivated task", if required.
   - Activate the function "Show only locations of this feeding time", if required. Drag the horizontal scroll bar at the bottom all the way to the right to see the hidden part of the window.
4. Use the following functions to edit individual feeding times. First, select the correct feeding time by clicking on it.
   - "Add": Add new tasks with this function.

     If you have created a template (pattern) at some point, you will be asked for a pattern. Select the correct pattern from the drop down menu, if applicable, or select "[Edit value is Null]" to create a new task. Click on "Next".



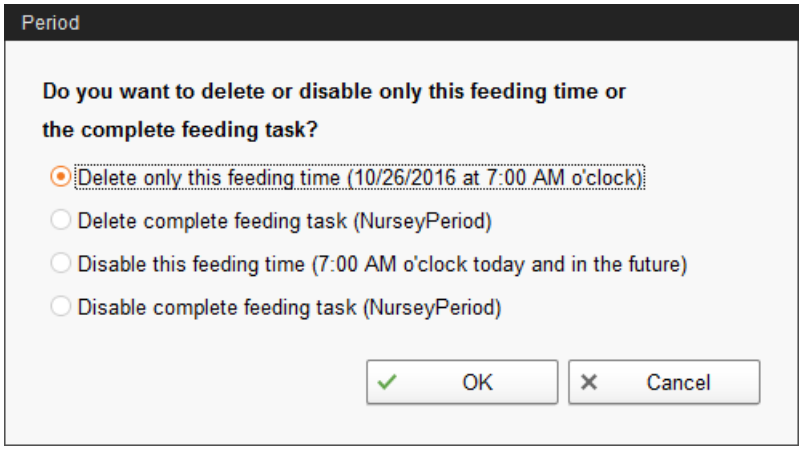
– "Edit": Use this function to either edit the selected feeding time or the entire task it belongs to.

  Select the correct option and click on "OK".



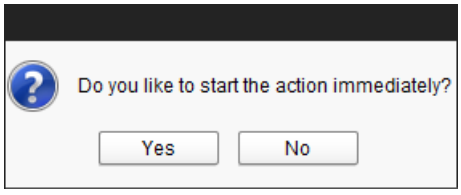
– "Disable": Use this function to disable or delete the selected feeding time or the entire task it belongs to.

  Select the correct option and click on "OK".



– "Start": Use this function to start feeding immediately, even if a different feeding time has been saved for the task.

  Confirm immediate start by clicking on "Yes".



8 Silo Manager

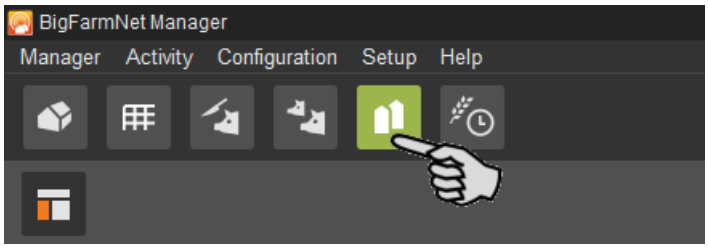
8.1 Overview

With the Silo Manager, you can monitor and manage the data of all your silos.

The Silo Manager offers the following functions:

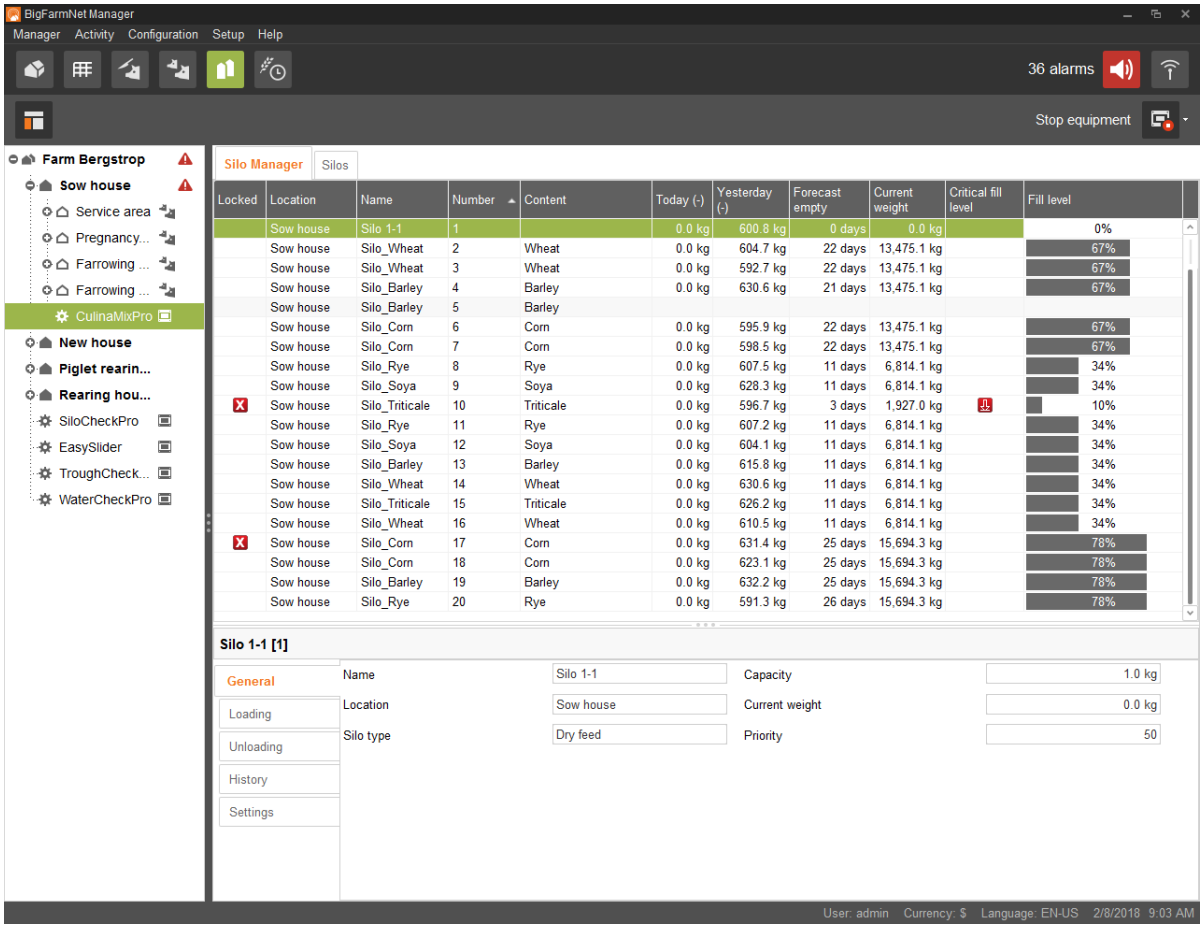
- register the amounts of feed unloaded from the silos
- calculate the expected storage duration of the silo contents
- receive a warning when a silo requires filling
- manage suppliers and prices for each feed component
  - BigFarmNet automatically calculates the total delivery amounts and your feed costs based on this information.

Open the Silo Manager by selecting the management area.



The tab "Silo Manager" opens in the application window. The table shows the current data for your silos:

- location and name of the silo
- the feed component contained in the silo
- the amounts of feed removed on the current day "Today" and the previous day "Yesterday"
- the time of the next expected silo filling under "Forecast empty"
- the current weight
- information on the fill level as a graph and as a percentage



Change the silo order in the table as a function of any of the parameters. If you click on "Forecast empty", for example, the silos are sorted in ascending order according to the time of the expected next loading, starting with the lowest number of days.

The silo locations were defined during configuration of the system. If you click on a house in the farm structure, you will only see the silos of this house.

8.2 Silo data

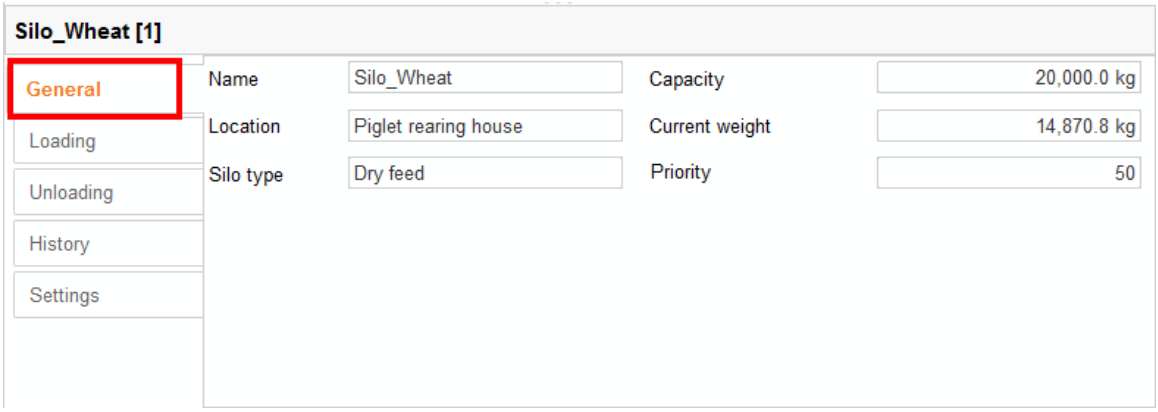
Additional silo data is displayed in the lower part of the application window based on the following categories:

- General
- Loading (delivery)
- Unloading (consumption)
- History
- Settings

In the categories "Loading" and "Settings", it is possible to edit the data of the individual silos.

General

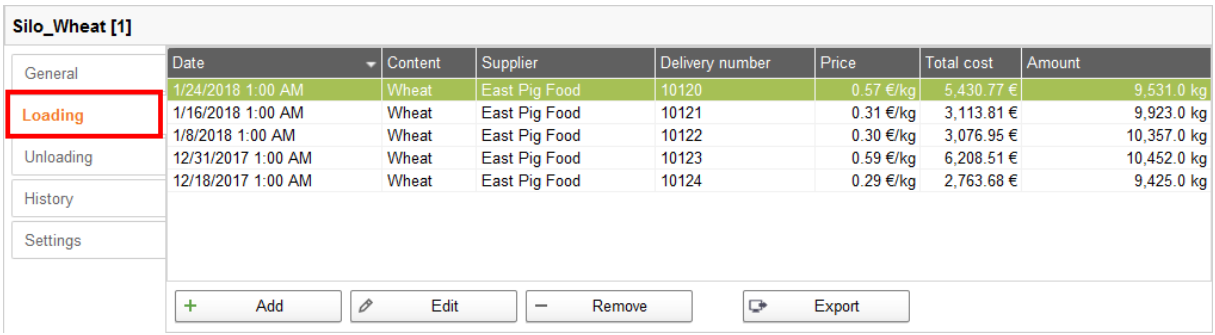
The "General" category shows general information on the selected silo.



Loading (delivery)

The category "Loading" shows the previous deliveries for the selected silos.

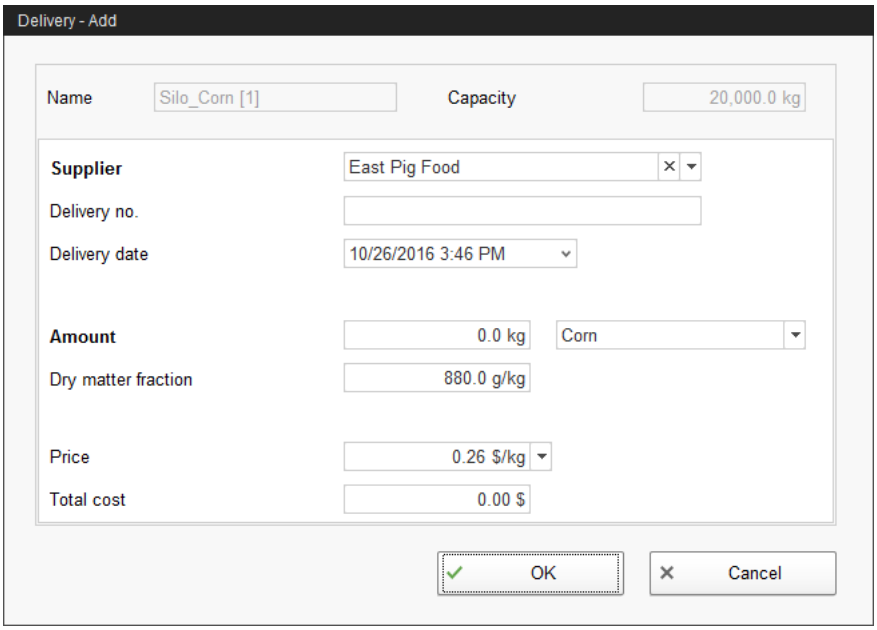
You may add, edit or delete deliveries here. You can also export the data as .csv or .xlsx file for further use if you click on the "Export" button.



Proceed as follows to add a delivery:

1. In the table, click on the silo you want to edit.
2. Under the category "Loading", click on "Add".
3. Complete the information in the next window:
   - Supplier (mandatory)
   - Delivery number
   - Delivery date
   - Amount and component (mandatory)
   - Dry matter percentage
   - Price

– Total cost (calculated automatically if information on the price and amount is entered)

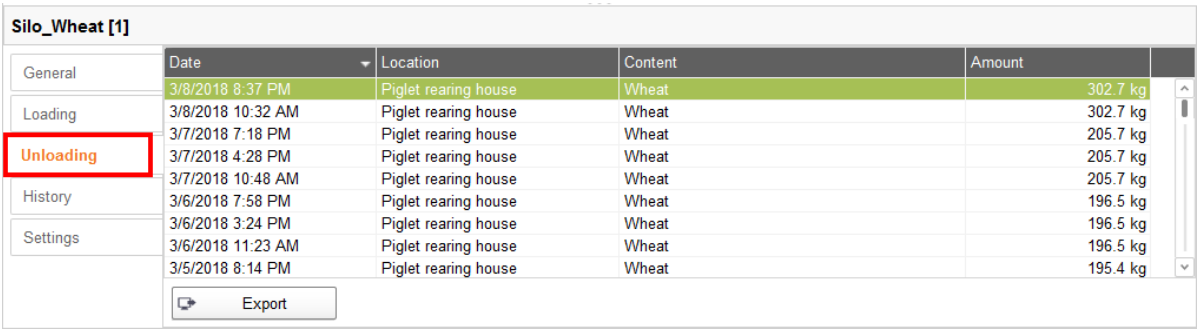


4. Click on "OK" to accept these settings.

Unloading (consumption)

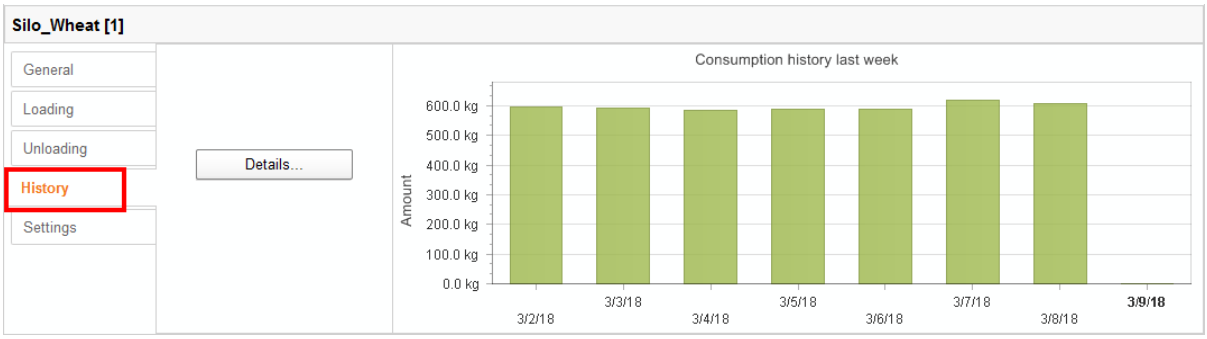
The "Unloading" category shows all quantities of feed removed from the selected silo up to now.

You may export the data as .csv or .xlsx file for further use if you click on the "Export" button.



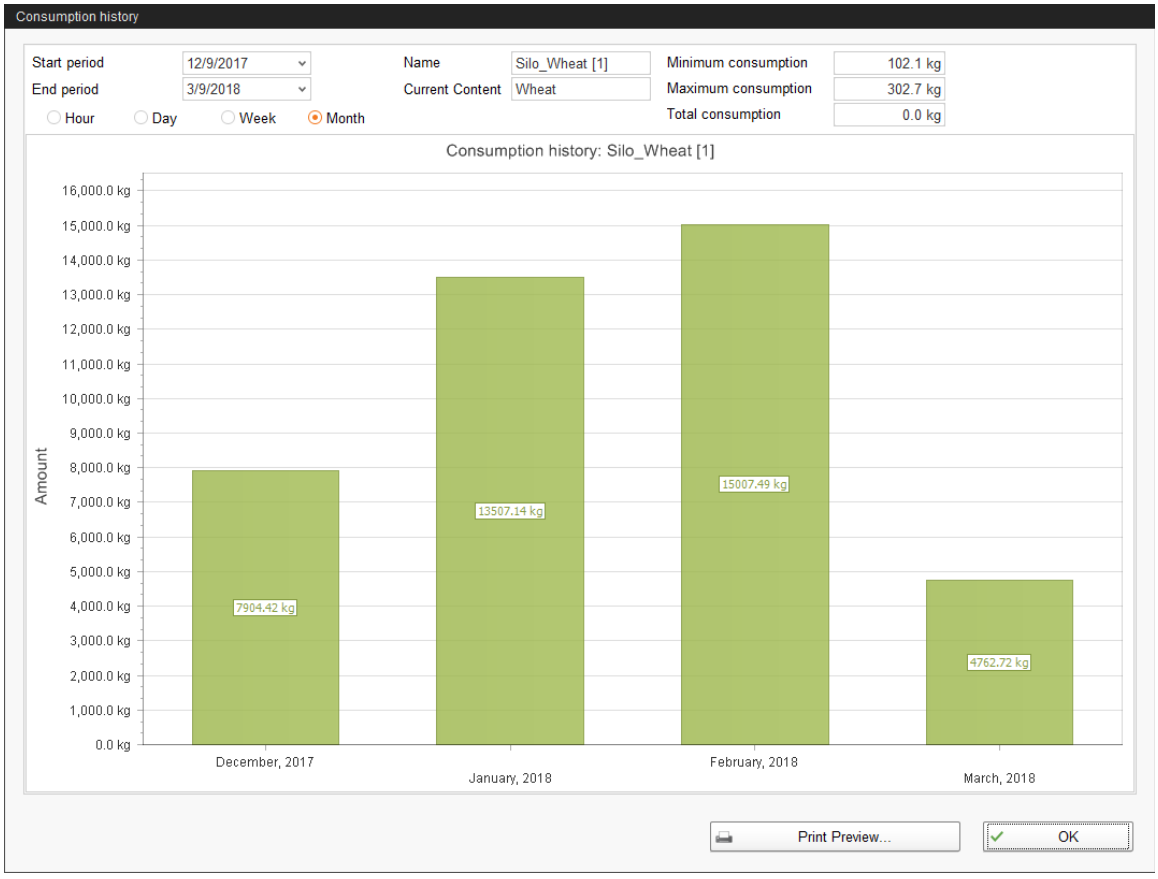
History

All feed removed from the selected silo in the past seven days is displayed in the "History" category as a bar chart.



Clicking on the "Details" button opens the "Consumption history" window. You may select the time period for the consumption history freely and with more details in this window.

1. Under "Start time" and "End time", enter the desired dates.
2. Select a time period: Hour, day, week or month.
3. Clicking on the "Print Preview" button opens a print preview to print out the data.



Settings

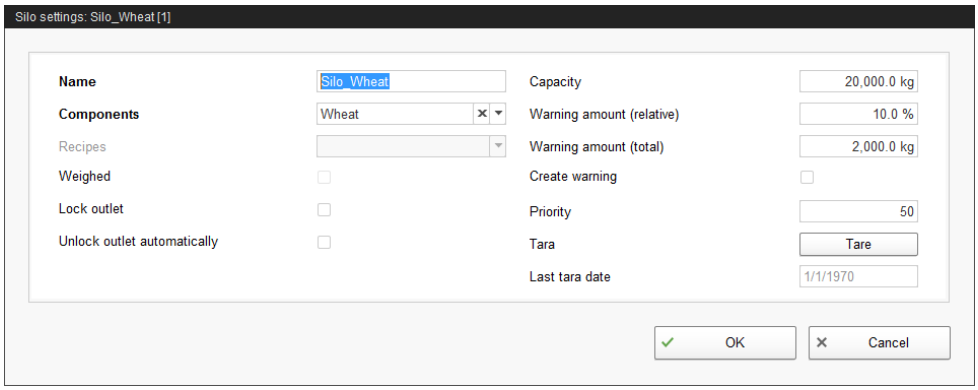
The "Settings" category show the basic data of the selected silo.

Proceed as follows to change the settings:

1. In the table, click on the silo you want to edit.
2. Under the category "Settings", click on "Edit".
3. Change the following settings, if necessary:
   - Name of the silo
   - Components or recipes mean the content of the silo
   - Capacity of the silo
   - Warning amount (relative) or warning amount (absolute): If you enter one of these values, the other one is calculated automatically.

     The relative warning amount refers to the silo's capacity.

     If the silo weight falls below the (absolute) warning amount, an alarm for a critical fill level is generated.
   - Priority: Use this function to prioritize the silos. The higher the value, the earlier the system uses components from this silo.
   - "Tara" is used to set the weighing system of the silo to zero. This is only possible if the silo is completely empty.



	BigFarmNet automatically blocks a silo whose content has been completely used up. After each delivery, check whether the box next to “Block outlet” has been checked by BigFarmNet and if necessary remove the check.

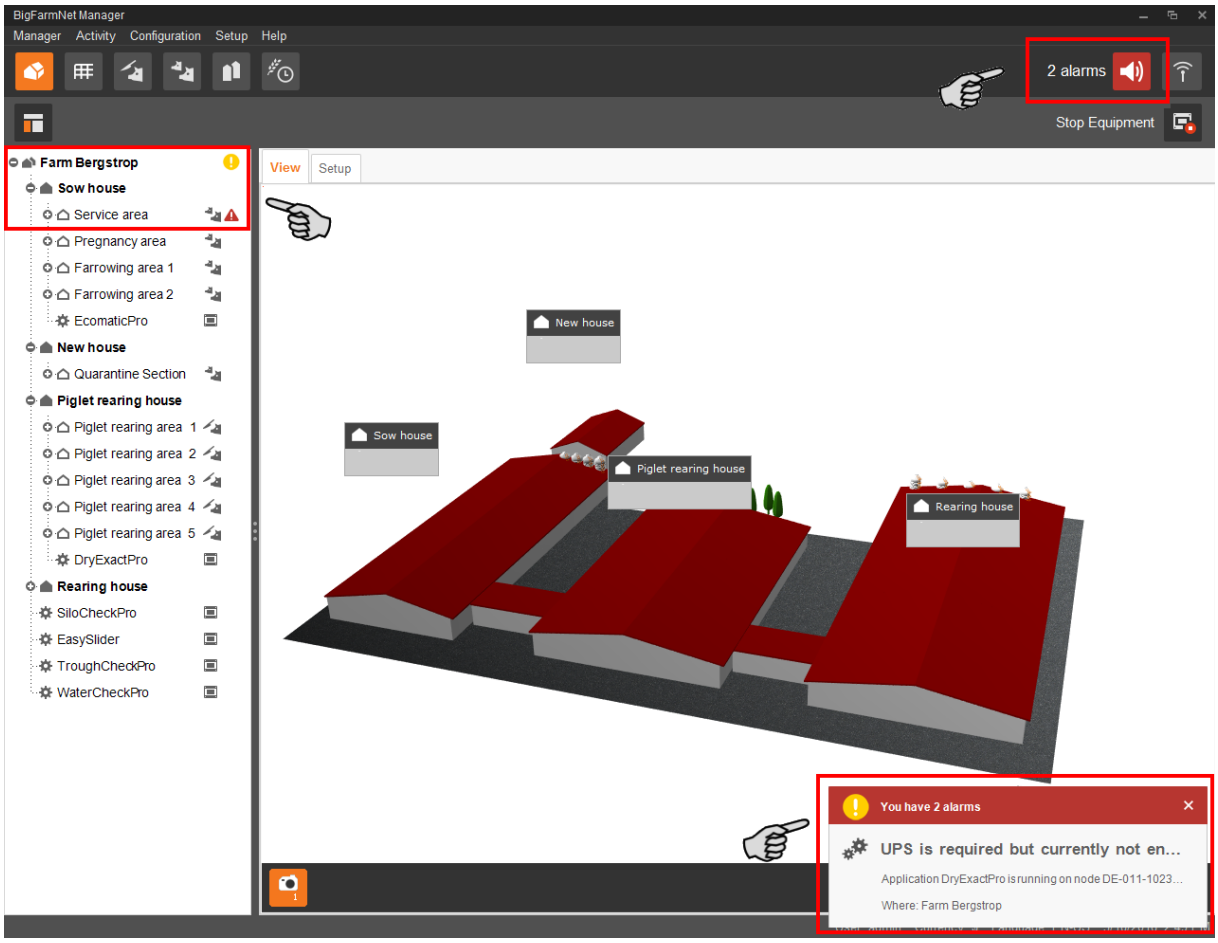
4. Click on "OK" to accept these settings.

9 Alarms

An alarm is triggered when the set values are not met during operation or when there are malfunctions. Warnings are also counted as alarms. Alarms are first registered by the control computer. The control computer then sends the alarm message to the BigFarmNet Manager.

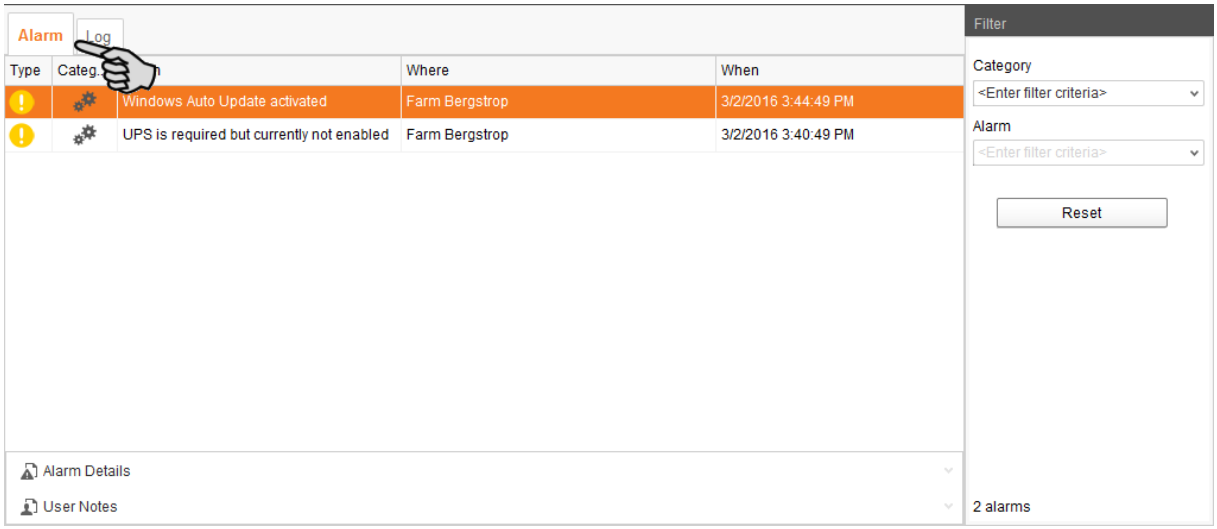
The BigFarmNet Manager indicates alarms as follows:

- Pop-up window: The window appears as soon as an alarm is registered, irrespective of the application the user is currently working in.
- Farm structure: Locations with a current problem are marked with a triangle in case of an alarm and with a circle in case of a warning.
- Tool bar: The number of alarms is shown next to the alarm icon.



Click on the pop-up window or the alarm icon in the tool bar to open the "Alarm" tab in the application window. The "Alarm" tab lists all active alarms and warnings.

If you click on a location with alarm or warning icon in the farm structure, the "Alarm" tab only shows problems active in the respective location.



The different alarms and warnings are shown in a list and ordered depending on when they occurred. The table columns contain the following information:

- Type: Alarm type
- Category: Alarm category
- Alarm: Alarm cause
- Where: Location of the alarm
- When: Time of occurrence

Alarm types

Icon	Status	Description
	Active alarm	Not acknowledged: Cause still exists.
	Inactive alarm	Not acknowledged: Cause no longer exists.
	Deactivated alarm	Acknowledged: Cause still exists.
	Ended alarm	Acknowledged: Cause no longer exists.
	Active warning	Not acknowledged: Cause still exists.
	Ended warning	Acknowledged: Cause no longer exists.
	Info	Information about an incident that has occurred.

Alarm categories

Icon	Category
	Climate: temperature, humidity
	Control, IO connection or test (system-specific)
	BigFarmNet system or CAN bus
	Dry feeding
	Liquid feeding
	SiloCheck system
	WaterCheck system

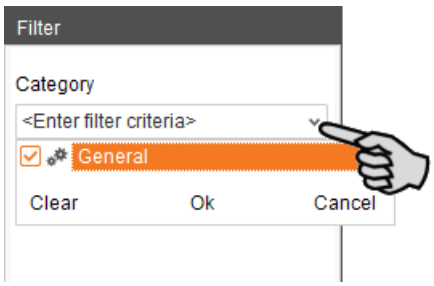
	Always eliminate causes for alarms in the "Climate" category first.

9.1 Filtering alarms

Alarms can be filtered according to category as well as cause.

1. In the right-hand part of the window under "Filter", open the drop-down menu listing categories.

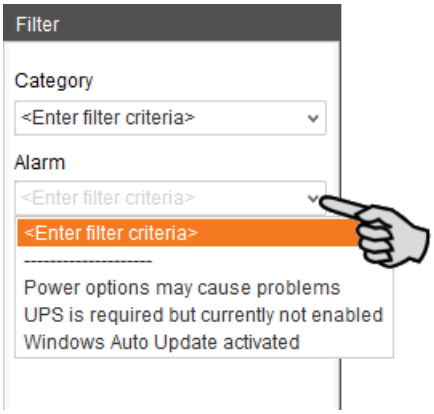
   By default, all categories are selected.



2. Click on "Clear" to delete all check marks.
3. Check the boxes of the correct categories.

4. Click on "OK" to accept this selection.
5. Under "Alarm", select the desired alarm cause from the drop-down menu.

   The table then shows the desired alarms.



6. To deselect the alarms, click on "Reset".

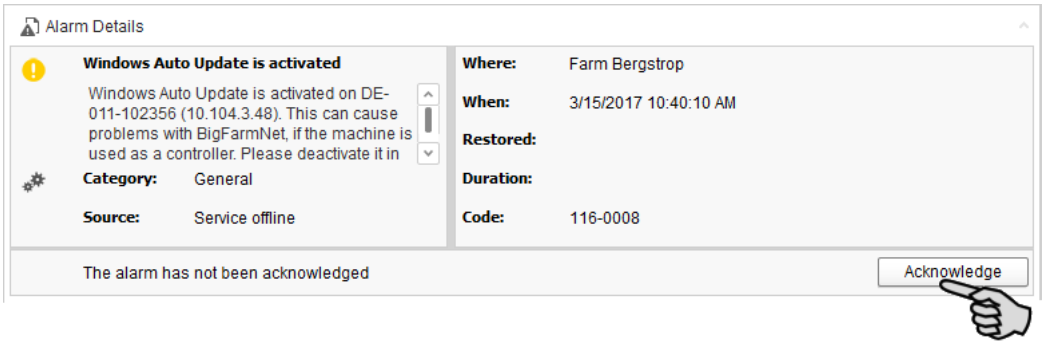
   The table now lists all alarms.

9.2 Acknowledging an alarm

Alarms can be acknowledged their cause has been eliminated. The alarm is marked with the corresponding icon (see alarm types) in the table and the system no longer requires action from the user.

1. Click on the alarm you want to acknowledge to mark it.
2. Click on "Alarm details" in the bottom part of the application window.

3. Click on "Acknowledge".



4. Click on "Acknowledge" again in the next window.

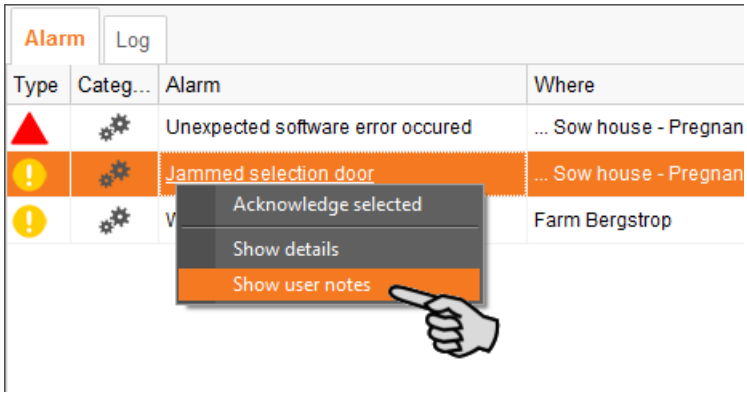
5. If necessary, leave a note on the alarm.

   This note may be helpful to later eliminate similar alarms.

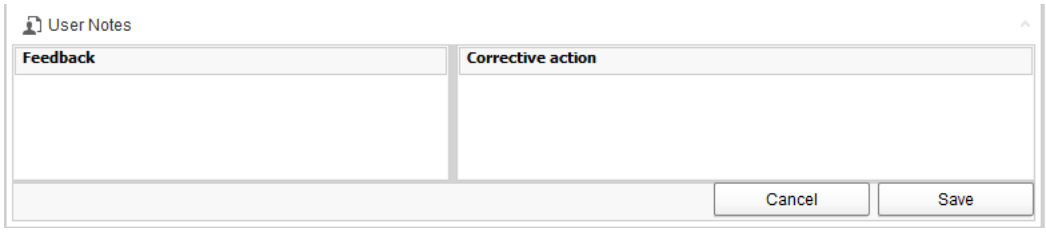
   a) Click on the alarm for which you want to leave a note to mark it.

   b) Right-click to open the context menu and click on "Show user notes".

   The window "User notes" opens in the lower part of the application window.



   c) Enter your note into the field "Feedback" or "Corrective action".

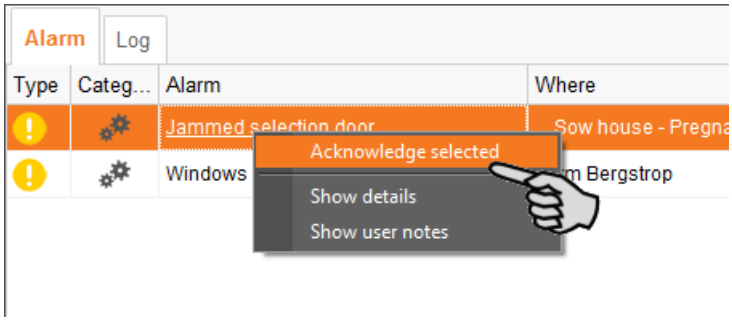


   d) Click on "Save".

Or:

	You can also acknowledge multiple alarms at the same time. Use the following key combination to select the respective alarms: • To select a group of consecutive alarms: Click on the first alarm, press and hold the Shift key and then click on the last alarm you want to select. • To select multiple alarms individually: Press and hold Ctrl and click on each alarm you want to select. • To select all alarms: Press and hold Ctrl and then press A.

1. Select one or more alarms.
2. Right-click to open the context menu and click on "Acknowledge selected".



3. Click on "Acknowledge" in the next window.

9.3 Alarm log

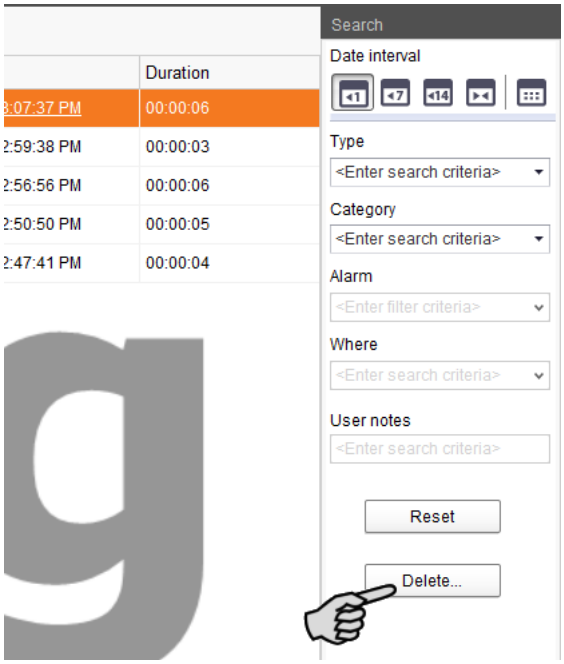
The "Log" tab shows all alarms which have occurred since initial operation of the BigFarmNet Manager on your farm.

Use the search function to view selected alarms in this tab. The following search options are available in the right-hand part of the window under "Search":

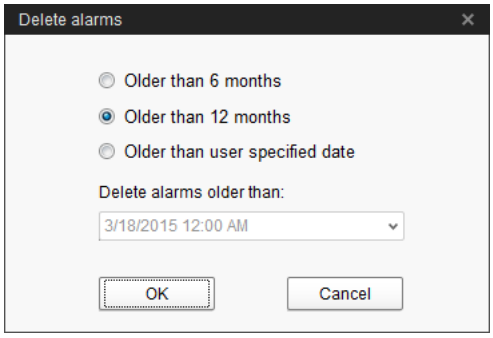
- Date interval: Time periods during which alarms may have occurred
- Type: Alarm type
- Category: Alarm category
- Alarm: Alarm cause
- Where: Location of the alarm
- User notes: provided user notes have been left

Deleting alarms

1. Click on "Delete..." in the right-hand part of the "Log" tab.



2. Click on the desired time period or enter a date.



	Only alarms older than six months can be deleted.

3. Click on "OK".

   All alarms of the selected time period are deleted, irrespective of whether specific alarms are currently selected via the search function.

9.4 Alarm Notification

Alarm Notification is a service that sends alarms via email. Alarm notification via SMS is currently not supported.

To use the Alarm Notification service via email, configure the service in BigFarmNet Manager. The following technical conditions must be met for email notifications:

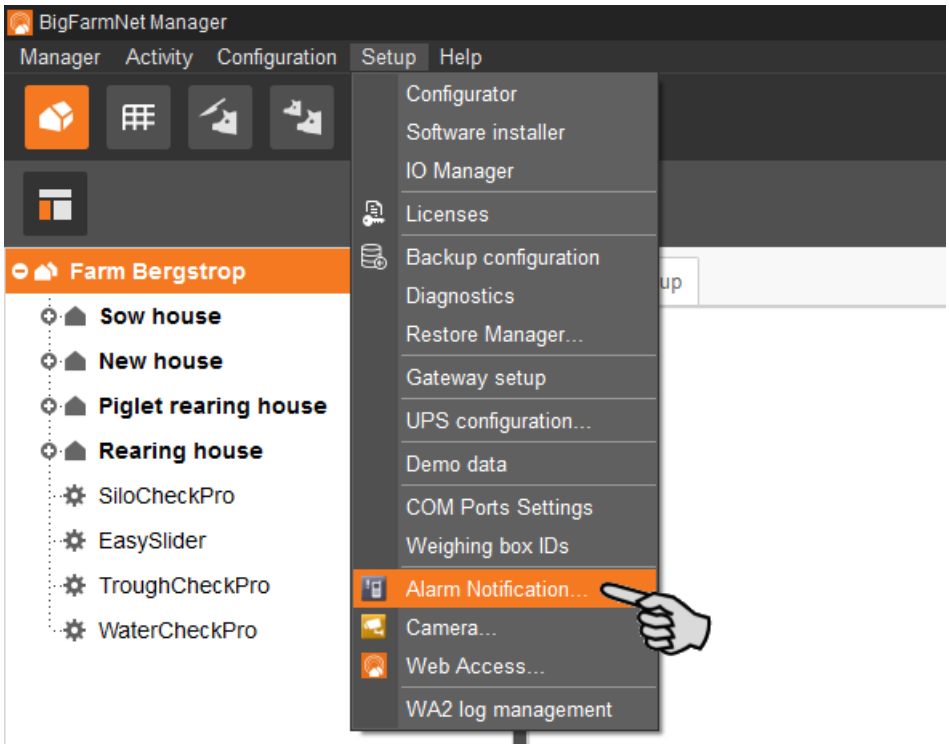
- Internet connection
- running BigFarmNet Manager

	The Alarm Notification service cannot replace an autocaller! The service is merely an additional help.

Carry out the following steps to set up the Alarm Notification service:

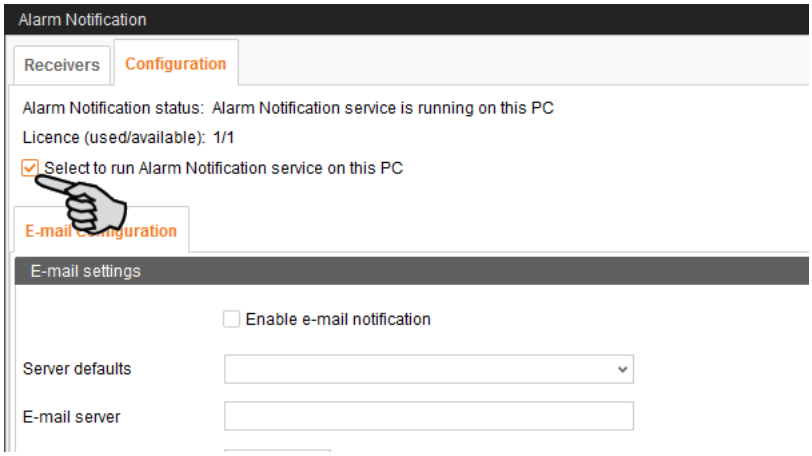
1. Click on "Alarm Notification" in the "Setup" menu.

   This opens the dialog window "Alarm Notification".

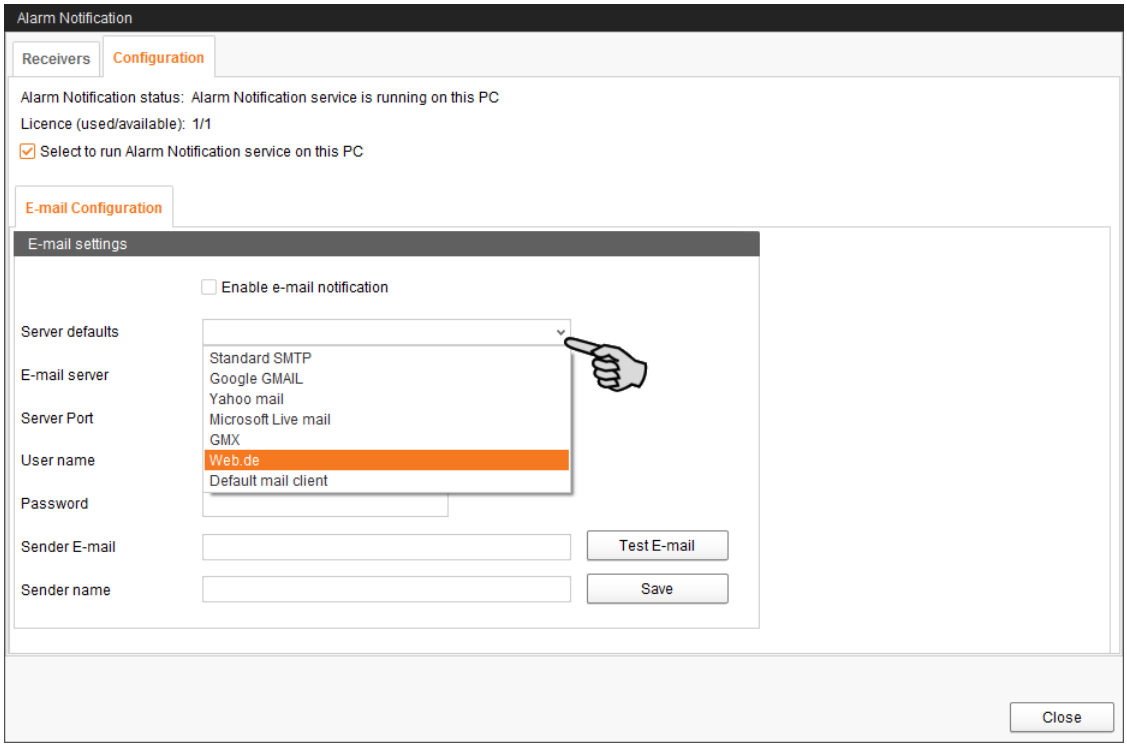


2. Click on the "Configuration" tab in the dialog window.

3. Check the box "Select to run Alarm Notification service on this PC".

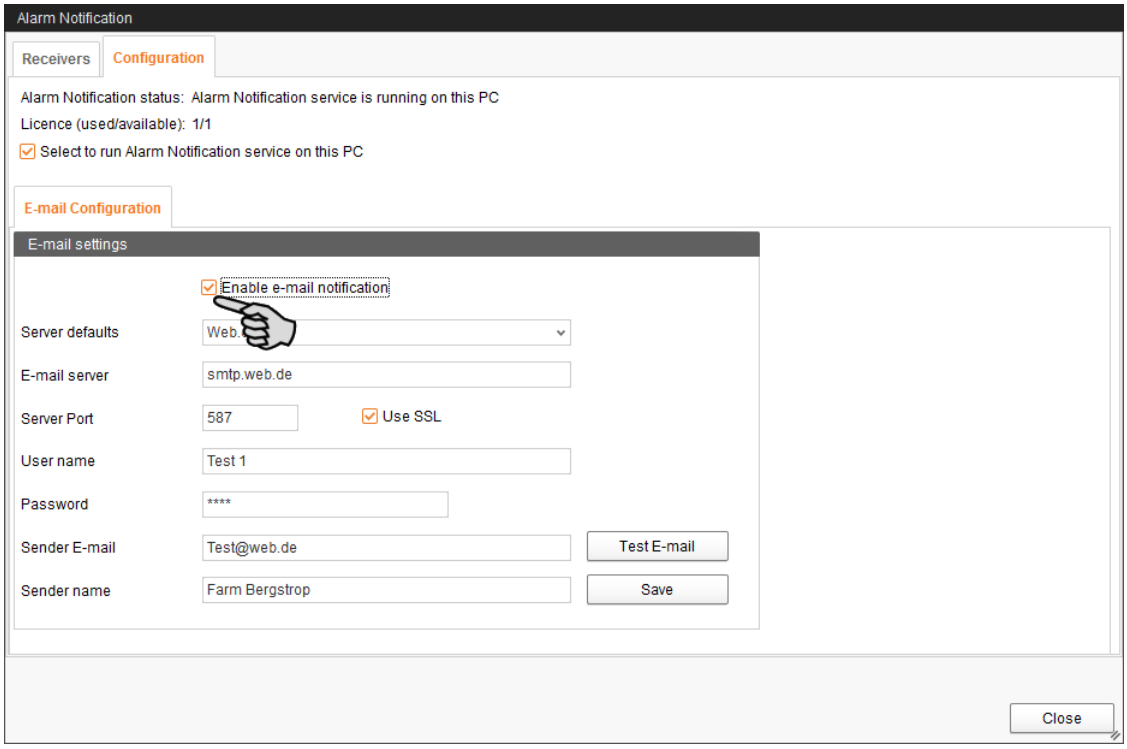


4. Click on the arrow pointing downwards next to "Server defaults" and select your server default from the drop-down menu.

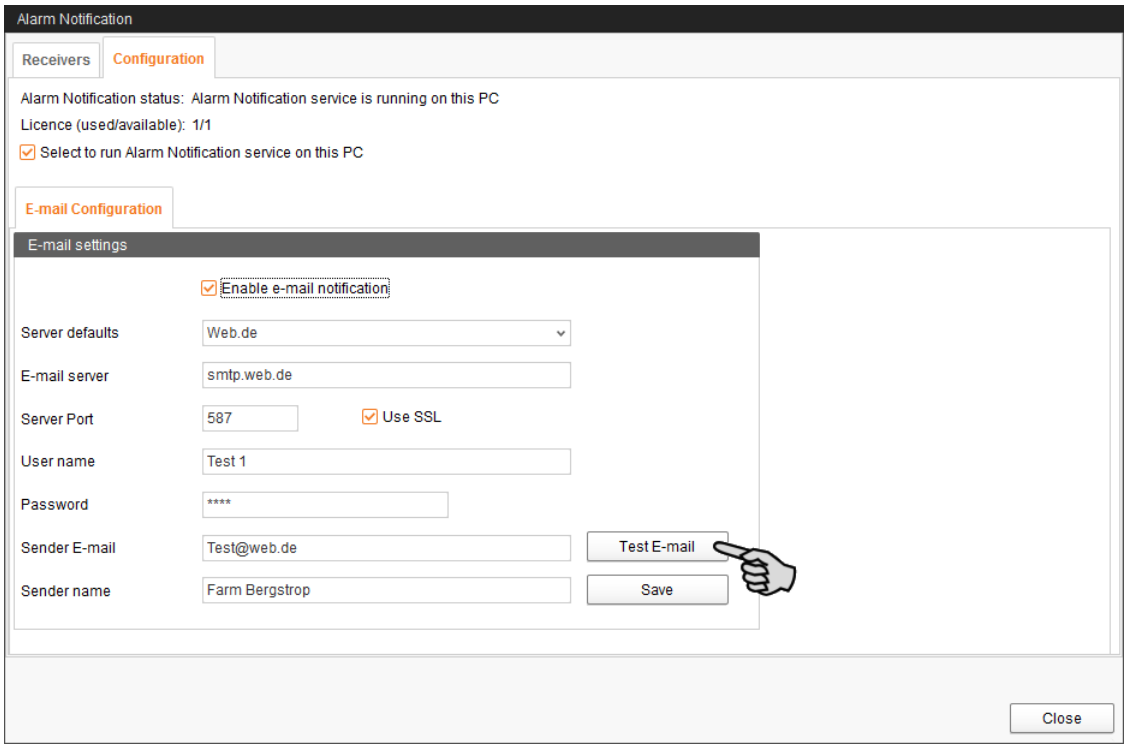


As soon as you have selected a server default, the email server, the server port and the SSL are filled in automatically.

5. Enter the user name, the password and the sender email.
6. Check the box "Enable e-mail notification" to activate this function.

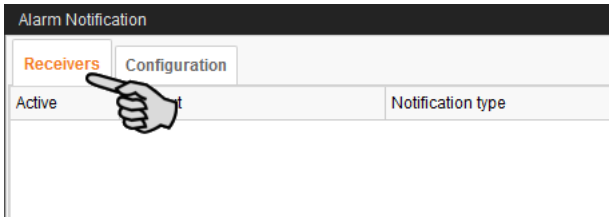


7. Click on "Test E-mail" to check the configuration.

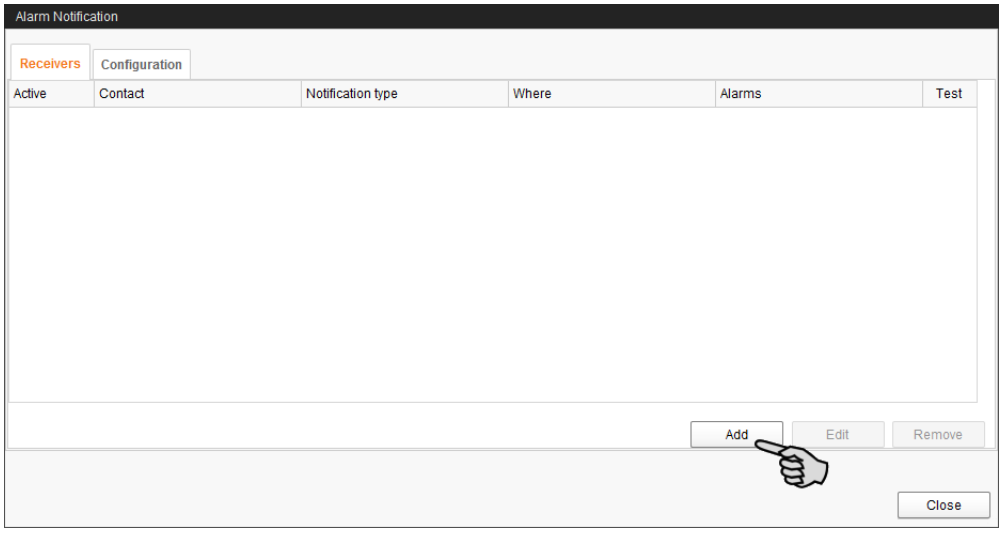


8. Click on "Save" to accept all settings.

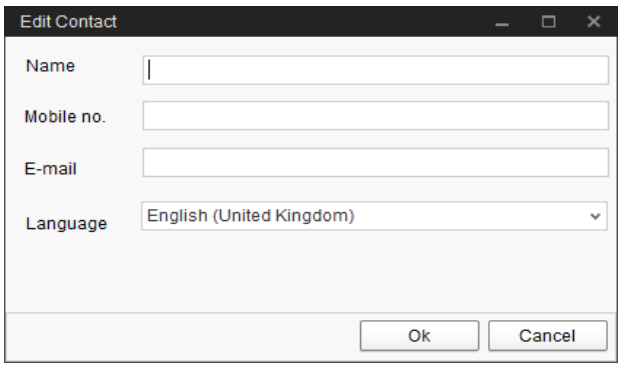
9. Click on the "Receivers" tab.



10. Click on "Add" to add a recipient.

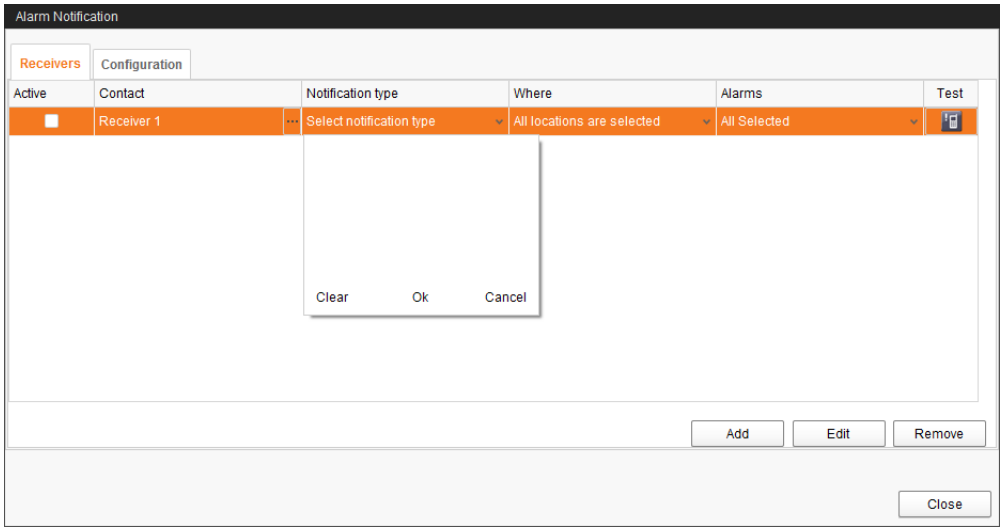


11. Enter the contact details in the next dialog window and select the correct language. Alarm notifications via SMS are currently not supported.



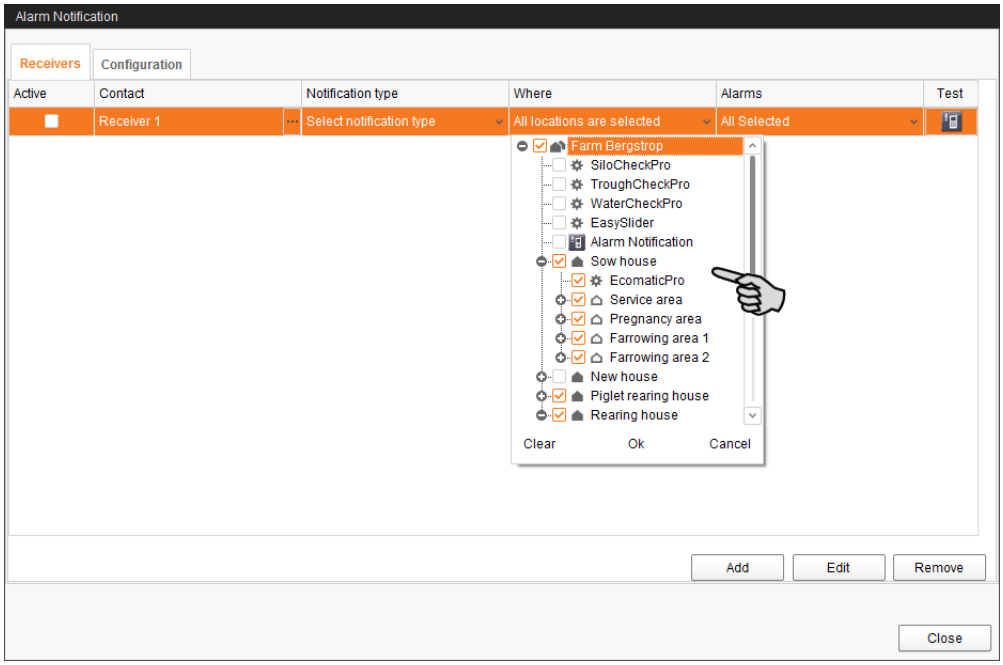
12. Confirm your input by clicking on "OK".

13. Click into the input field below "Notification type" and select "E-mail" from the drop-down menu.



14. Confirm your selection by clicking on OK at the bottom of the drop-down list.
15. Click into the input field below "Where" and select the location for which you want to receive alarms.

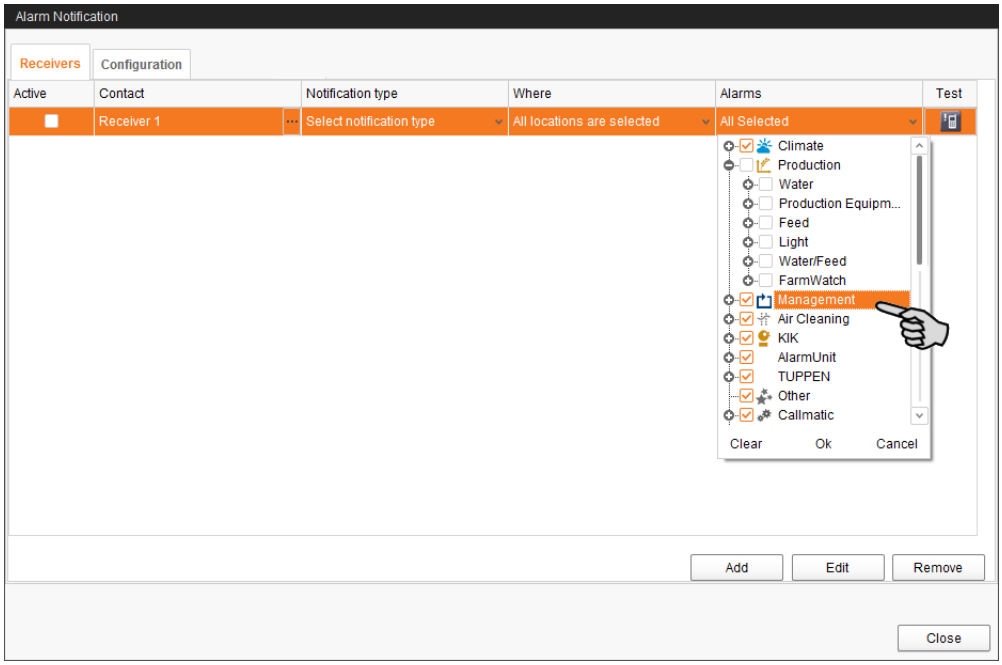
    You may select multiple locations.



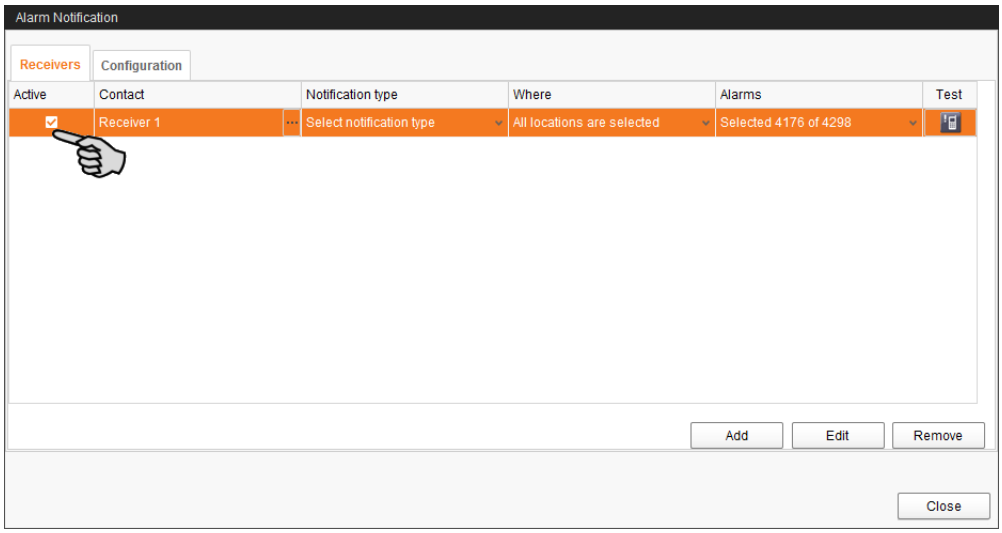
16. Confirm your selection by clicking on OK at the bottom of the drop-down list.

17. Click into the input field below "Alarms" and select which type of alarms the recipient should receive.

    You may select multiple locations.



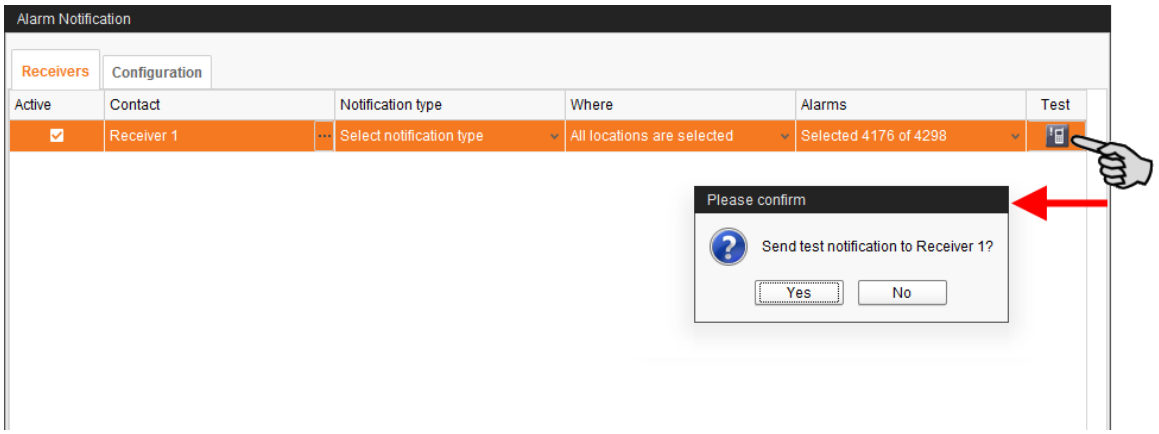
18. Confirm your selection by clicking on OK at the bottom of the drop-down list.
19. Activate the recipient for alarm notifications by checking the box below "Active"



20. Check the configuration of the recipient's data by sending the recipient a test notification:

    a) Click on the alarm notification icon.

    b) Confirm the dialog for test notification by clicking on "Yes".



21. Click on "Close" after you have configured all settings.

    This closes the dialog window.

10 Operation of the control computer

The CulinaMix*pro* application uses the 510*pro* control computer to control the CulinaFlex feeding system for suckling pigs. The CulinaFlex feeding system can also be controlled independently of BigFarmNet Manager by the 510*pro* control computer.

The control computer and BigFarmNet Manager constantly exchange data when they are connected. All control computer data is transferred to the Manager PC in the farm office and vice versa.

10.1 Technical data

Dimensions (H x W x D)	381 mm x 400 mm x 170 mm
Protection degree according to EN60529	IP 54
Supply voltage	115 V, 200 V and 230 V/240 V AC +/- 10 %
Supply frequency	50/60 Hz
Power consumption	75 VA
Network	2 network interfaces, 10/100 BASE+TX RJ 45
USB	2 USB interfaces, USB 2.0 type A, max. 4 GB
Ambient temperature	-10 to +45 °C (+14 to +113 °F)
30 punch holes for metric cable gland M 25 x 1.5	
Code no.	91-02-4041

10.2 Icons

Overview / Start screen

You are currently in the overview.

Settings menu

You are currently in the settings menu.

Alarm

An alarm is active.

You are currently in the alarm menu.

Logout

Stop the equipment / system

Information on the settings parameter

Return to previous view

Open additional information or settings

Scroll up / down in selection

Expand structure

Collapse structure

Network configuration

Go to the next edit window / settings window

Save input

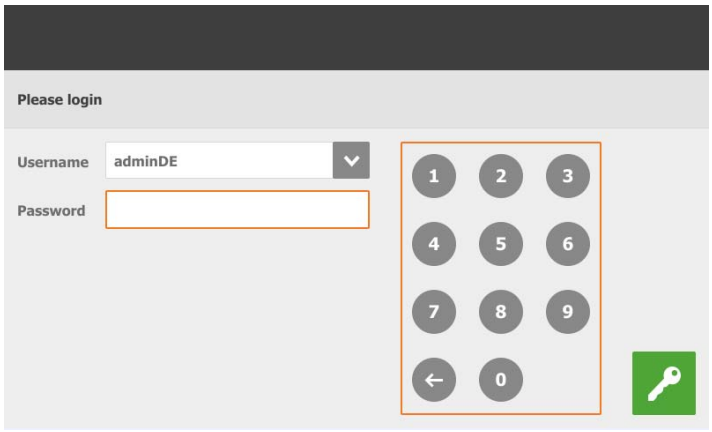
Login

10.3 Login

Log into the control computer using the login dialog.

The login dialog appears

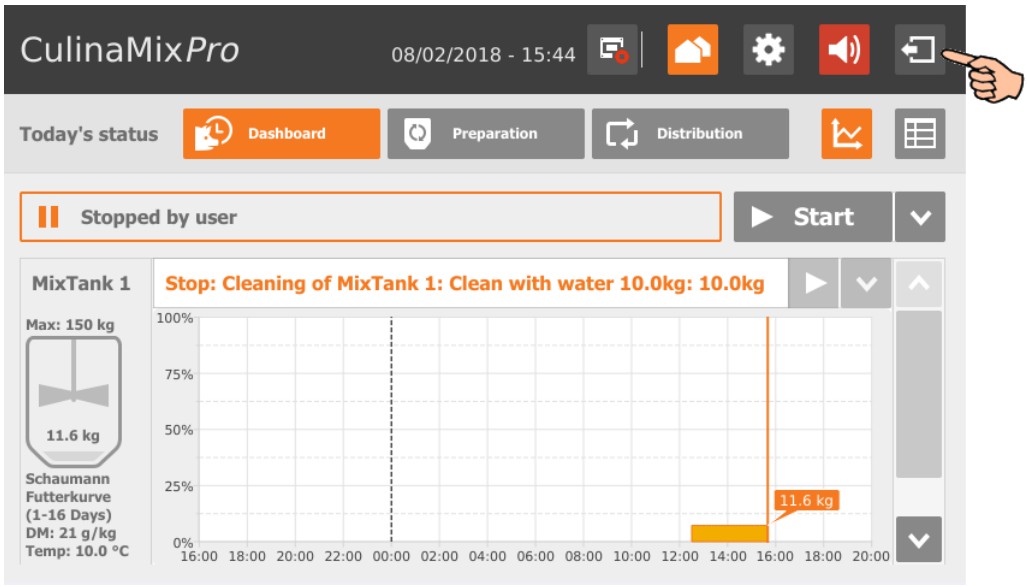
- automatically after the software has been installed successfully, when the application starts;
- automatically after a specific time without activity (automatic logout); or
- if you actively log out of the control computer.



	The user name and the password are the same as when logging into BigFarmNet Manager.

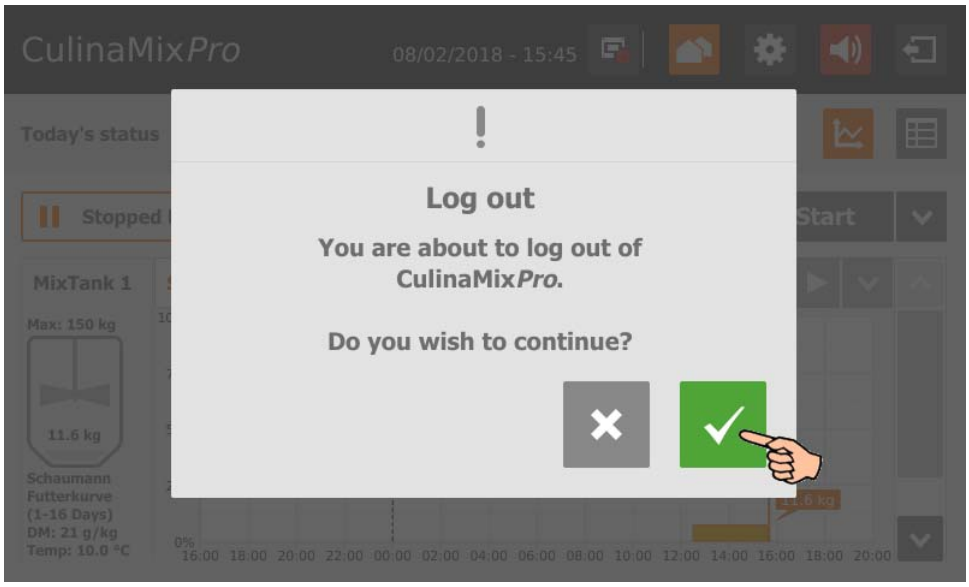
10.4 Logout

1. Tap on the "Logout" icon to log out.

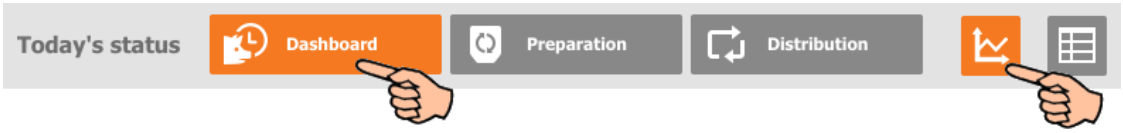


2. Confirm that you are logging out.

   The login dialog appears on the display again.



10.5 Dashboard diagram view

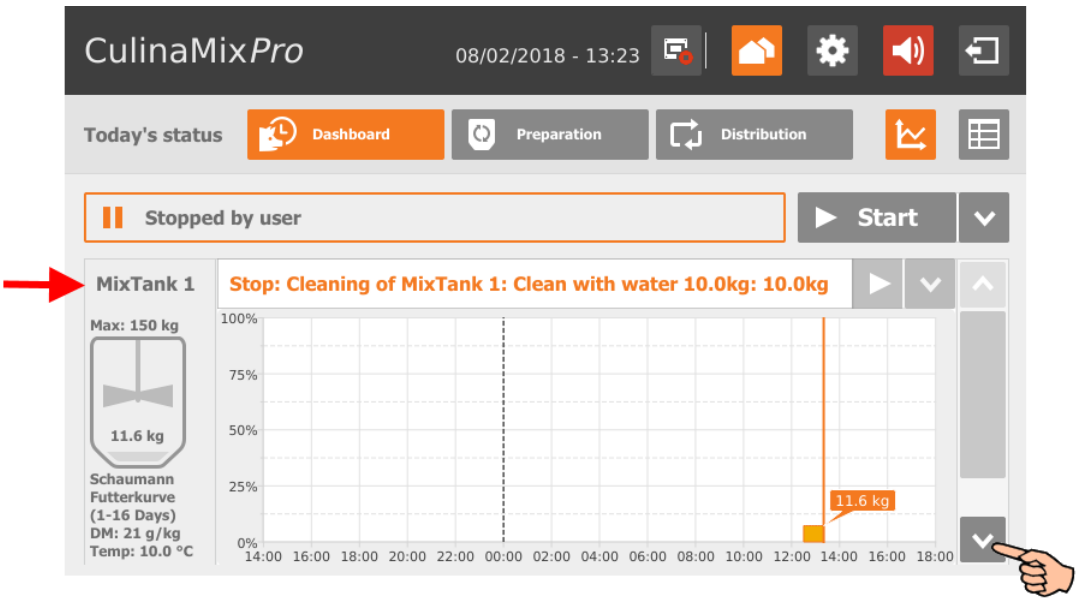


This view appears as start screen after logging in, and offers the following information and functions:

10.5.1 Trend mixing tank contents

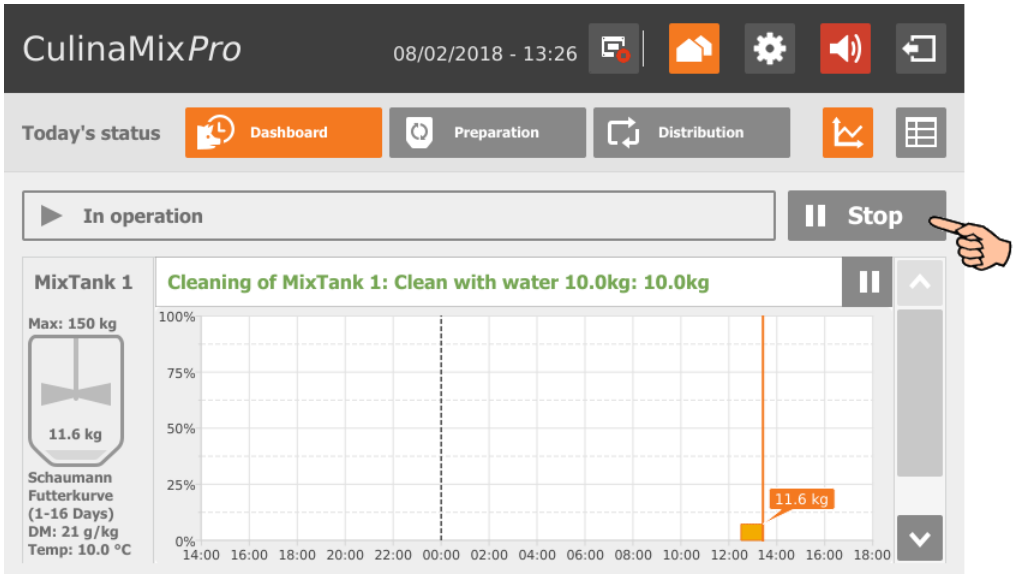
The contents of the first mixing tanks are indicated for the past 24 hours. The diagram shows at which times of the day weight changes occurred.

Use the vertical scroll bar to see the other mixing tanks.

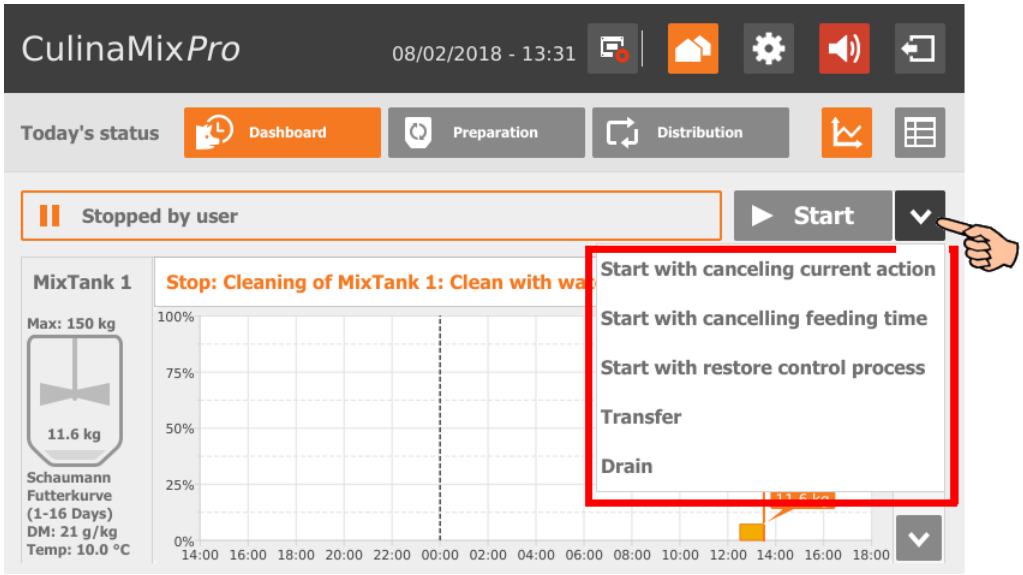


10.5.2 Stopping / starting the system

You can stop the entire system during operation by tapping on "Stop". If you tap on "Start" again, the system continues to operate with the current action or task.



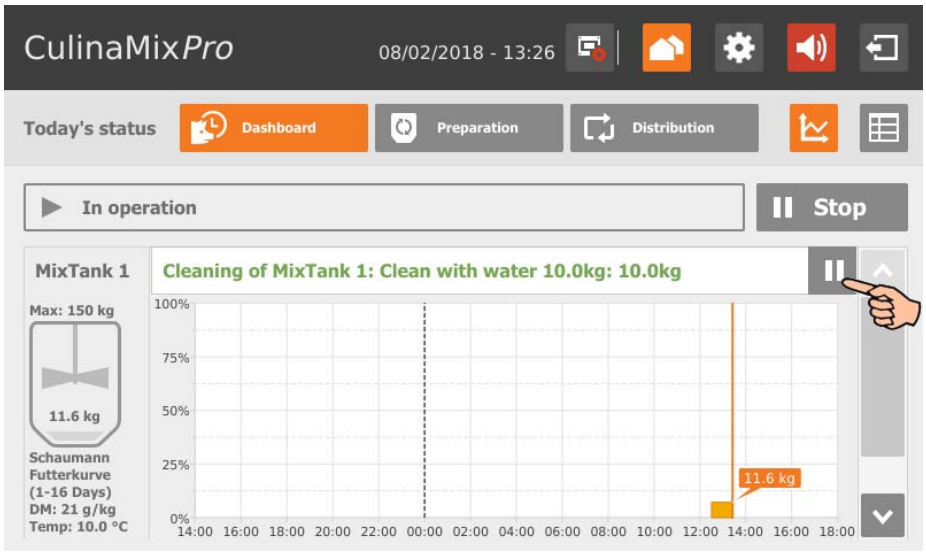
However, if you do not want to continue with the current action, tap on the arrow pointing downwards next to the "Start" button and select the correct option from the context menu.



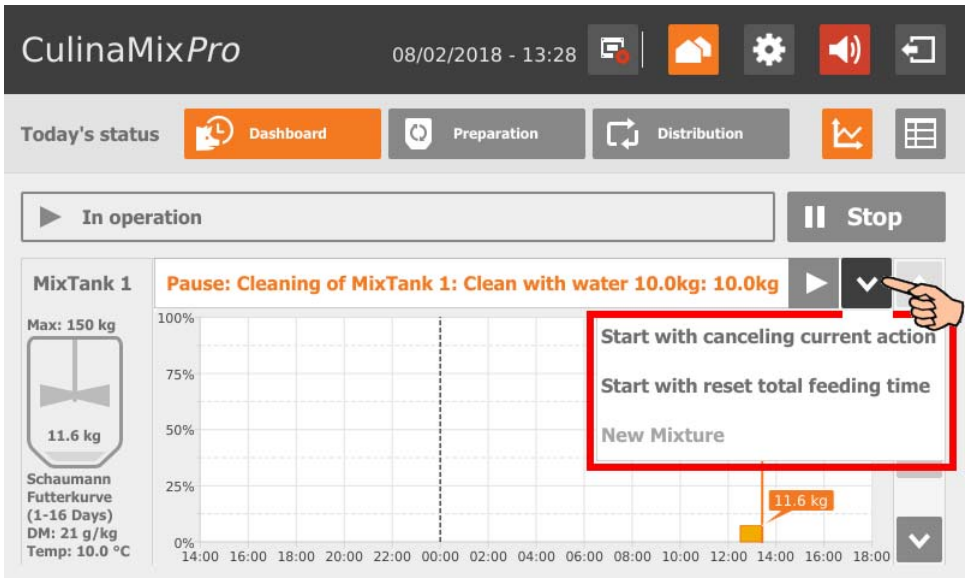
- **Start with canceling current action:** The system starts, cancels the current action and continues with the next action that was defined in the Task Manager.
- **Start with canceling the feeding time:** The system starts and cancels the current task, e.g. feeding or cleaning.
- **Start with restoring control process** In case of control errors of the BigFarmNet Manager, use this option to restart the entire system including all processes.
- **Transfer**
- **Drain**

10.5.3 Stopping / starting the mixing tank

The CulinaMix*pro* mixing tanks are sub-applications. You can stop each mixing tanks individually during operation by tapping on the corresponding stop button. If you tap on "Start" again, the mixing tank continues to operate with the current action.



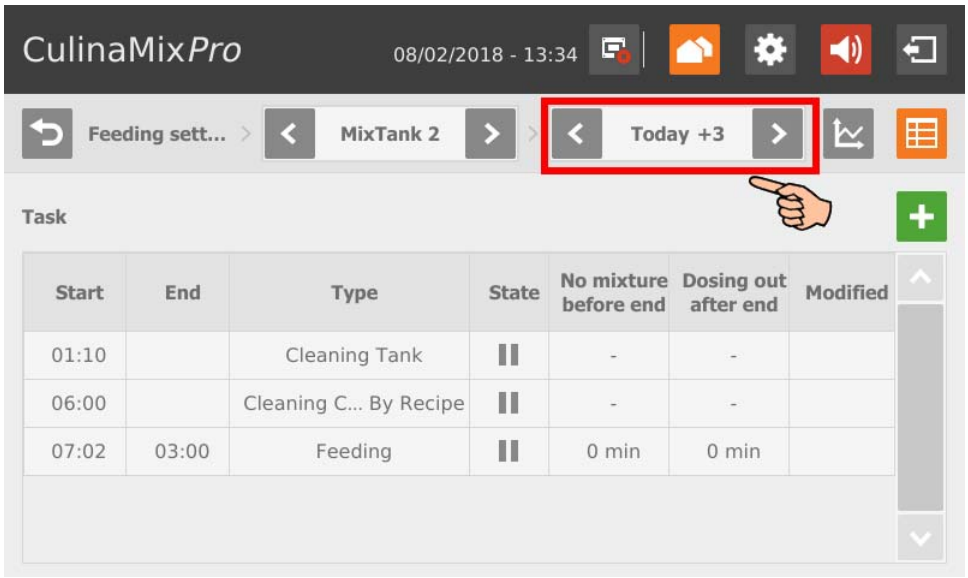
However, if you do not want to continue with the current action, tap on the arrow pointing downwards next to the "Start" button and select the correct option from the context menu.



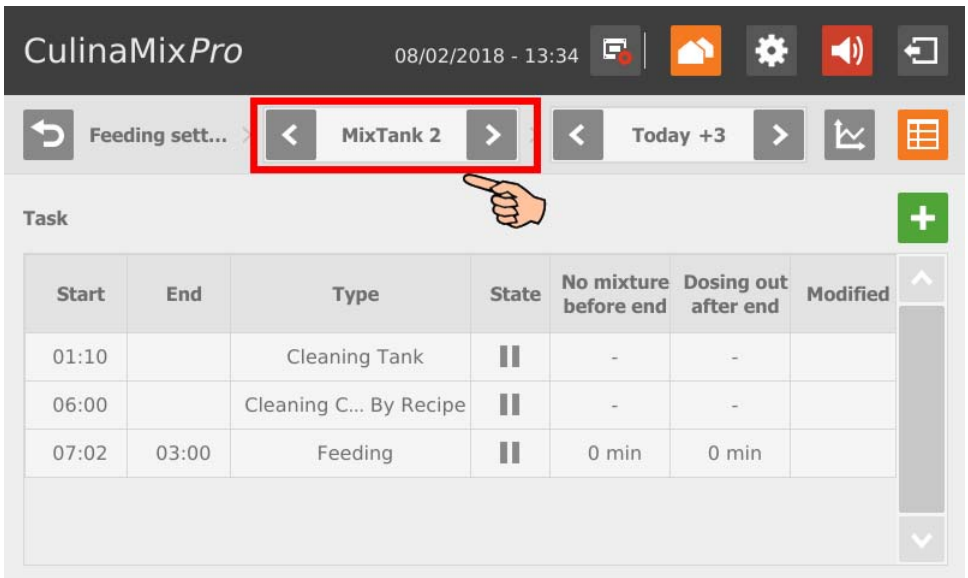
- **Start with canceling current action:** The mixing tank starts, cancels the current action and continues with the next action defined in the Task Manager.
- **Start with reset total feeding time:** The mixing tank starts and cancels the current task, e.g. feeding or cleaning.
- **New mixture:** The mixing tank starts and mixes a new recipe. A dialog to indicate the amount opens.

10.6 Dashboard Task Manager

Tap on the table icon in the "Dashboard" view to switch to the Task Manager. The Task Manager allows you to save feeding and cleaning tasks for each mixing tank. All tasks are displayed in a table for each mixing tank, and consecutively based on the time. You may view tasks of individual days up to a week in advance, starting with the current day. For example: "Today" = Tuesday, i.e. "Today +3" = Friday.



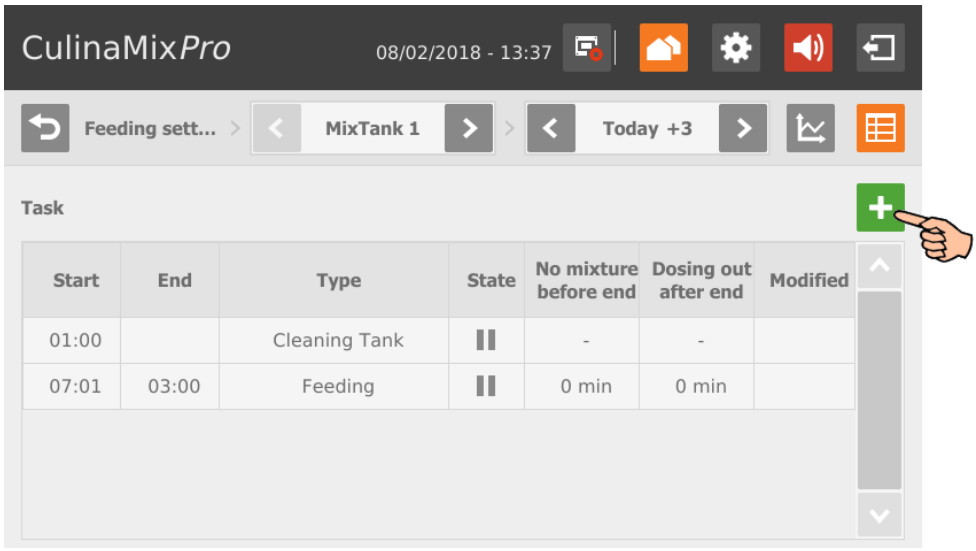
Use the arrows pointing to the left and to the right in the top bar to select the correct mixing tank.



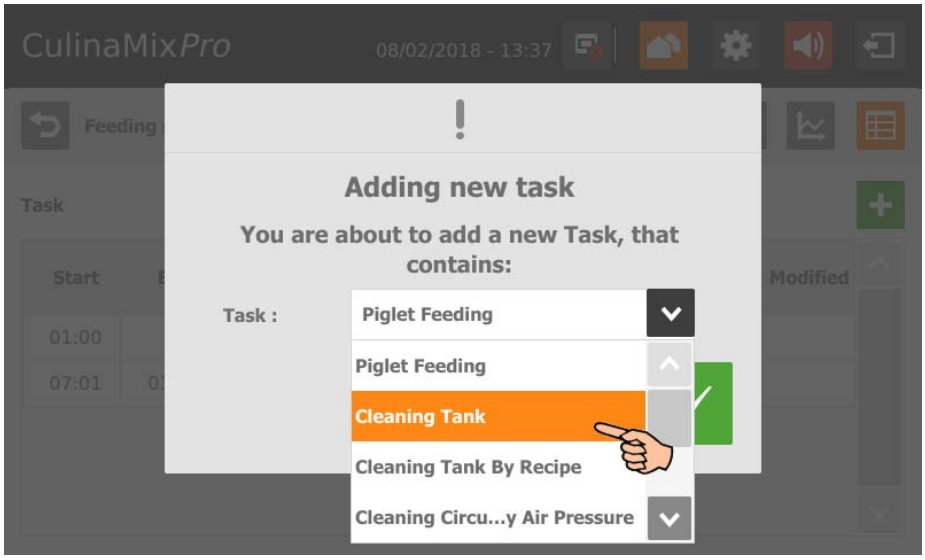
10.6.1 Defining a task

Tasks of all types (strategies) are created in the same manner. The following instructions explain how to define a new task based on the example of the cleaning task "Tank cleaning".

1. Tap on the plus icon.

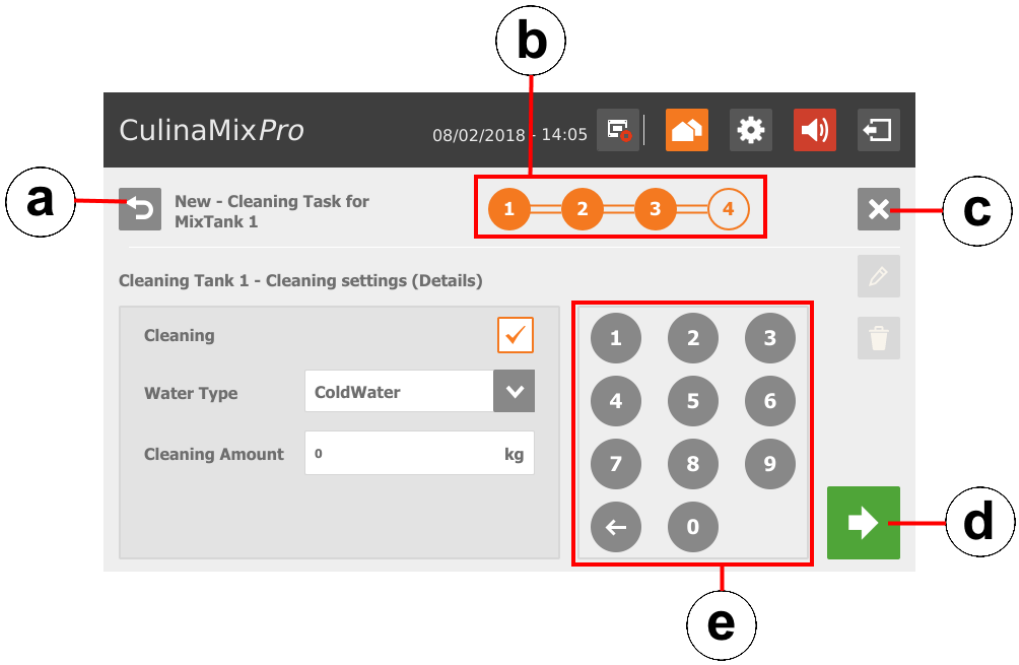


2. Tap on the input field and select the correct task.



3. Confirm your selection by tapping on ✓.
4. Tap directly into the parameters' input fields to
   - enter values using the numeric keypad;
   - open selection lists to select the correct input;
   - check boxes.

   The following functions and information are also available:



a) Return to the previous edit window of the task.

b) This timeline indicates how many edit windows exist for the task and which window you are currently editing.

c) Cancel the creation of a task.

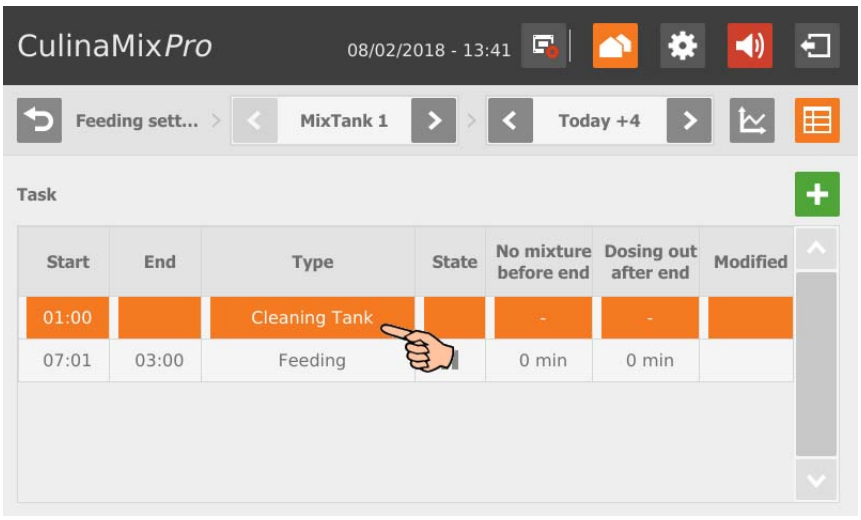
d) Move on to the next edit window. Your inputs are not changed or deleted.

e) Numeric keypad to input values.

5. When you have configured all settings and reached the final edit window, tap on  to save the task.

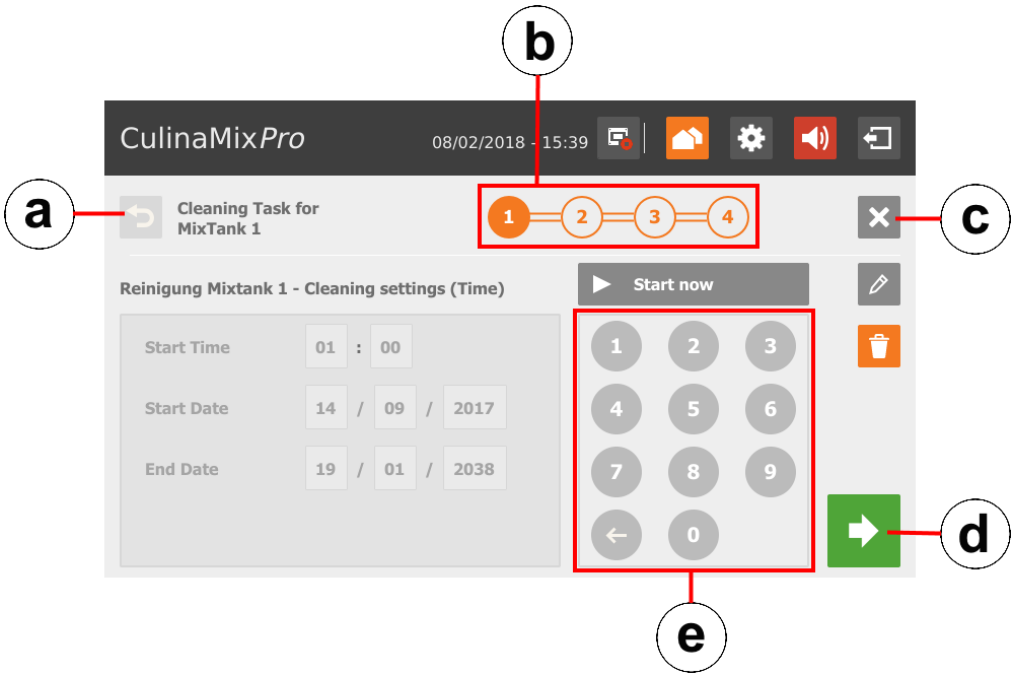
10.6.2 Editing a task

1. Tap on the task you want to edit.



2. You have the following options for editing the task:
   – Start now: Use this function to start the selected task immediately (manually), even if a different time has been saved.
   – "Edit": Edit the selected time for the current day (individual task) or for all upcoming days (complete task).
   – "Delete" or "Disable": Delete or disable the complete task.

   The following functions and information are also available:



   a) Return to the previous edit window of the task.

   b) This timeline indicates how many edit windows exist for the task and which window you are currently editing.

   c) Cancel editing of the task.

   d) Move on to the next edit window. Your inputs are not changed or deleted.

   e) Numeric keypad to input values.

3. When you have configured all settings and reached the final edit window, tap on to save the task.

10.6.3 Piglet feeding

- Define when the feeding process should start (**Start time**) and end (**End time**).
- Define the time period for this task with the **Start date** and the **End date**.
- Define when the mixing tank should prepare the last feed mixture before the "End time" (**No mixture before end = Last mix before end**).

  Example: Feeding ends at 9 p.m. and "Last mix before end" is set to 120 minutes. The tank will prepare the last feed mixture at 7 p.m.

  OR

  Define the **Water prepare time** if you want to dilute the feed step by step before feeding process ends.

  Example: The feeding process ends at 9 p.m. and "Water prepare time" is set to 120 minutes. Water will be added from 7 p.m.
- Define for how long feed may be dispensed after the end of the feeding process (**Dosing out after end = Dose time after end**). If the last feed mixture has been prepared shortly before the end of the feeding process, this feed can still be dispensed to empty the mixing tank as completely as possible. Use "Dose time after end" for this purpose.
- Define whether the pipe should be emptied by means of air (**Emptying pipe**) after the feeding process, i.e. after the "End time" and/or the "Dose time after end".
- Define whether the mixing tank should be emptied after the feeding process, i.e. after the "End time" and/or the "Dose time after end", e.g. to clean the mixing tank. Select either another mixing tank or the slurry tank for the tank contents. When emptying a mixing tank, the remaining feed is usually supplied to older animals (**Emptying mixing tank**).

10.6.4 Tank cleaning

- Define when the tank cleaning should start (**Start time**).
- Define the time period for this task with the **Start date** and the **End date**.
- **Emptying before:** Indicate whether the tank should be emptied before it is cleaned. If yes, select a different tank or the slurry tank for the tank contents.
- **User acknowledgement before:** If the box "User acknowledgement before" is checked, the system waits for manual confirmation before starting the cleaning process.

- **Emptying after:** Selection of the tank into which the cleaning amount should be emptied.
- **User acknowledgement after:** If the box "User acknowledgement after" is checked, the system waits for manual confirmation before completing the cleaning process.
- **Cleaning** refers to the option of cleaning with water. When choosing this option, select either warm or cold water (**Water type**) and define the **Cleaning amount** of water, which should be greater than the minimum cleaning amount.
- **Fogger 1:** Should the first fogger be used for fogging of the tank?
- **Fogger 2:** Should the second fogger be used for fogging of the tank?
- **Fogging time:** Duration of the fogging process. The foggers are started with a delay if fogging is carried out in another tank beforehand.
- **Waiting time** after fogging. The tank to be cleaned is always rinsed with water (minimum clean amount) after the waiting time after fogging has elapsed.

10.6.5 Tank cleaning according to a recipe

- Define when the tank cleaning should start (**Start time**).
- Define the time period for this task with the **Start date** and the **End date**.
- **Emptying before:** Indicate whether the mixing tank should be emptied before it is cleaned. If yes, select a different mixing tank or the slurry tank for the tank contents.
- **User acknowledgement before:** If the box "User acknowledgement before" is checked, the system waits for manual confirmation before starting the cleaning process.
- **Emptying after:** Selection of the tank into which the cleaning amount should be emptied.
- **User acknowledgement after:** If the box "User acknowledgement after" is checked, the system waits for manual confirmation before completing the cleaning process. Use this parameter to ensure that cleaning has been completed correctly.
- **Recipe:** Selection of a cleaning recipe that was created beforehand.
- **Amount:** The cleaning agent amount for this cleaning process. Select an amount as large as possible for effective cleaning.
- **Washing time:** The cleaning component is pumped from the mixing tank through the pipes and back into the tank within this time.

10.6.6 Circuit cleaning by means of compressed air

- Define when circuit cleaning should start (**Start time**).
- Define the time period for this task with the **Start date** and the **End date**.
- **Emptying before:** Indicate whether the mixing tank should be emptied before it is cleaned. If yes, select a different mixing tank or the slurry tank for the tank contents.
- **User acknowledgement before:** If the box "User acknowledgement before" is checked, the system waits for manual confirmation before starting the cleaning process.
- **Emptying after:** Selection of the tank into which the cleaning amount should be emptied.
- **User acknowledgement after:** If the box "User acknowledgement after" is checked, the system waits for manual confirmation before completing the cleaning process. Use this parameter to ensure that cleaning has been completed correctly.
- **Water type:** Select either warm or cold water.

10.6.7 Circuit cleaning according to a recipe

- Define when circuit cleaning should start (**Start time**).
- Define the time period for this task with the **Start date** and the **End date**.
- **Emptying before:** Indicate whether the mixing tank should be emptied before it is cleaned. If yes, select a different mixing tank or the slurry tank for the tank contents.
- **User acknowledgement before:** If the box "User acknowledgement before" is checked, the system waits for manual confirmation before starting the cleaning process.
- **Emptying after:** Selection of the tank into which the cleaning amount should be emptied.
- **User acknowledgement after:** If the box "User acknowledgement after" is checked, the system waits for manual confirmation before completing the cleaning process. Use this parameter to ensure that cleaning has been completed correctly.

We recommend this setting when cleaning with lyes to ensure that the tank and pipes are empty before feeding starts. Pipes and tank are usually flushed with some water after cleaning with a lye.

- **Recipe:** Selection of a cleaning recipe that was created beforehand.

- **Waiting time:** Time for soaking in the pipes. The cleaning agent remains inside the pipes for this time.
- **Washing time:** The cleaning component is pumped from the mixing tank through the pipes and back into the tank within this time.
- **Washing amount:** The additional amount of the cleaning agent or water used for cleaning.
- **Empty pipe after:** Define whether the pipe should be emptied by means of air after the cleaning process.

10.6.8 Valve cleaning (currently cleaning valve)

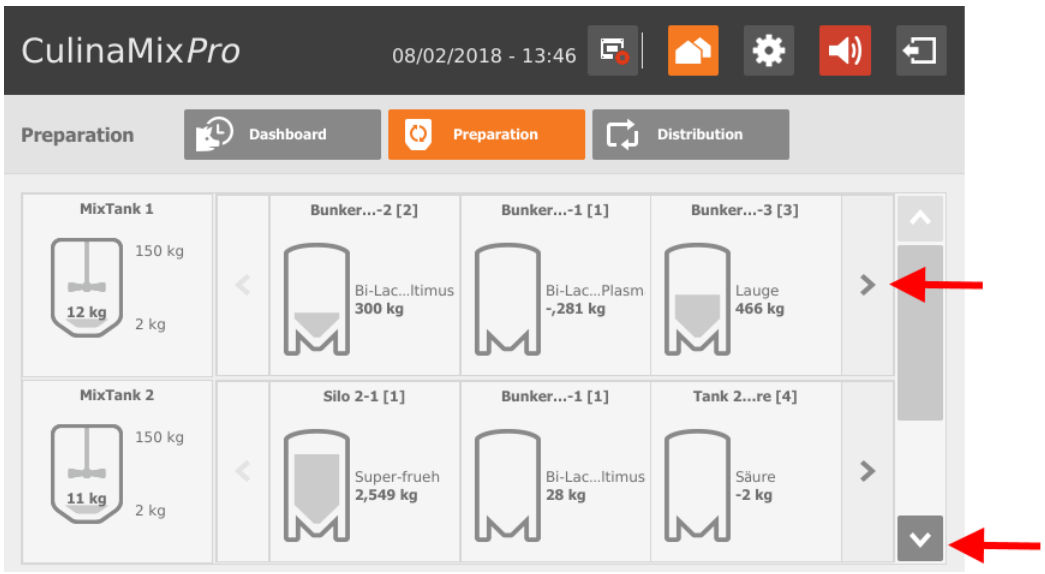
- Define when valve cleaning should start (**Start time**).
- Define the time period for this task with the **Start date** and the **End date**.
- **Emptying before:** Indicate whether the mixing tank should be emptied before it is cleaned. If yes, select a different mixing tank or the slurry tank for the tank contents.
- **User acknowledgement before:** If the box "User acknowledgement before" is checked, the system waits for manual confirmation before starting the cleaning process.
- **Emptying after:** Selection of the tank into which the cleaning amount should be emptied.
- **User acknowledgement after:** If the box "User acknowledgement after" is checked, the system waits for manual confirmation before completing the cleaning process. Use this parameter to ensure that cleaning has been completed correctly.
- **Clean only empty valves:** The system only cleans valves with the status "Empty".
- **Clean also blocked valves:** Additionally clean locked valves, e.g. in empty pens.

10.6.9 Heat exchanger

- Define when the feeding process should start (**Start time**) and end (**End time**).
- Define the time period for this task with the **Start date** and the **End date**.
- Define the **End time** at which the heat exchanger should stop.
- Define the **Temperature deviation**. The temperature in the heat exchanger is slightly higher than in the mixing tank. The heat exchanger is equipped with a temperature sensor. The "Equipment" window of the mixing tank shows the heat exchanger's temperature in the graphical depiction.

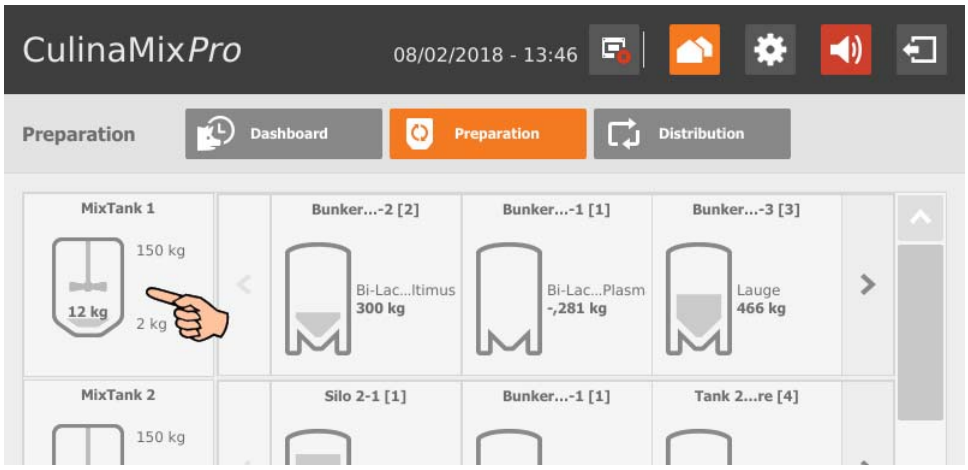
10.7 Preparation – Overview

The "Preparation" view provides an overview of the mixing tanks, including the corresponding silos and other containers. Use the different arrows to switch to other silos and containers or to view more mixing tanks.

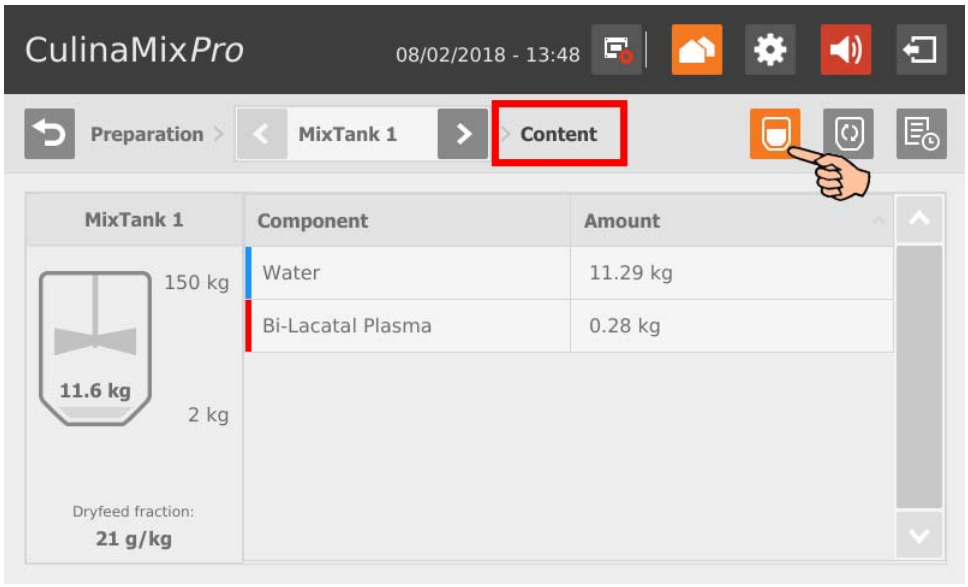


10.7.1 Mixing tank – Preparation

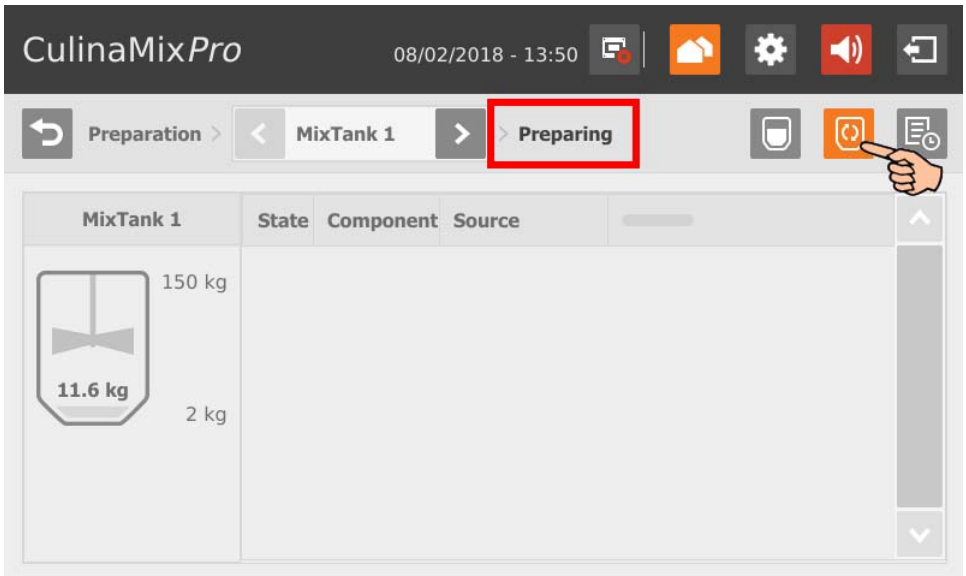
Tap on a mixing tank to switch to the individual view, including the following information:



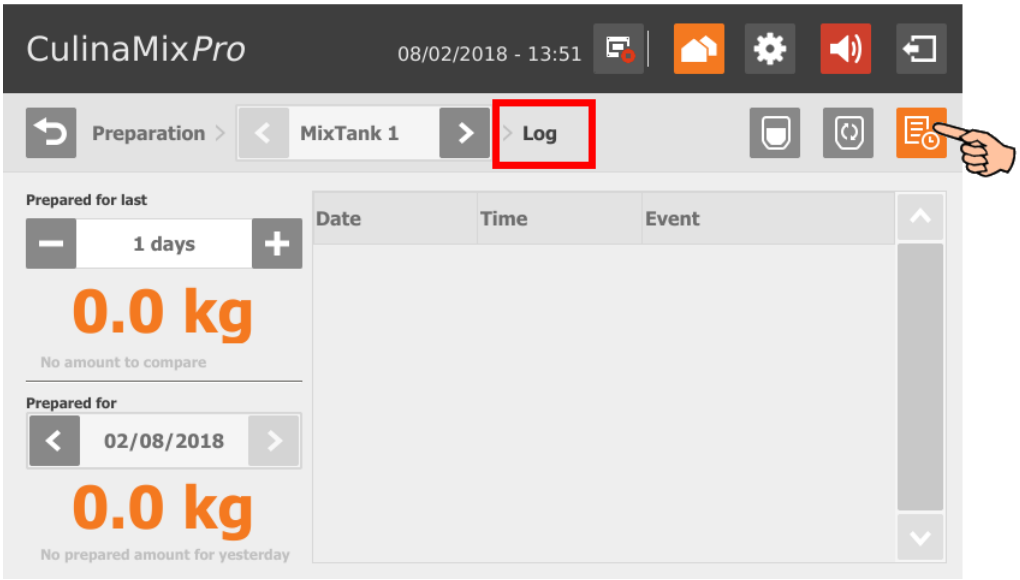
- "Content" shows the components in the mixing tank, including their amount. For water, no difference is made between warm and cold.



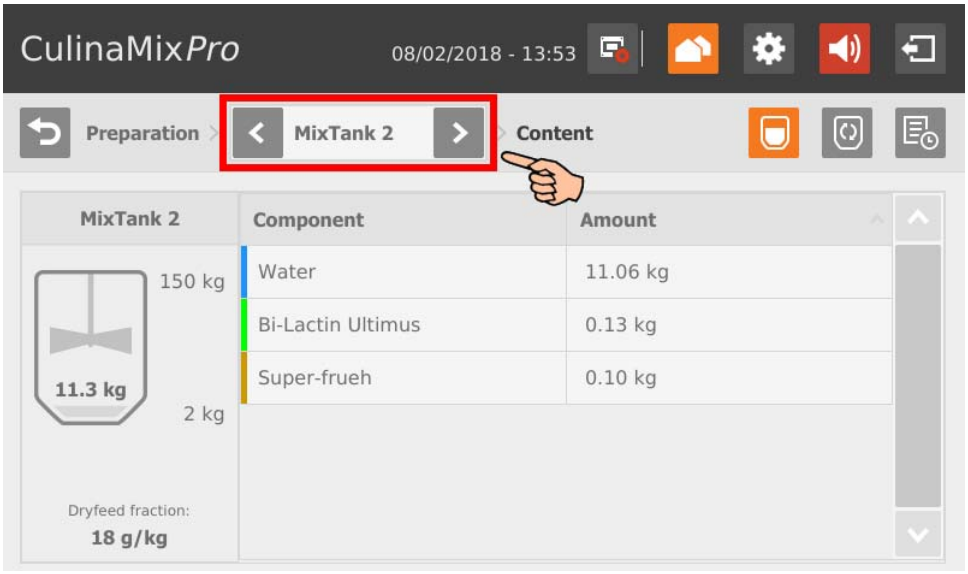
- "Preparing" indicates the currently active preparation, including the state and the used components.



- "Log" shows a log of the individual actions completed for this mixing tank. This makes it easy to identify unusual actions.

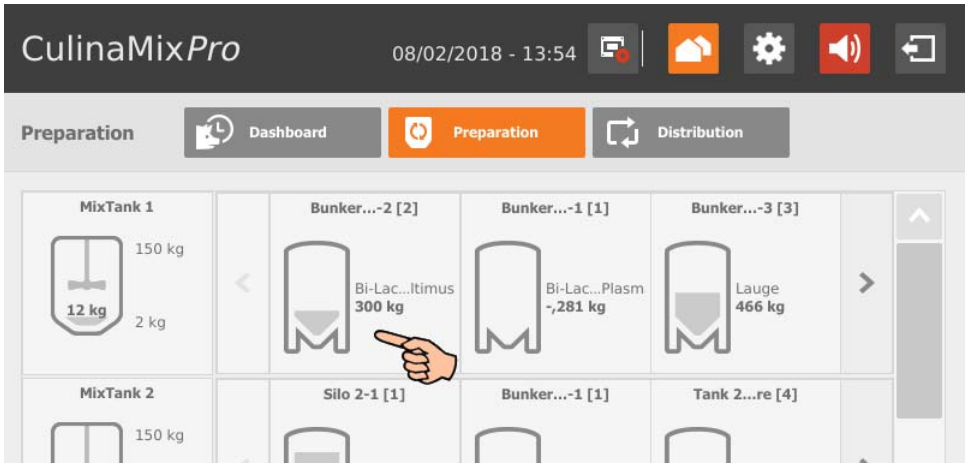


- You can switch to any other mixing tank from all views.

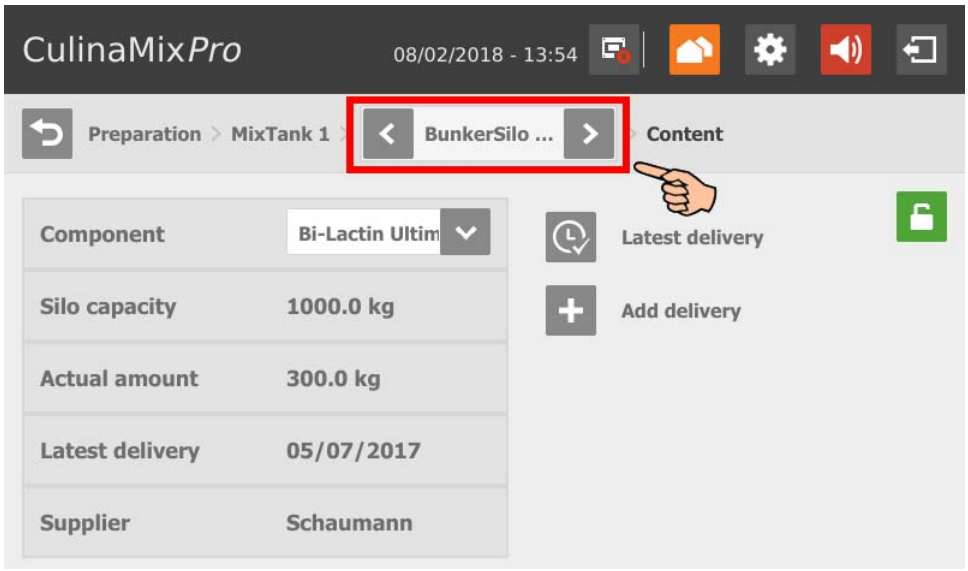


10.7.2 Silo – Content and deliveries

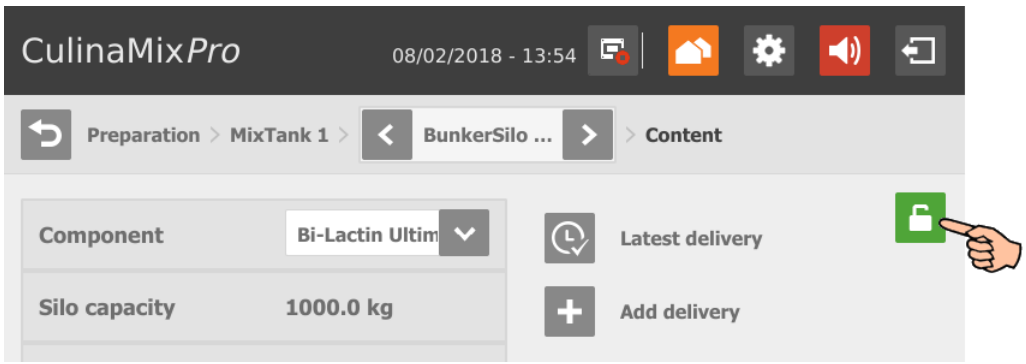
Tap on a silo to switch to the individual view, including the following information and functions:



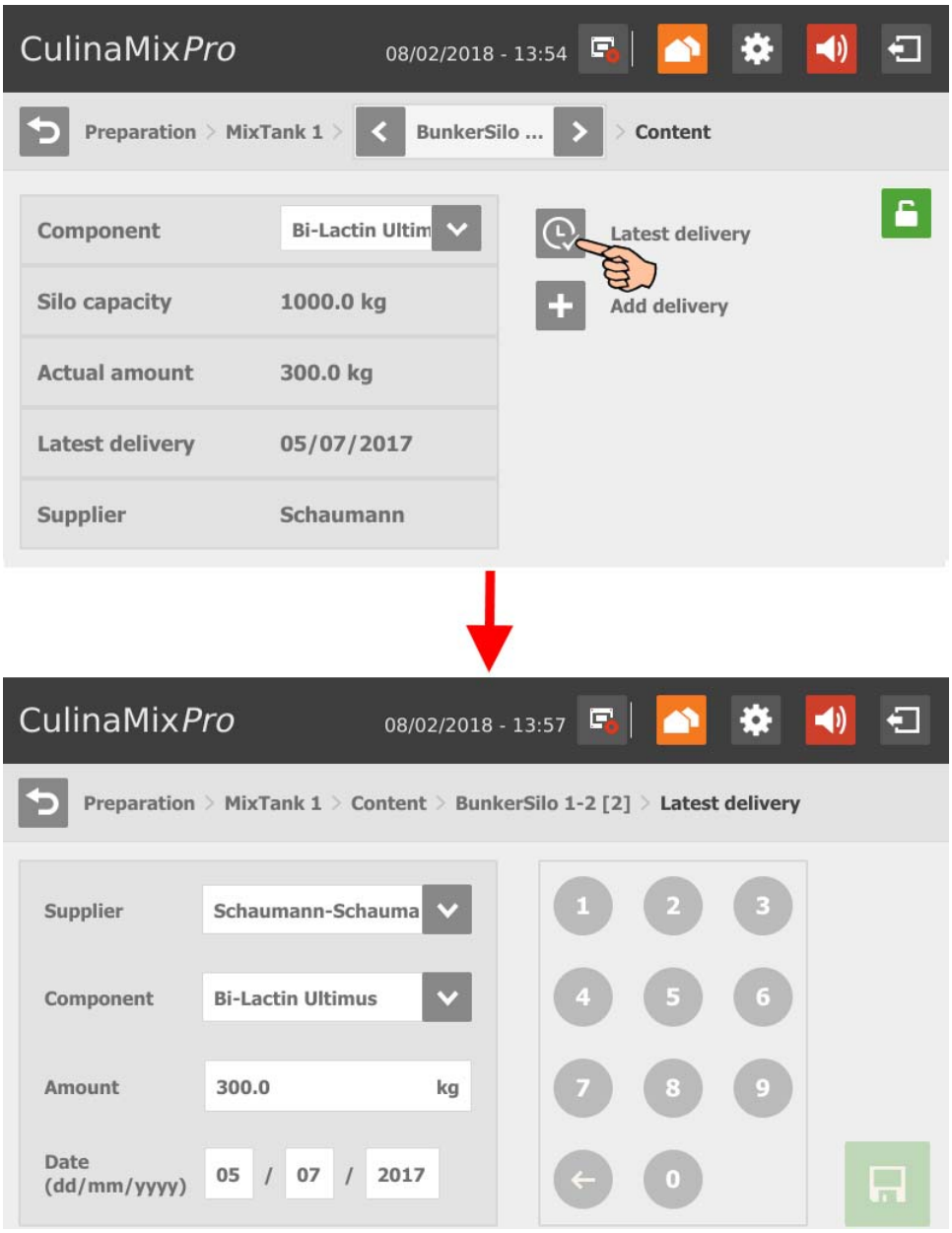
- "Content" shows current silo data and information on the current contents. You can directly switch to any other silo from this view.



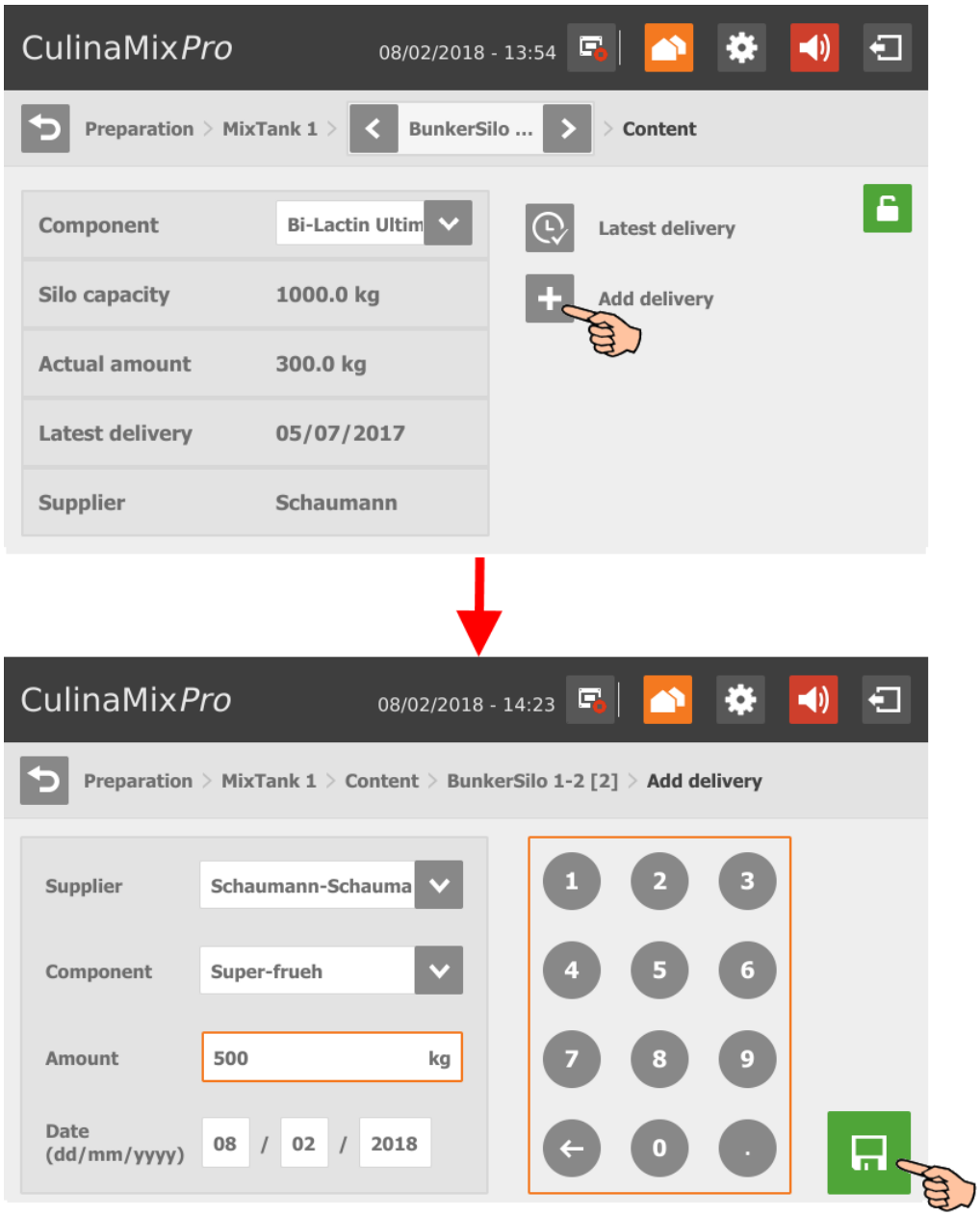
- Tap on the padlock icon to lock the silo.



- View the latest delivery by tapping on the "Latest delivery" icon. If necessary, edit the latest delivery and save new inputs.

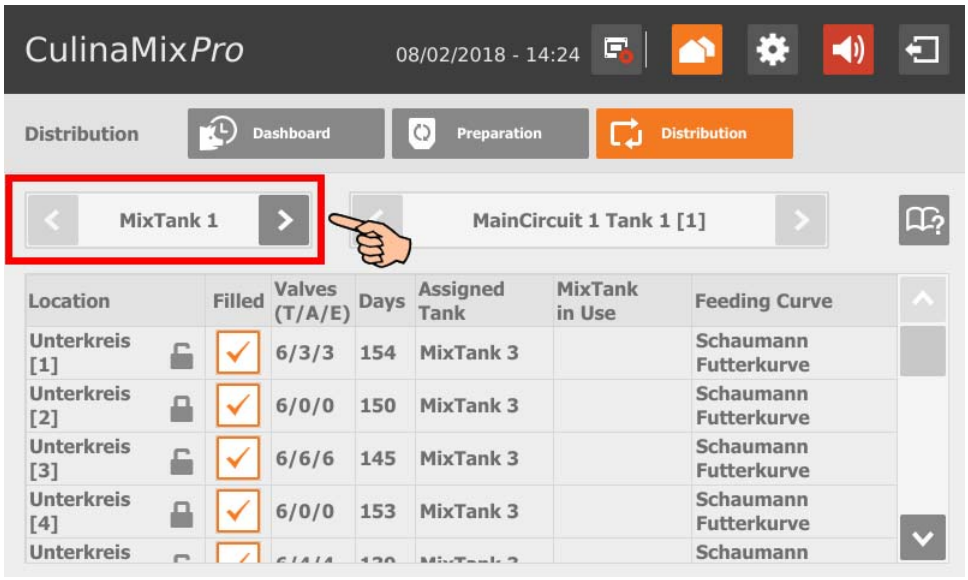


- Add a delivery by tapping on the "Add delivery" icon. Enter the necessary data and save the new delivery.



10.8 Distribution

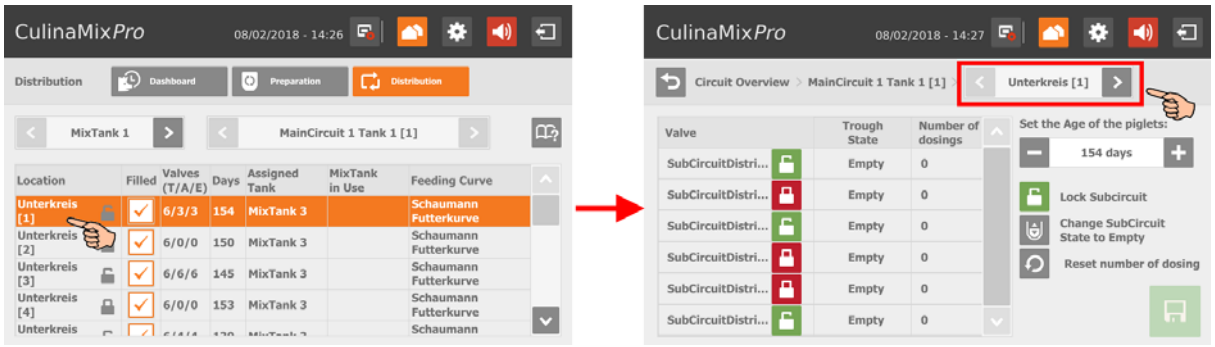
The "Distribution" view provides an overview of a mixing tank's subcircuits. You can directly switch to any other mixing tank from this view.



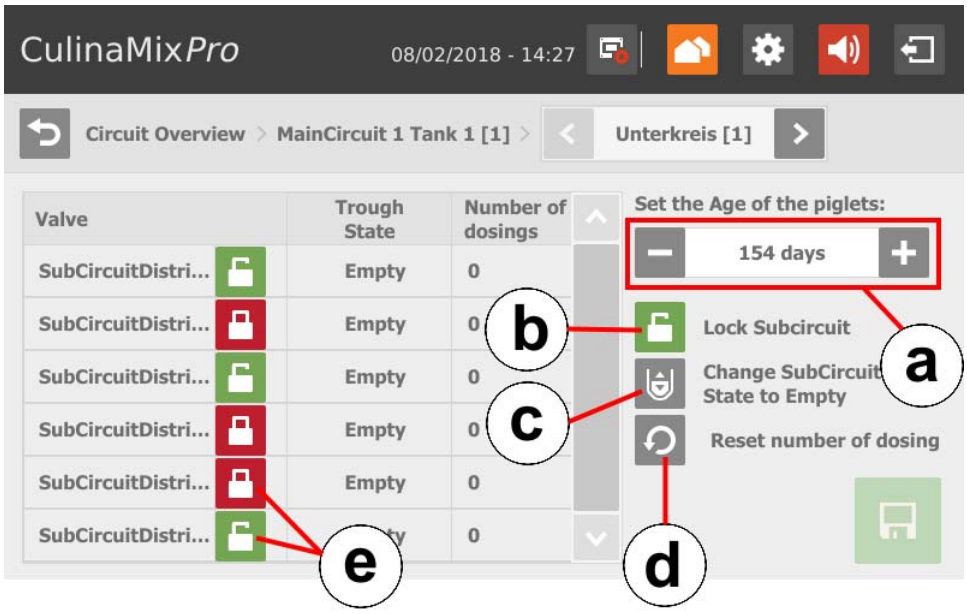
The parameter "Valves (T/A/E)" provides the following information:

- T: Total number of connected valves
- A: Number of active valves
- E: Number of active valves with the status "Empty"

Tap on a subcircuit to switch to the overview of the corresponding valves. From the valve overview, you can also switch to another subcircuit.



The valve overview offers the following functions, which you activate by tapping on them:



a) Change the curve day/age of the piglets.

b) Lock or open a subcircuit, depending on the state.

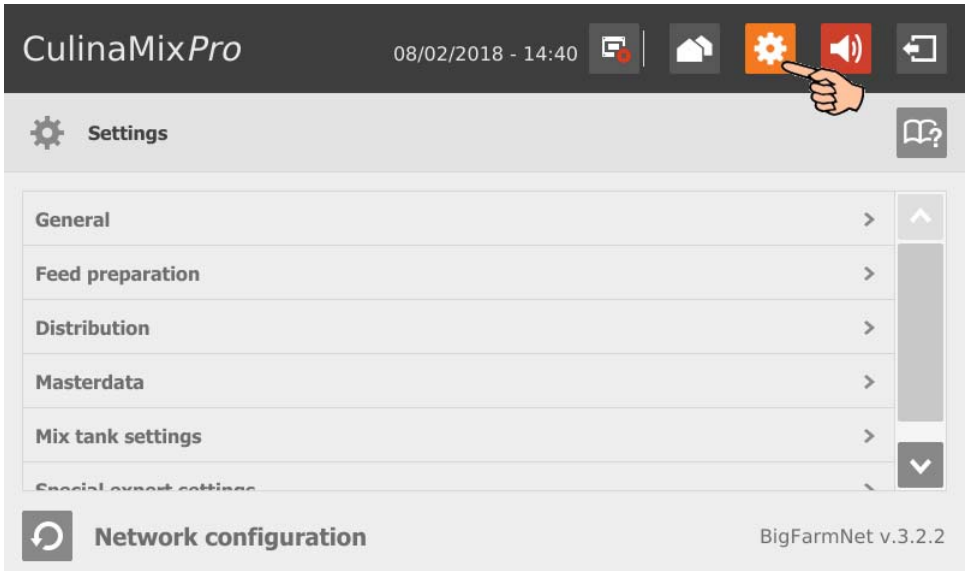
c) Mark a subcircuit with the status "Empty".

d) Reset the number of dosings for the entire subcircuit.

e) Lock or open individual valves, depending on the state.

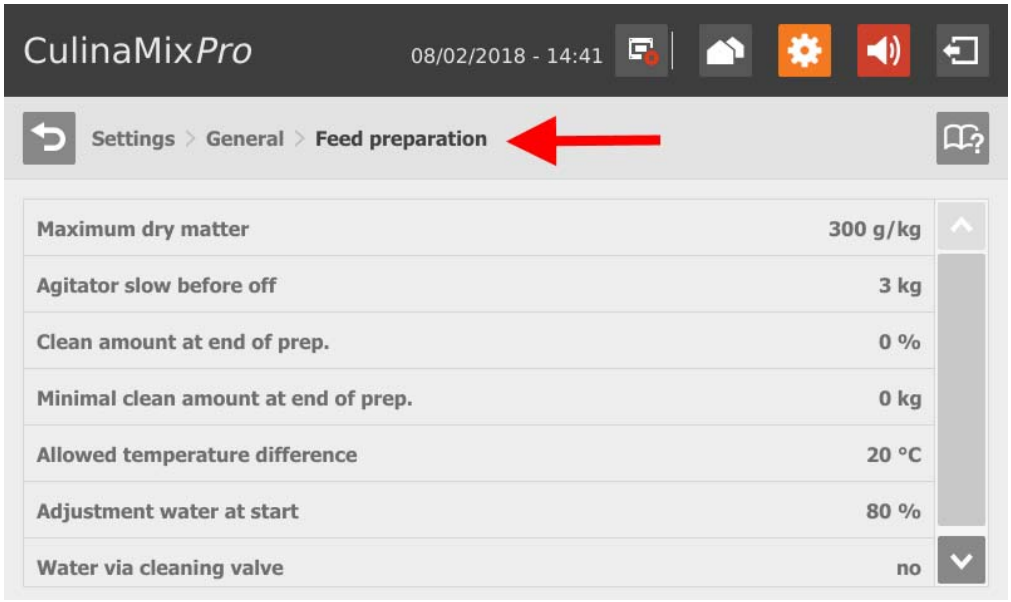
10.9 Settings

Switch to the settings menu by tapping on the corresponding settings icon.



10.9.1 Feed preparation (general)

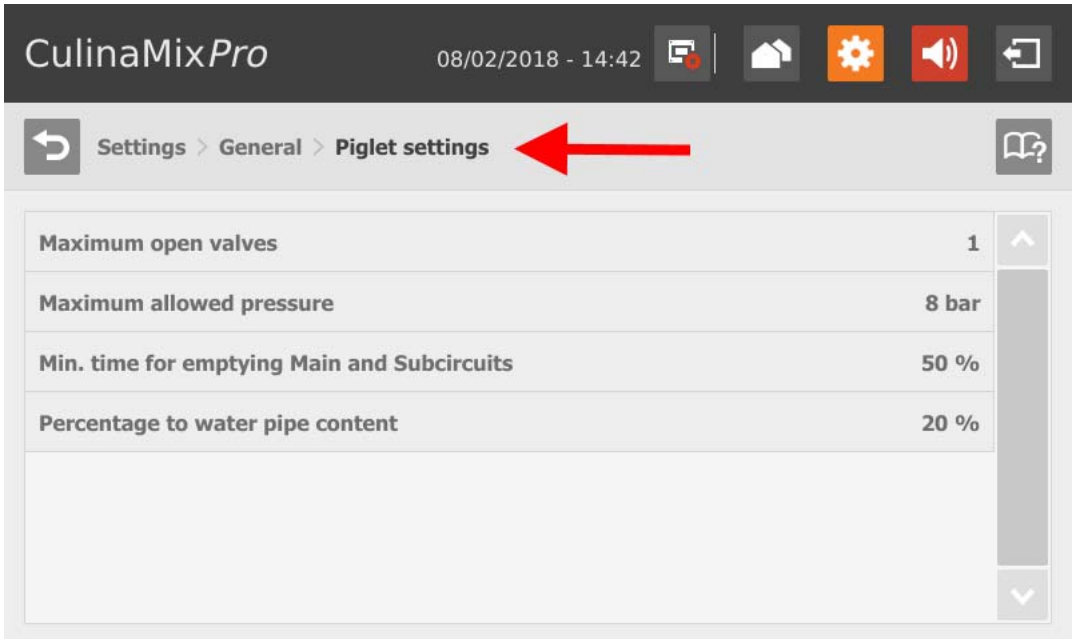
Follow the navigation indicated by the red arrow in the screenshot to access the corresponding settings.



- **Maximum dry matter:** If this value is exceeded during filling of the mixing tank, an alarm is generated.
- **Agitator slow before off:** When a component is conveyed into a mixing tank or a pre-mixer while the agitator is running (a setting for the component), the agitator mixes quickly at first. As soon as the remaining amount that still needs to be dispensed corresponds to the value given here, the agitator switches to a slower mode. If the value given here is greater than the total amount, the agitator mixes slowly from the beginning.
- **Cleaning amount at end of preparation:** If water is used as replacement component, the amount of water given here is dispensed by the cleaning valve after preparation. This requires that the amount is greater than the given minimum amount, see "Minimum cleaning amount at end of preparation".
- **Minimum cleaning amount at end of preparation:** If the calculated percentage "Cleaning amount at end of preparation" is below this value, no water is dispensed by the cleaning valve after preparation.
- **Allowed temperature difference** in the mixing tank during mixing.
- **Adjustment water at start** is used to regulate the temperature. The remaining amount is also used to reach the correct temperature, e.g. if feed is added manually.
- **Water via cleaning valve:** Instead of the normal water valve, the cleaning valve dispenses the water into the mixing tank.

10.9.2 Piglet settings

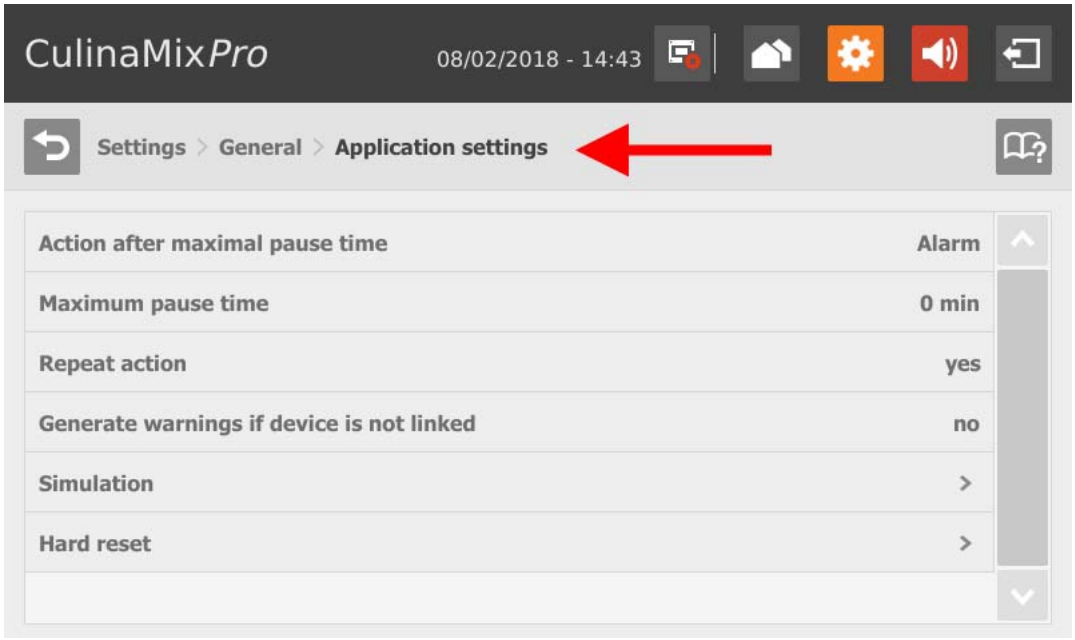
Follow the navigation indicated by the red arrow in the screenshot to access the corresponding settings.



- **Maximum open valves:** Number of valves that are open at the same time.
- **Maximum allowed pressure:** This parameter is a safety function. The system measures the conveying pressure in the pipes, which must not exceed the set value.
- **Minimum time for emptying main and subcircuits**, based on the filling time.
- **Percentage to water pipe content** to dilute the pipe contents in steps. The percentage refers to the pipe volume, which can be found in the expert settings. This parameter is only applicable where pipes are cleaned with water only.

10.9.3 Application settings

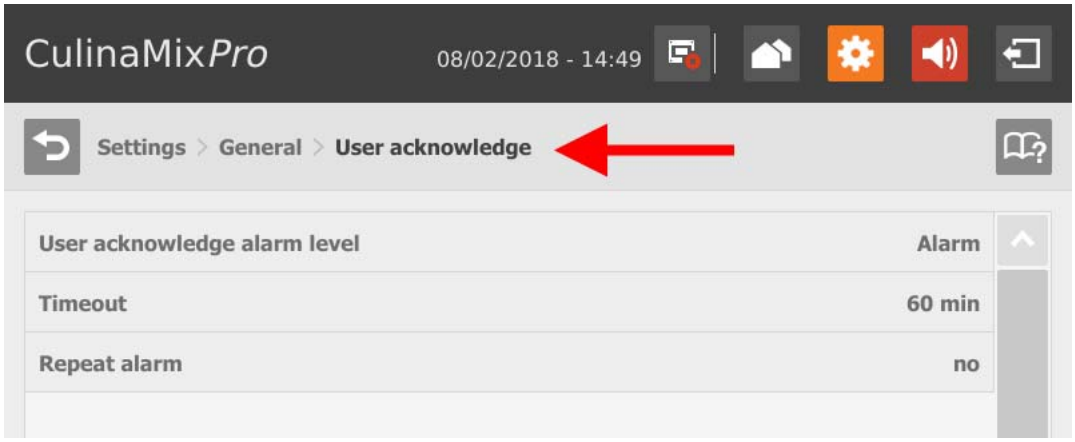
Follow the navigation indicated by the red arrow in the screenshot to access the corresponding settings.



- **Action after maximum pause time** can be set to be either an alarm, a warning or no action at all ("No").
- **Maximum pause time:** If the application does not run for a time longer than set here (pause or error), an alarm or a warning (depending on what is set for "Action after maximum pause time") is issued. If the time is set to 0 minutes, there is no maximum pause time.
- **Repeat action:** When this box is checked, the action (alarm, warning or no action) is repeated every time the maximum pause time expires.
- **Generate warnings if device is not linked**
- **Simulation > Activate simulation:** You need to restart the control process when you activate the simulation. The control process starts when you click on the button "Restart application" in the IO Manager. Mainly the scales, the sensors and the flow meters are simulated. For example, feeding or tank cleaning can be simulated without hardware with this function. When you deactivate the simulation, you need to restart the control again by clicking on the button "Restart application".
- **Hard reset > Reset application**

10.9.4 User acknowledgement

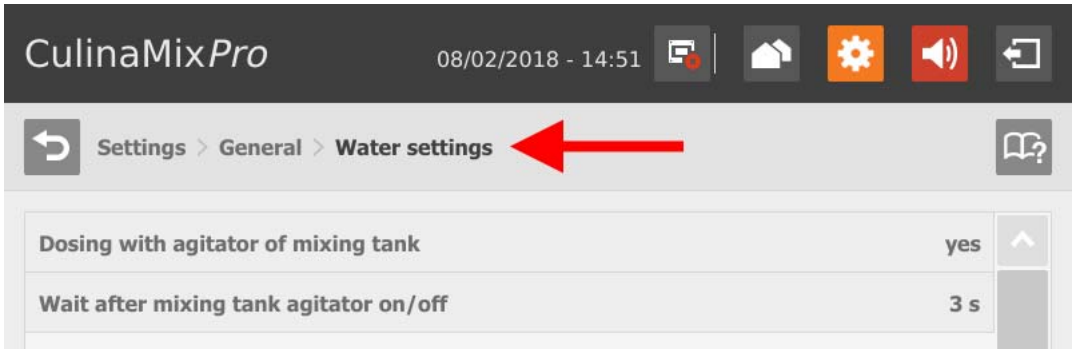
Follow the navigation indicated by the red arrow in the screenshot to access the corresponding settings.



- **User acknowledgement alarm level**
- **Timeout:** You need to manually confirm the action, e.g. the manual filling of components, within the time set here. Otherwise, the status "User acknowledgement alarm level" will be issued.
- **Repeat alarm** after the period under "Timeout" has been exceeded.

10.9.5 Water settings

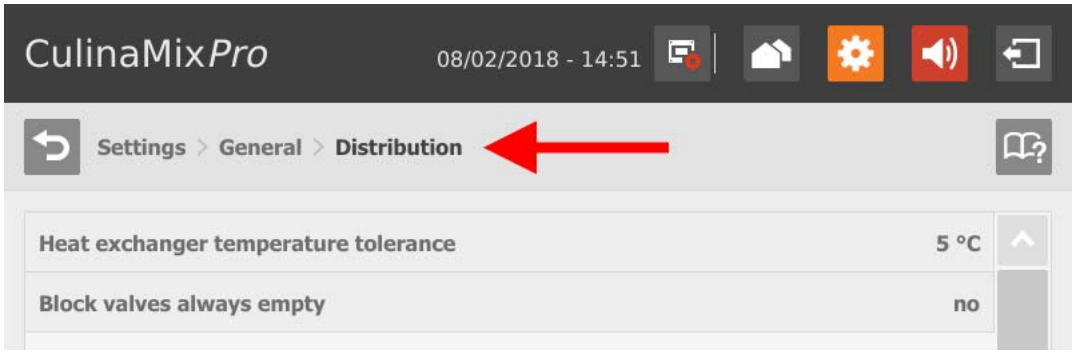
Follow the navigation indicated by the red arrow in the screenshot to access the corresponding settings.



- **Dosing with agitator of mixing tank:** Use this setting to define whether the system uses water for mixing, e.g. if cold and warm water are used to regulate the temperature in a specific way.
- **Wait after mixing tank agitator on/off:** When the agitator is switched from "on" to "off" (and vice versa), the agitator waits for the time indicated here before water is filled into the mixing tank.

10.9.6 Distribution (heat exchanger)

Follow the navigation indicated by the red arrow in the screenshot to access the corresponding settings.

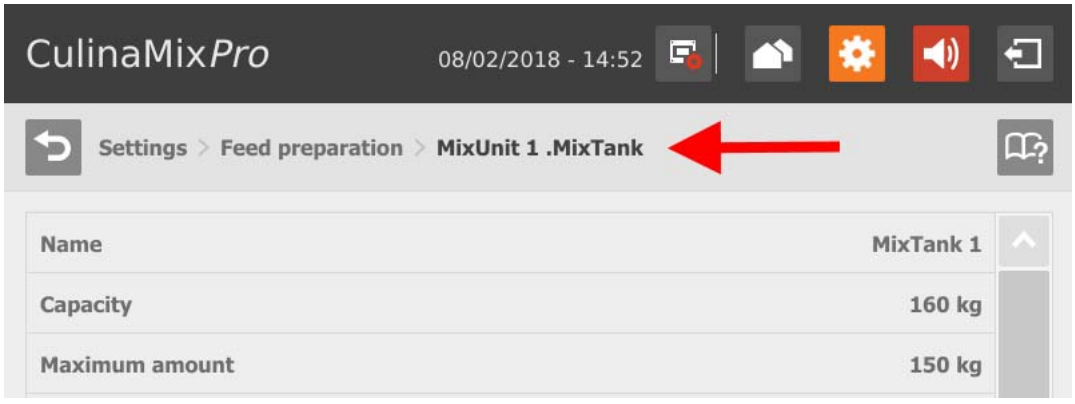


- **Heat exchanger temperature tolerance** is a switching threshold for the heat exchanger. If the feed temperature drops below this tolerance value, the heat exchanger is activated.

10.9.7 Feed preparation (mixing tank, agitator)

Follow the navigation indicated by the red arrow in the screenshot to access the corresponding settings.

Mixing tank



- **Capacity** of the mixing tank
- **Maximum amount** defines the maximum amount that can be filled into the mixing tank. The maximum amount should be slightly lower than the capacity due to the residual flow volume.
- **Minimum amount** defines the minimum amount that always remains in the mixing tank.

- **Agitator off amount:** The agitator is switched off if the amount in the tank reaches or is below this value during distribution. This is to prevent air from being drawn in, for example.
- **Minimum mix amount:** The minimum amount required for mixing. Mixing is not possible below this amount for technical reasons.
- **Minimum clean amount:** The minimum amount of water required for tank cleaning.
- **Tank content:** Use this parameter to adjust the mixing tank content manually.
- **Feed curve:** Use this parameter to assign a feed curve to the mixing tanks.
- **Activate sub-application:** The CulinaMix*pro* mixing tanks are individual sub-applications. Mixing tanks can be locked for a specified time period, e.g. in case of damage.
- **Sub-application not operating**

  Action after maximum pause time can be set to be either an alarm, a warning or no action at all ("No").

  Maximum pause time: If the application does not run for a time longer than set here (pause or error), an alarm or a warning (depending on what is set for "Action after maximum pause time") is issued. If the time is set to 0 minutes, there is no maximum pause time.

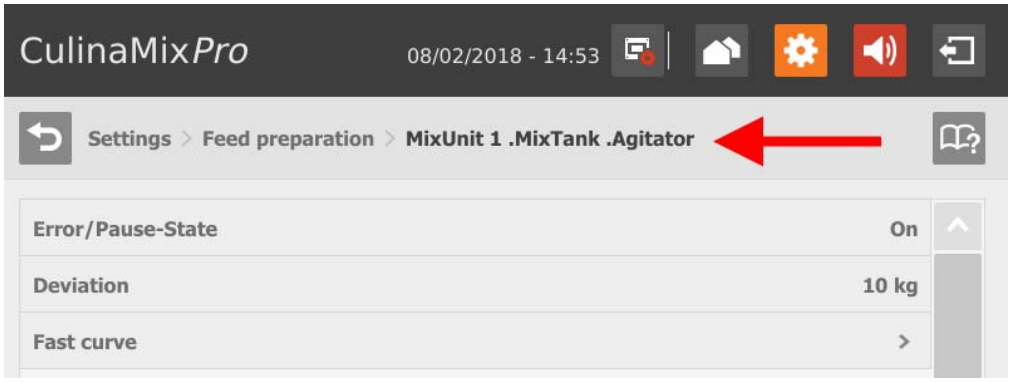
  Repeat action: When this box is checked, the action (alarm, warning or no action) is repeated every time the maximum pause time expires.

- **Pause distribution settings**

  All full time span: If all valves linked to this mixing tank indicate that they are full for the period defined here, the system goes into pause mode for the time defined under "Pause time span".

  Pause time span, see "All full time span".

Agitator

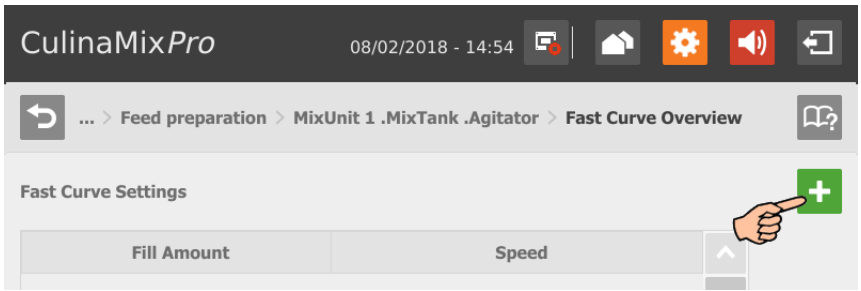


- **Error/Pause state:** Use this parameter to define how an agitator behaves if the application or the sub-application is in error or pause mode. However, this setting only applies if pause or error occur during feeding.
- **Deviation:** This setting only applies to agitators in weighed silos and is necessary if a curve has been created for the agitator. The deviation is the tolerance value ensuring that the agitator is not switched regularly because the weight deviates from the value of the curve point.
- **Minimum speed:** This parameter is only applicable for agitators with frequency inverter. Set the maximum frequency here. If the tank is not weighed, the maximum frequency is used for fast mixing.
- **Maximum speed:** This parameter is only applicable for agitators with frequency inverter. Set the minimum frequency here. If the tank is not weighed, the minimum frequency is used for slow mixing.
- **Delay from slow to fast**
- **Delay from fast to slow**
- **Fast/slow curve**

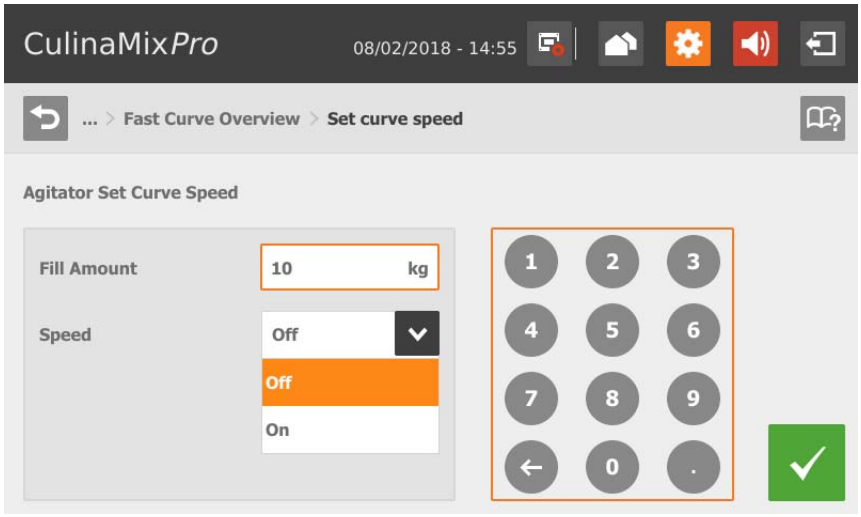
  Depending on the switching of the used agitator, you can create a fast and/or a slow curve.

  a) Tap on the correct curve.

  b) Tap on the plus icon to define values.

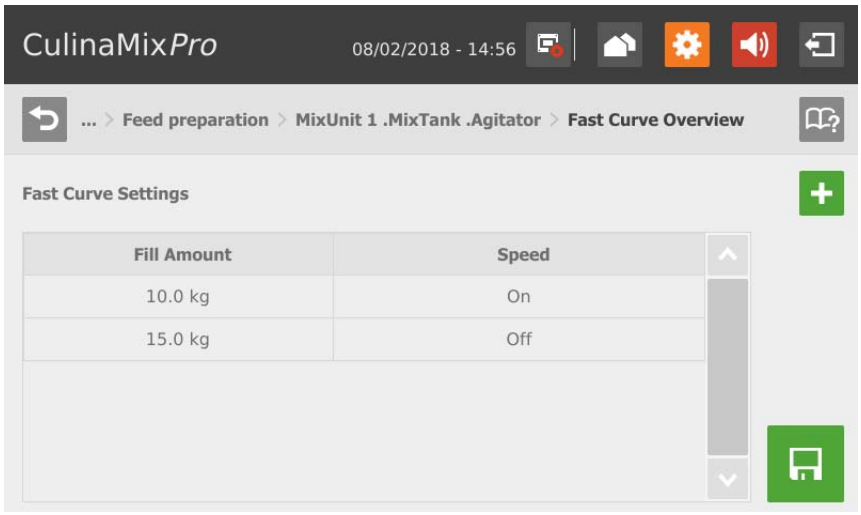


c) Enter the fill amount using the numeric keypad and select the speed.



d) Confirm you input by tapping on  .

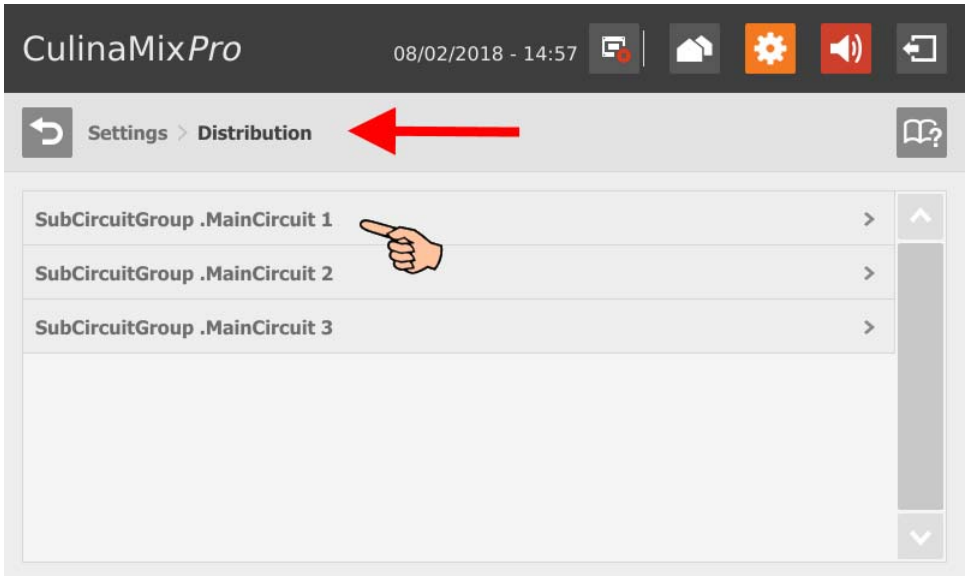
e) Tap on the plus icon again to make more inputs.



f) Tap on  to save the curve.

10.9.8 Distribution (main circuits)

Follow the navigation indicated by the red arrow in the screenshot to access the corresponding settings.

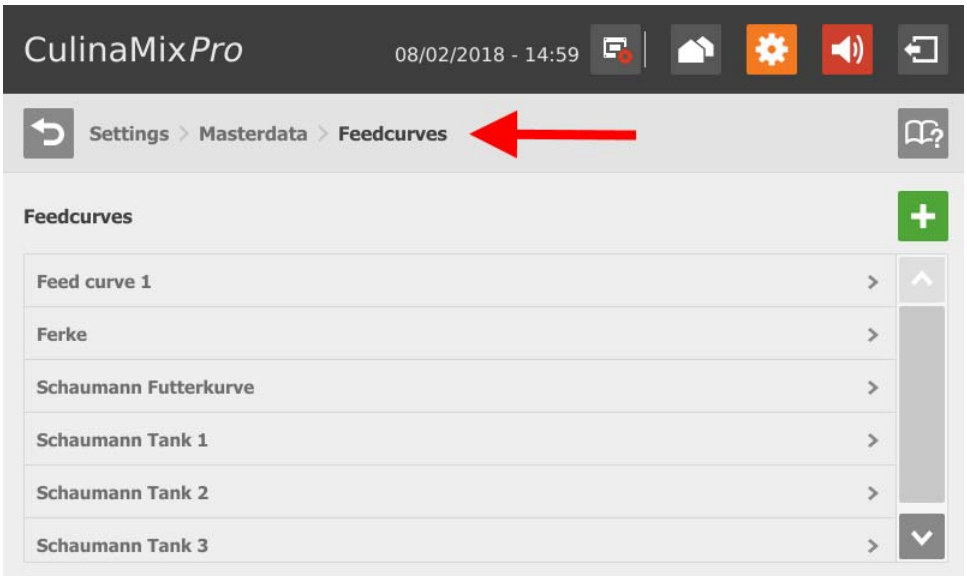


- **Time span filling:** The time period required to fill the main circuit completely at the start of feeding.
- **Time span emptying:** The time period required to empty the main circuit completely after the end of feeding.
- **Minimum emptying pressure**
- **Is filled** indicates whether the main circuit is filled or not. This setting can be adjusted manually.
- **Content volume** (pipe content) is calculated automatically from "Pipe type" and "Pipe length". The volume can also be entered directly if the box "Enter volume" is checked. The parameter "Pipe length" is deactivated in this case.
- **Pipe type**
- **Pipe length:** If the box "Enter volume" is checked, it is not possible to make inputs for the pipe length.
- **Dosing time water** is the water valve's opening time. This parameter play a role for cleaning. The pipes are cleaned by water within this time. Afterwards, air is pushed through the pipes, see the next parameter, "Usage time air".
- **Usage time air:** Air is pushed through the pipes during this time after they have been flushed with water.
- **Clean amount mix:** In case of cleaning with recipe, this amount is mixed additionally.

- **Recirculate after pause time:** After a pause, the pipe content recirculates for this time before it is distributed. This parameter refers to "Feed preparation" parameters or to the manual pause (by stopping the system).

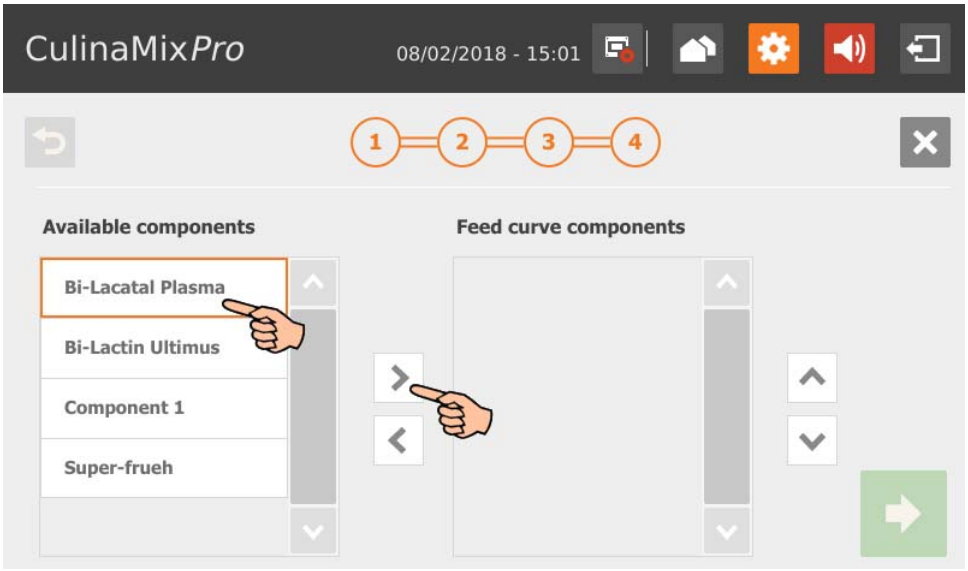
10.9.9 Feed curve (creating a new feed curve)

Follow the navigation indicated by the red arrow in the screenshot to access the corresponding settings.

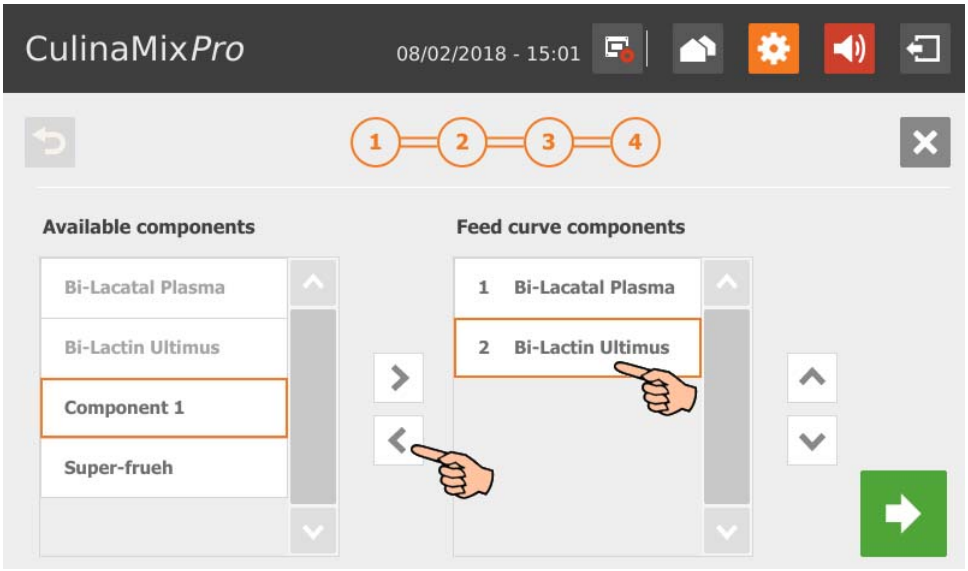


1. Tap on the plus icon to add a new component.

2. Select the correct component by tapping on it. Use the arrow pointing to the right to add the selected component to the feed curve. Add all desired components using this procedure.



To remove a component from the feed curve, tap on the component in the feed curve and use the arrow pointing to the left to remove it.

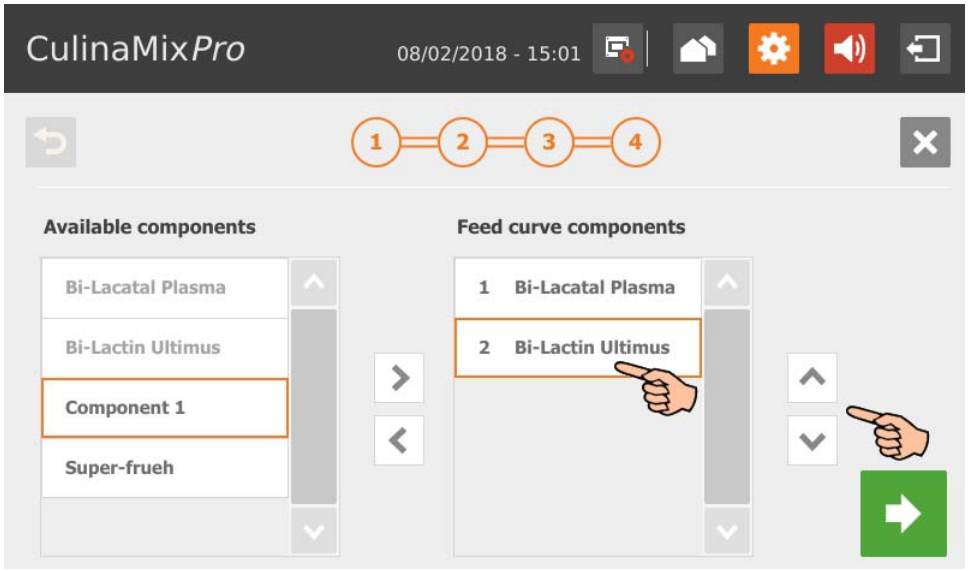


3. If necessary, define an order for the components.

   The components are conveyed to the mixing tank one after another, starting at the top.

   a) Select the correct component by tapping on it.

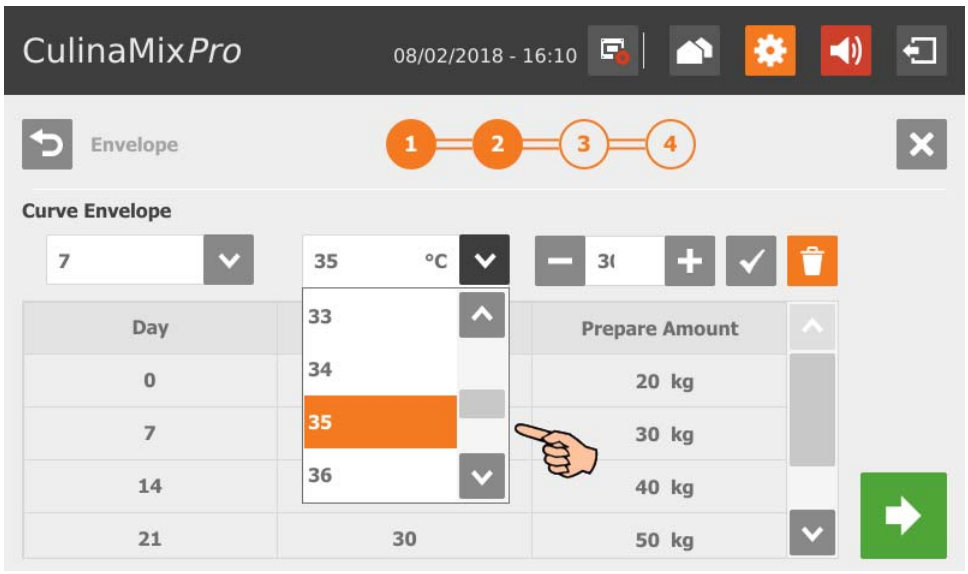
   b) Tap on the arrows to determine the new position.



4. Go to the next edit window by tapping on  .

5. Define the envelope curve:

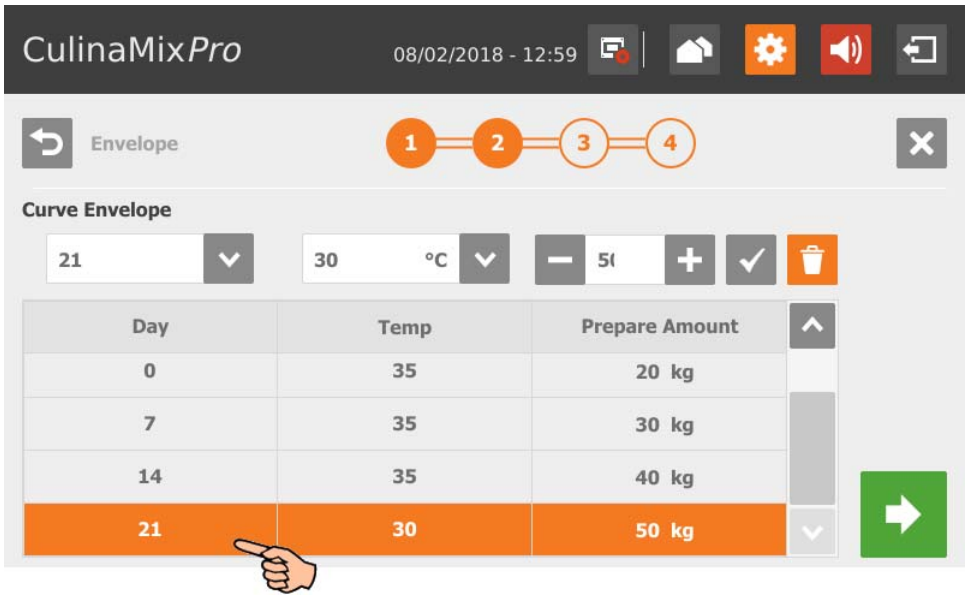
   a) Tap into the input fields and use the arrows to define values for the following parameters: **(Curve) Day**, **(Feed) Temperature** (distribution temperature), **Preparation amount** for each mixture plus pipe content (amount that is actually supplied to the animals).



b) Tap on ✓ to save your input. The input appears in the table.

c) Enter further curve days.

d) To edit a curve day, select this curve day by tapping on it and edit the inputs fields. Confirm by tapping on ✓.

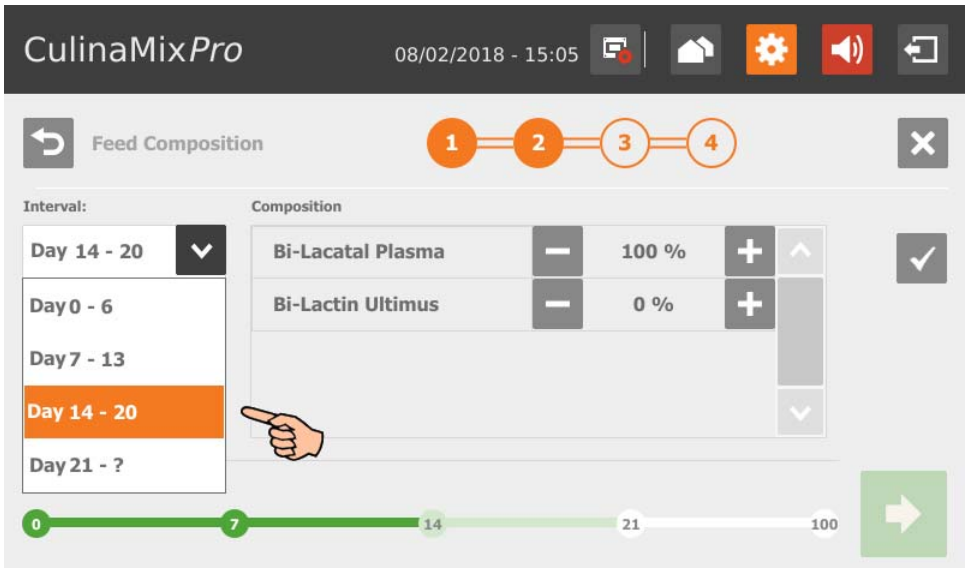


e) To delete a curve day, select this curve day by tapping on it and delete it by tapping on 🗑.

6. Go to the next edit window by tapping on ➡.

7. Define the feed composition:

a) Select the curve time period under **Interval**.



b) Define the percentage share of the different components for the selected interval. The fractions always add up to 100 %.

Tap on + and − to change the percentage.

c) Tap on ✓ to save your input.

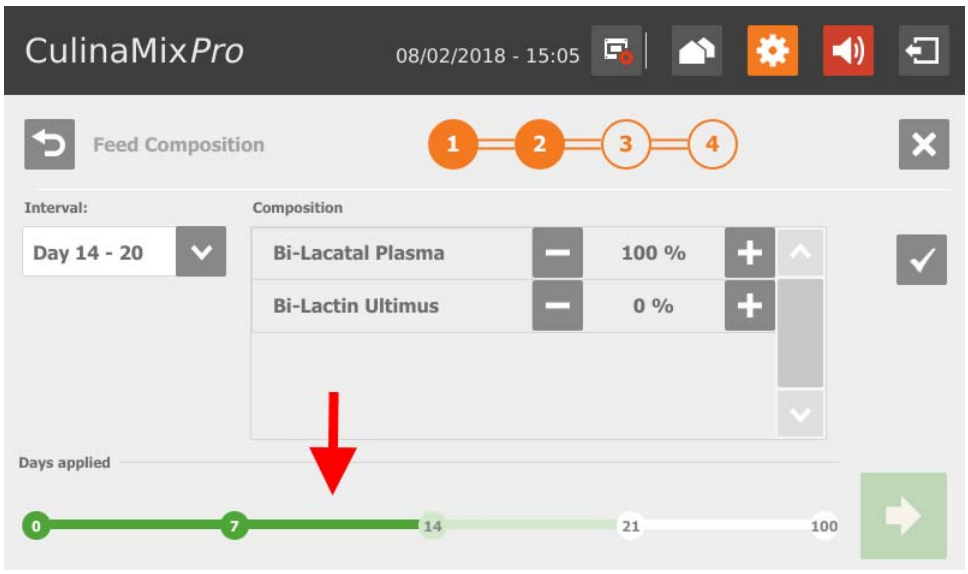
The colored line in the lower part of the window indicates the different intervals and marks them based on their edit state:

- Green: Feed composition for this interval has been defined and saved.

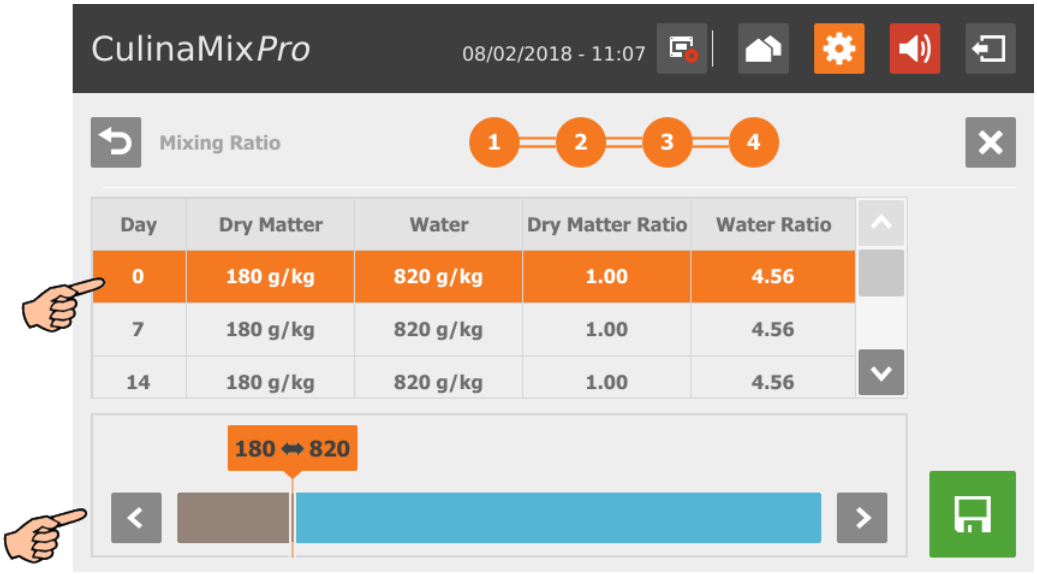
- Light green: This interval is currently being edited and has not been saved yet.

- White: This interval has not been edited yet.

You can only switch to the next edit window after you have defined and saved the feed composition for all intervals.



8. Go to the next edit window by tapping on →.
9. Define the ratio between dry matter and water for each interval, if necessary.
   a) Select the correct interval by tapping on it.
   b) Use the arrows at the colored line to define values for dry matter (brown) and water (blue).



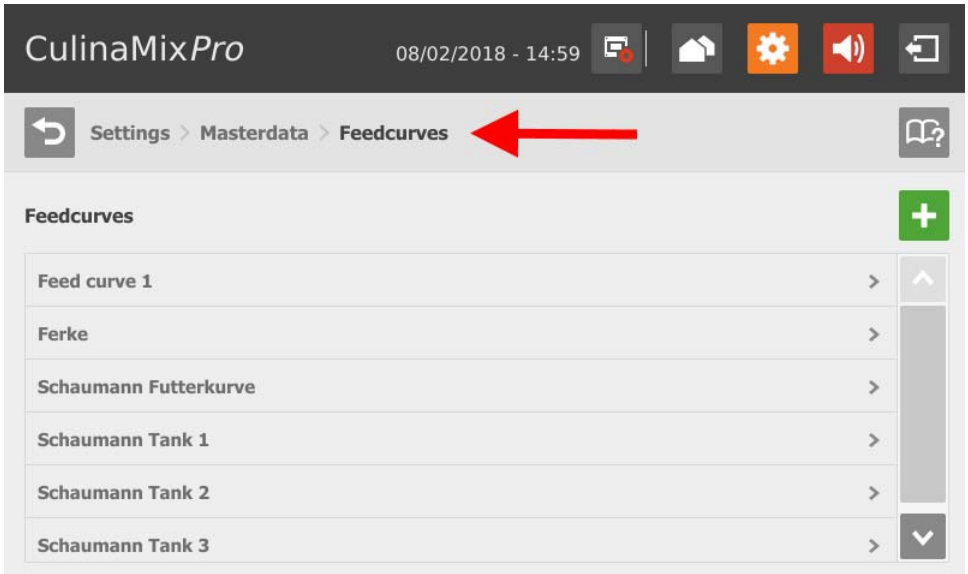
10. When you have configured all settings and reached the final edit window, tap on to save the feed curve.

    Tap on to cancel the edit process.

    Tap on the return to the previous step.

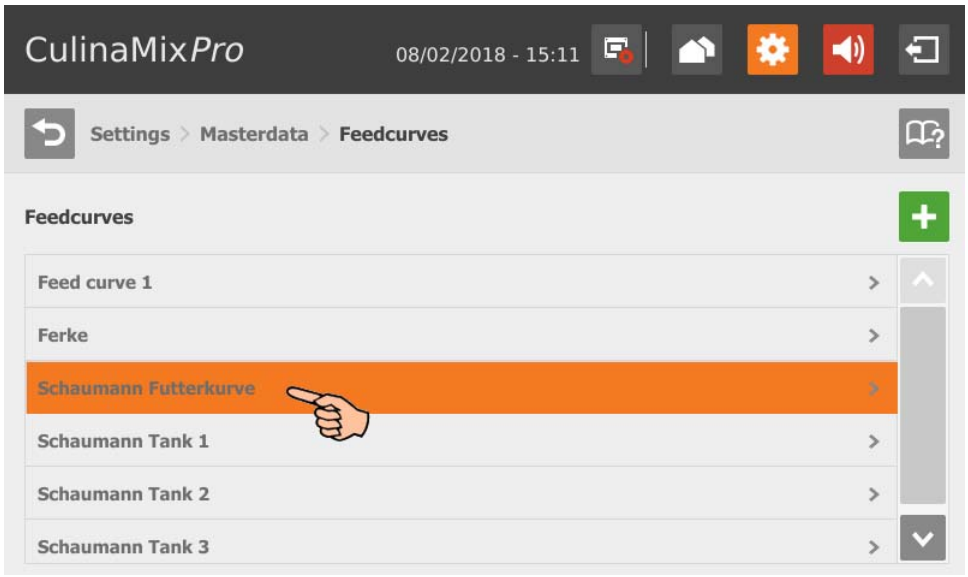
10.9.10 Feed curve (editing an existing feed curve)

Follow the navigation indicated by the red arrow in the screenshot to access the corresponding settings.

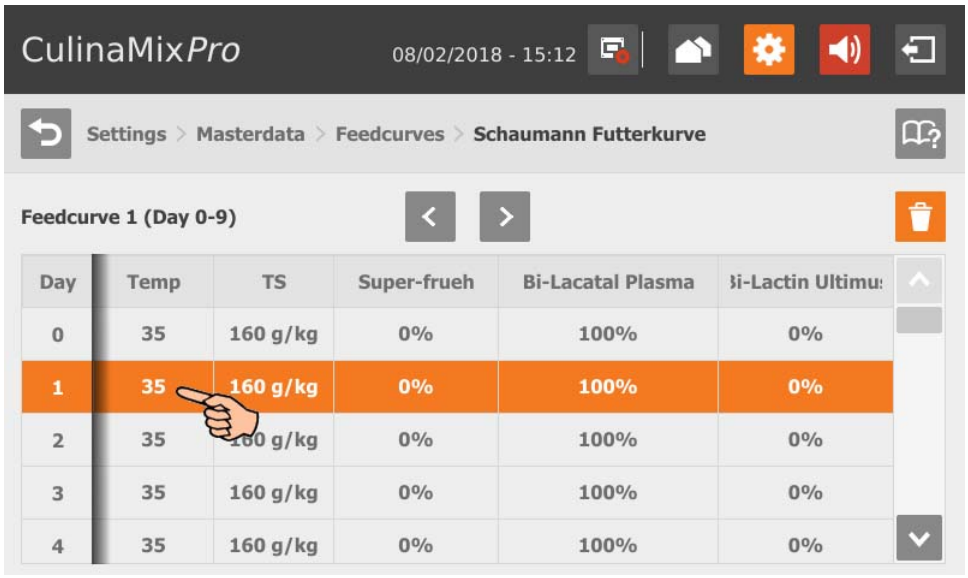


1. Select the correct feed curve by tapping on it.

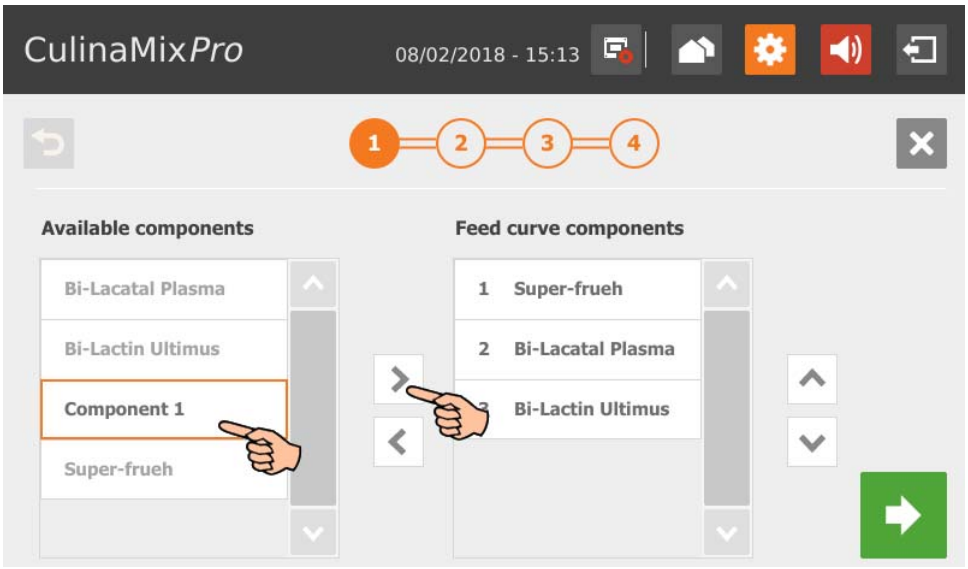
   The feed curve is now displayed as a table.



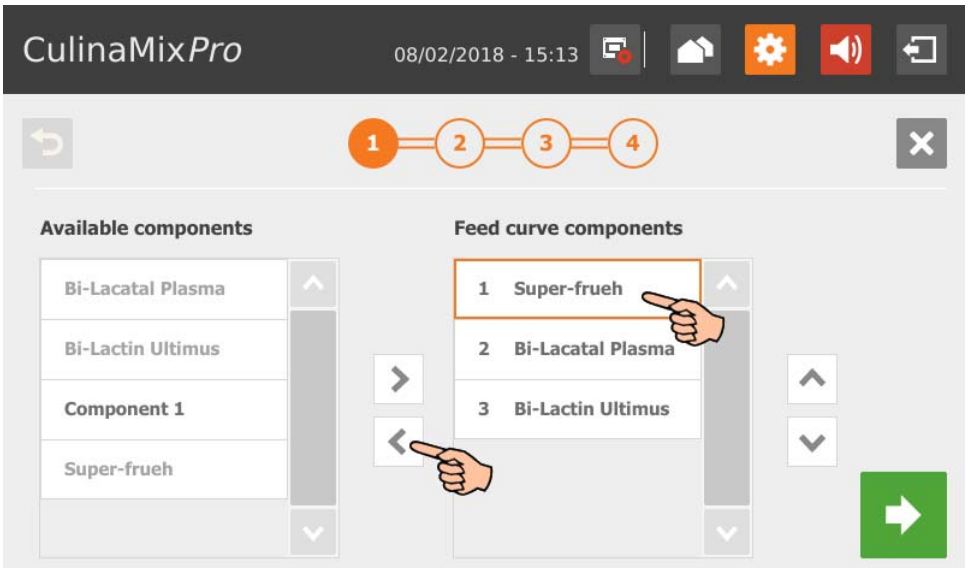
2. Tap on any curve day to switch to the edit mode.



3. Change the feed curve components, if necessary:
   – Add a component by tapping on the correct component to select it. Use the arrow pointing to the right to add the selected component to the feed curve.



   – Remove a component from a feed curve by tapping on this component. Use the arrow pointing to the left to remove the component from the feed curve.

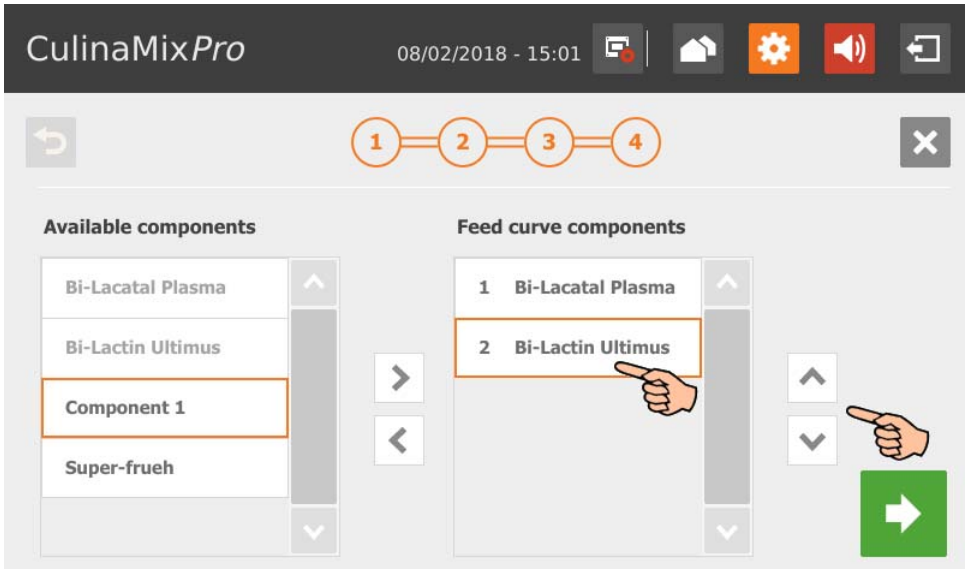


4. If necessary, define an order for the components:

   The components are conveyed to the mixing tank one after another, starting at the top.

   a) Select the correct component by tapping on it.

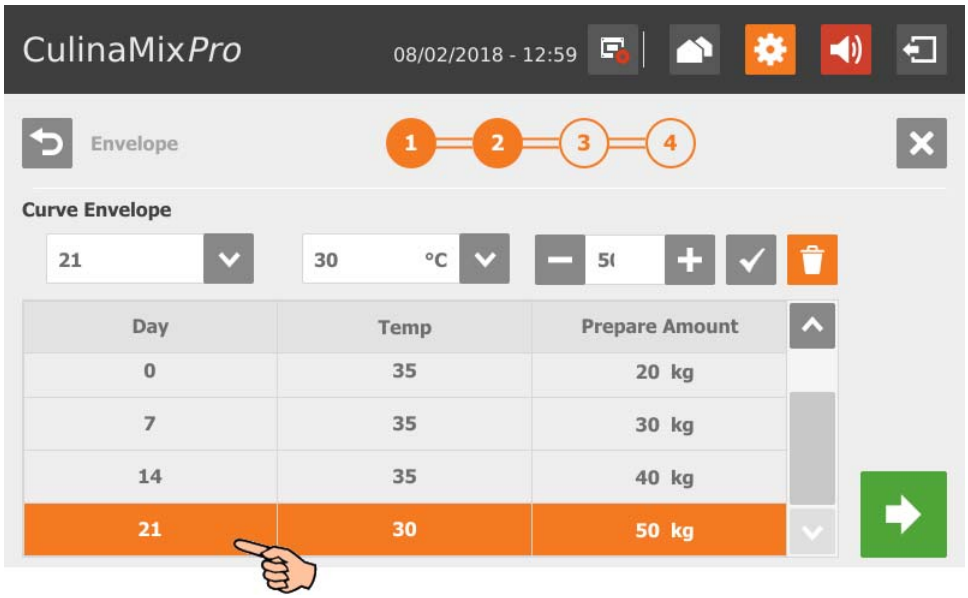
   b) Tap on the arrows to determine the new position.



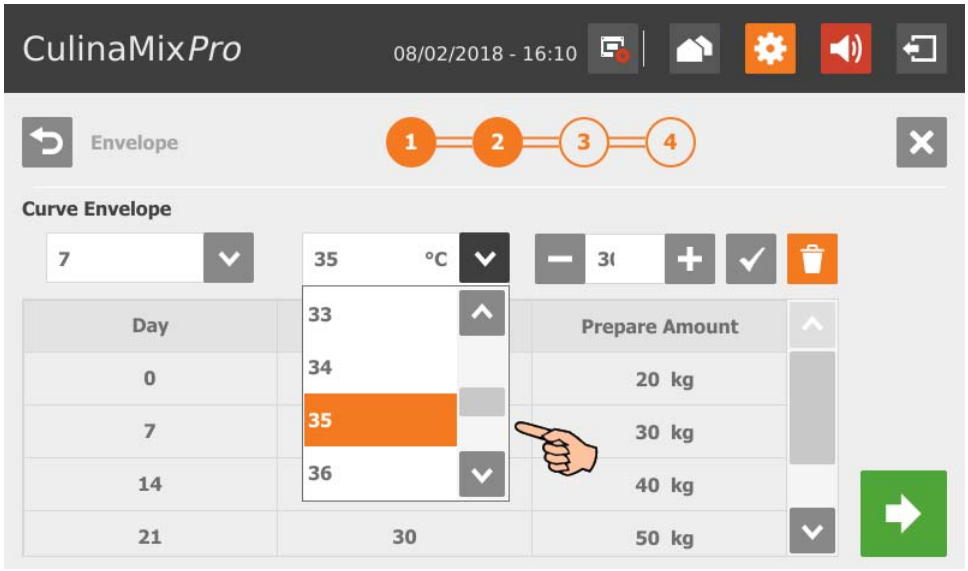
5. Go to the next edit window by tapping on  .

6. Change the curve days of the envelope curve, if necessary:

   a) Select a curve day by tapping on it.



b) Tap into the input fields and use the arrows to change the values for **(Curve) Day**, **(Feed) Temperature** (distribution temperature), **Preparation amount** for each mixture plus pipe content (amount that is actually supplied to the animals).



c) Tap on ✓ to save your input.

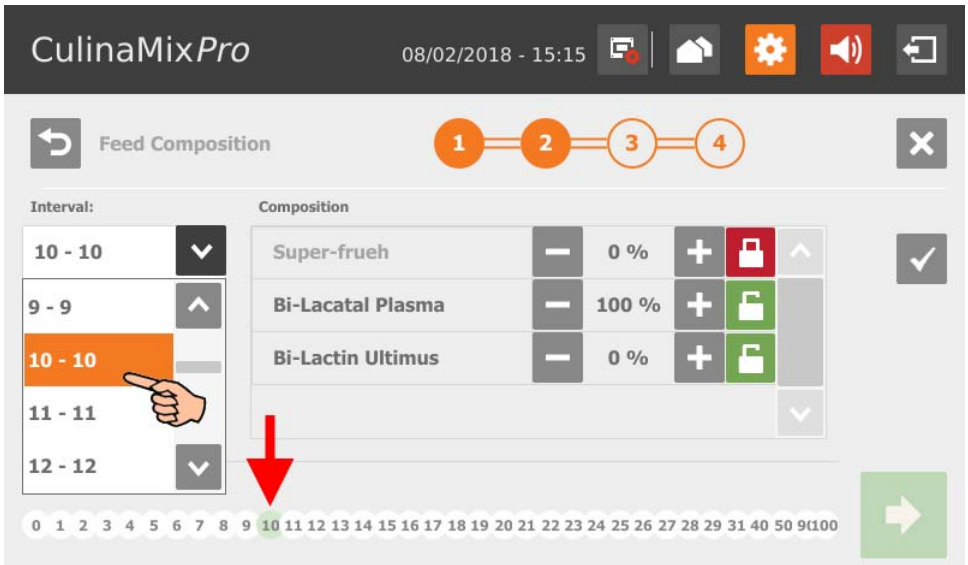
d) To delete a curve day, select this curve day by tapping on it and delete it by tapping on 🗑.

7. Go to the next edit window by tapping on →.

8. Change the feed composition for a specific interval, if necessary:

a) Select the curve time period under **Interval**.

The colored line in the lower part of the window marks the selected interval with a light green color (currently being edited).



b) Define the percentage share of the different components for the selected interval. The fractions always add up to 100 %.

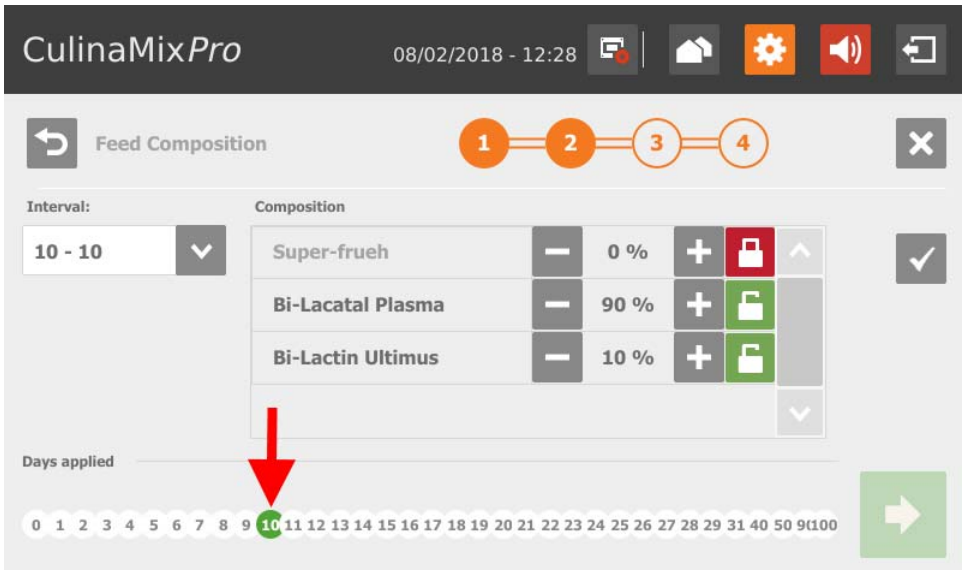
Tap on + and − to change the percentage.

Tap on to fix the value so it cannot be changed.

Tap on to unlock the value so it can be changed again.

c) Tap on to save your input.

In the colored line in the lower part of the window, the selected interval is now displayed in green (edited and saved).

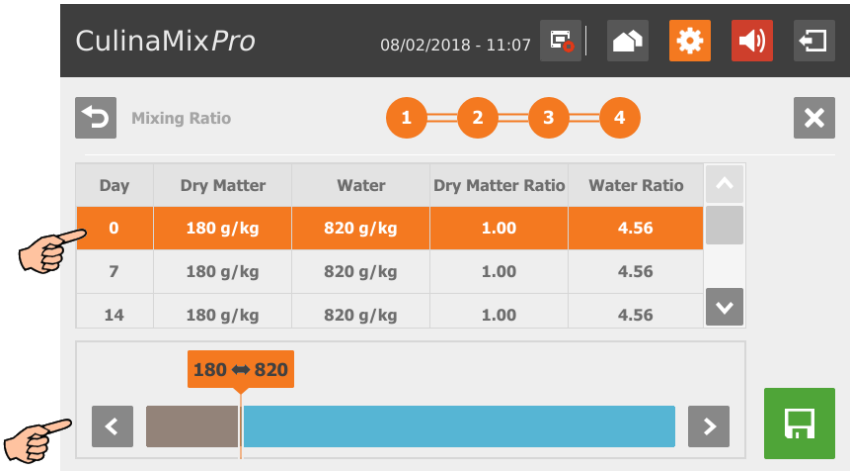


9. Go to the next edit window by tapping on .

10. Change the ratio between between dry matter and water for each interval, if necessary.

a) Select the correct interval by tapping on it.

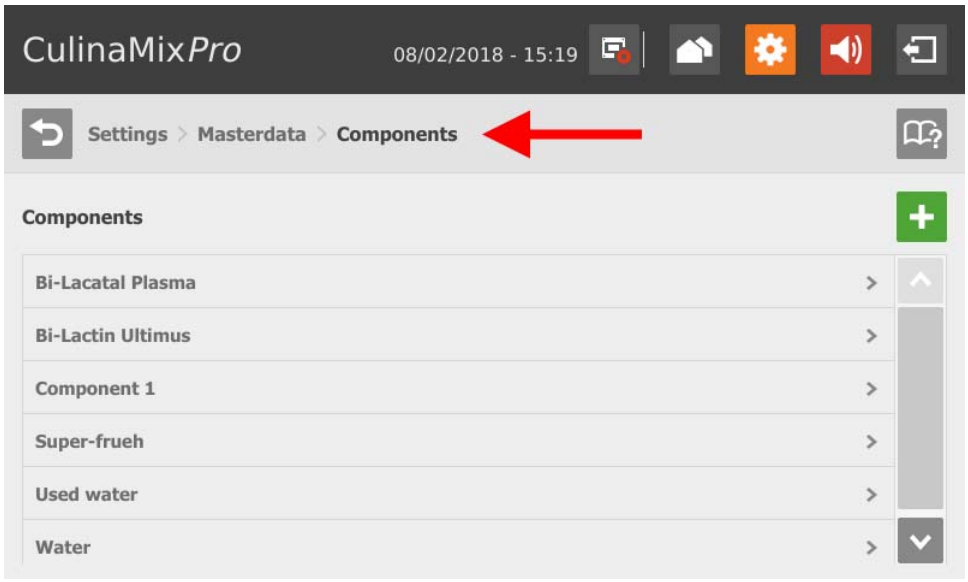
b) Use the arrows at the colored line to define values for dry matter (brown) and water (blue).



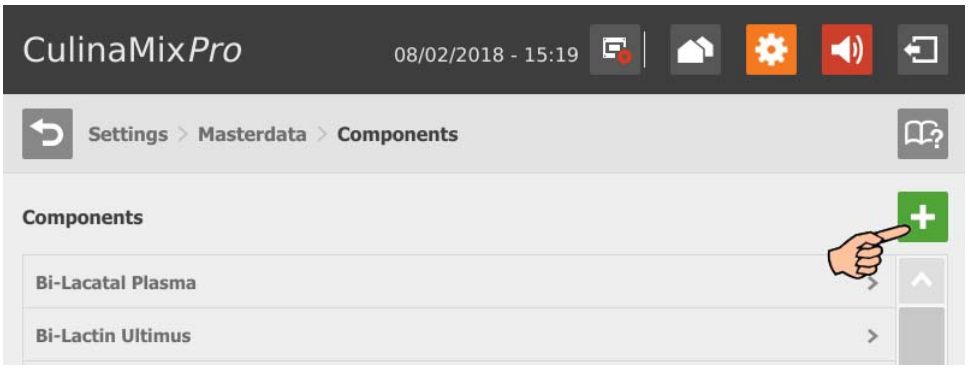
11. When you have configured all settings and reached the final edit window, tap on to save the feed curve.
    Tap on to cancel the edit process.
    Tap on the return to the previous step.

10.9.11 Component (feed)

Follow the navigation indicated by the red arrow in the screenshot to access the corresponding settings.



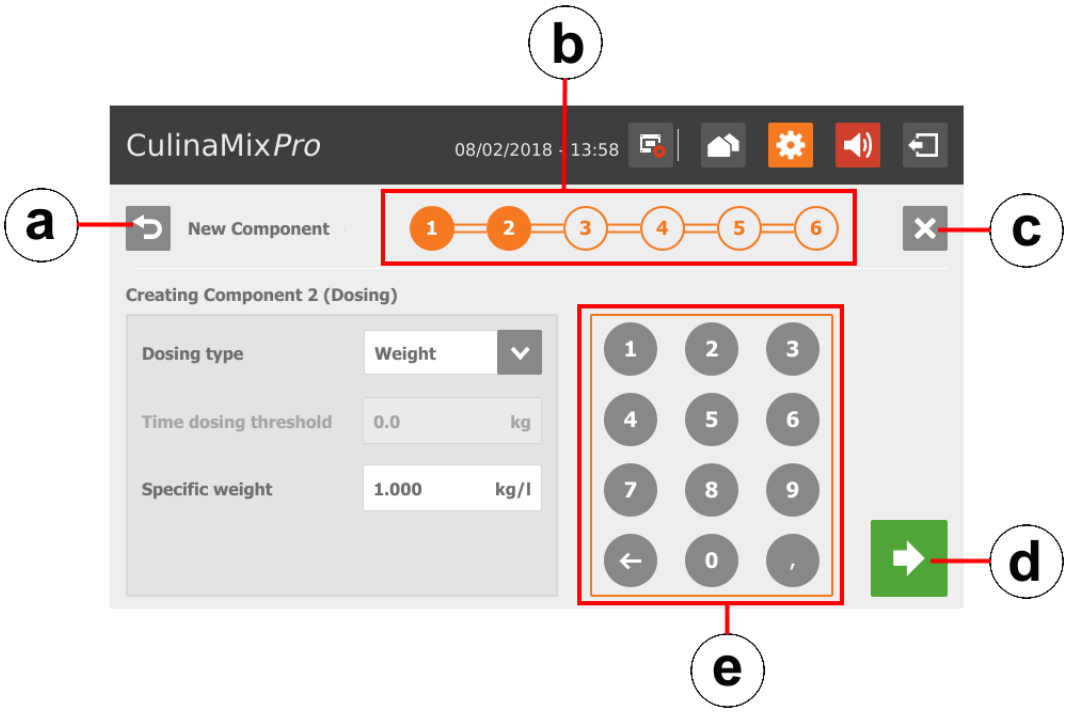
1. Tap on the plus icon to add a new component.
   OR
   Tap on an existing component to edit it.



2. Tap directly into the parameters' input fields to
   – enter values using the numeric keypad;
   – open selection lists to select the correct input;

– check boxes.

The following functions and information are also available:



a) Return to the previous edit window of the component.

b) This timeline indicates how many edit windows exist for the component and which window you are currently editing.

c) Cancel the creation of a component.

d) Move on to the next edit window. Your inputs are not changed or deleted.

e) Numeric keypad to input values.

3. When you have configured all settings and reached the final edit window, tap on  to save the component.

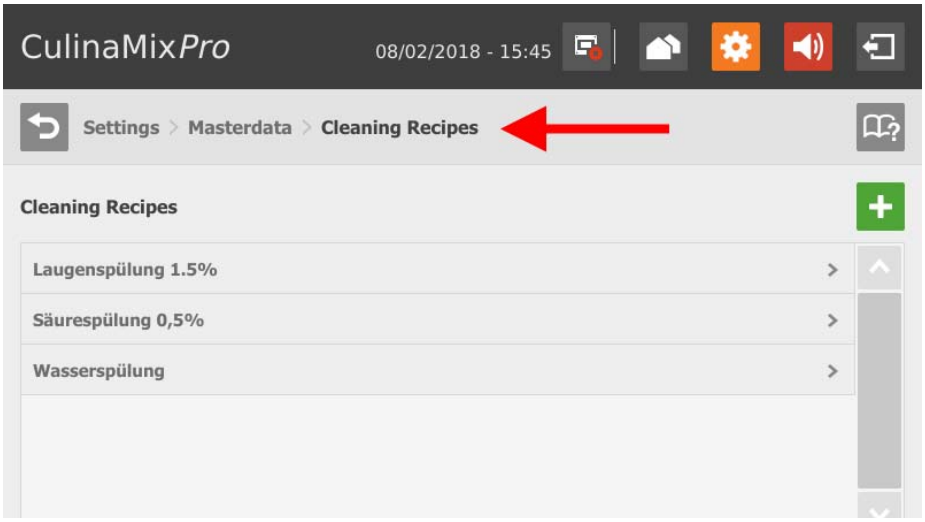
Component parameters

- **Category:** Feed or additive
- **Dry substance:** Dry matter percentage of the component
- **Energy:** Energy content of the component
- **Dosing type:** Select either dosing based on "Time", "Weight" or "Auto" (automatic). The automatic mode works based on the determined weight. Below this threshold weight, a time-dosing method is used automatically, and a weight-based method above this weight.
- If the component is dissolved in water, change the presetting under **Specific weight**, if necessary.

- Under **Total mixing time**, determine a time period for mixing the component. If several components are mixed together, the mixing time will correspond to that of the component with the longest mixing time.
- If a component needs to macerate first, click on **Interval mixing** and enter the required values.
- Select one or more **Replacement** components in case the component you selected is used up before a new order arrives. If you select more than one replacement component, you may sort them in descending order according to priority.
- **Wait after agitator on/off**
- **Dosing with agitator**
- **Temperature:** Preparation temperature during dosing into the mixing tank (target value)
- **Temperature tolerance** (target value)
- **Additional mixing time after dosing** ensures that the component can dissolve at the stated temperature.
- If the box **Interval mixing during distribution** is not checked, the agitator will mix permanently.

10.9.12 Creating a cleaning recipe

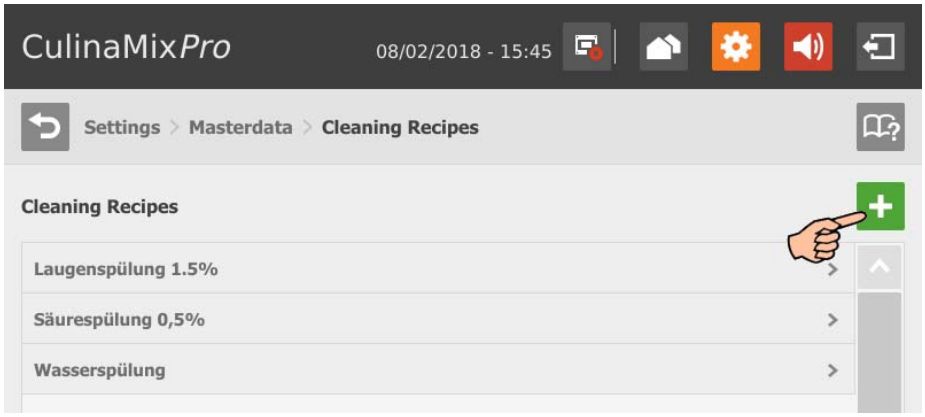
Follow the navigation indicated by the red arrow in the screenshot to access the corresponding settings.



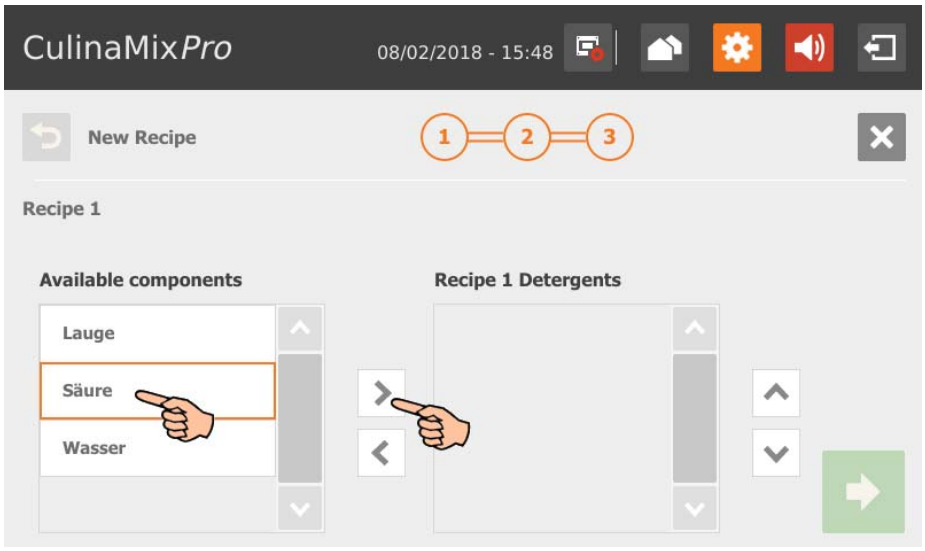
1. Tap on the plus icon to add a new recipe.

   OR

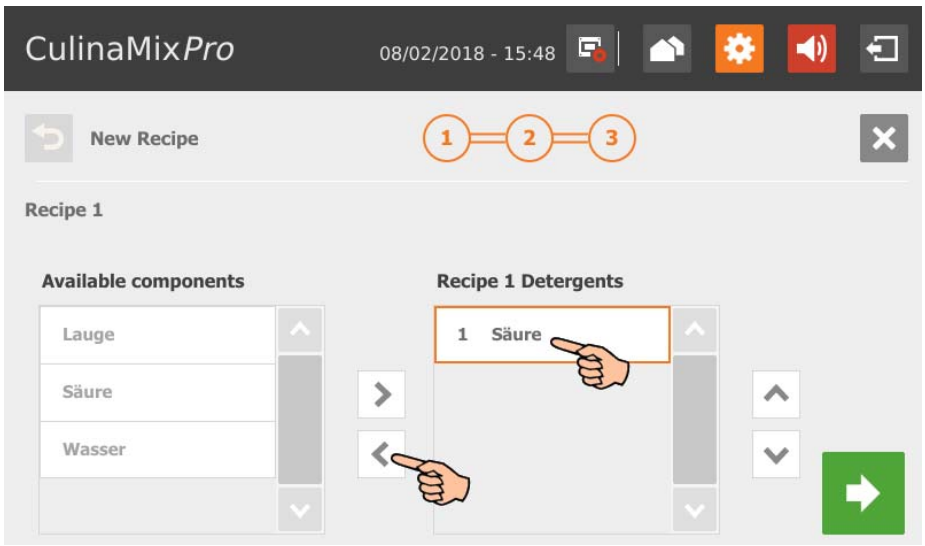
   Tap on an existing recipe to edit it.



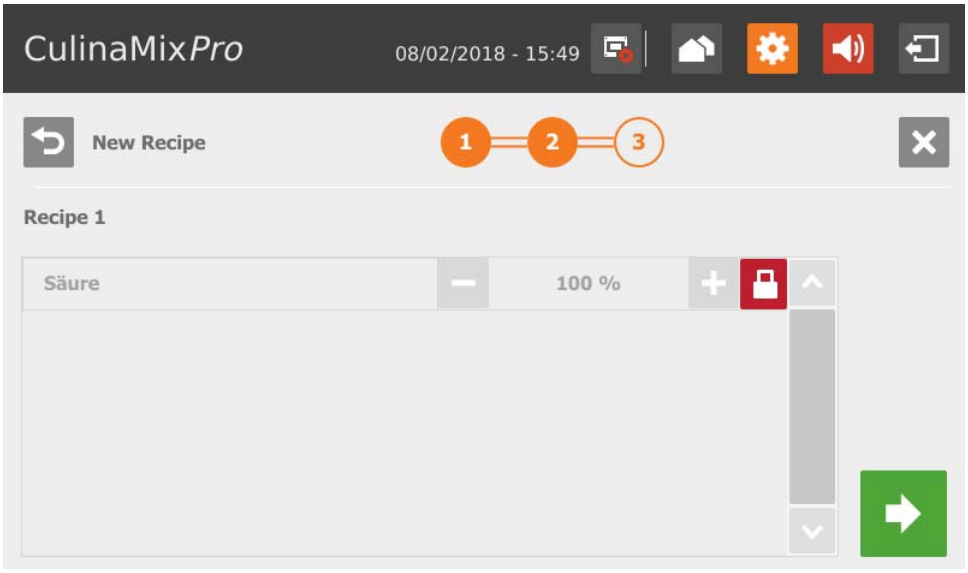
2. Select the correct cleaning component by tapping on it and use the arrow pointing to the right to add it to the recipe.



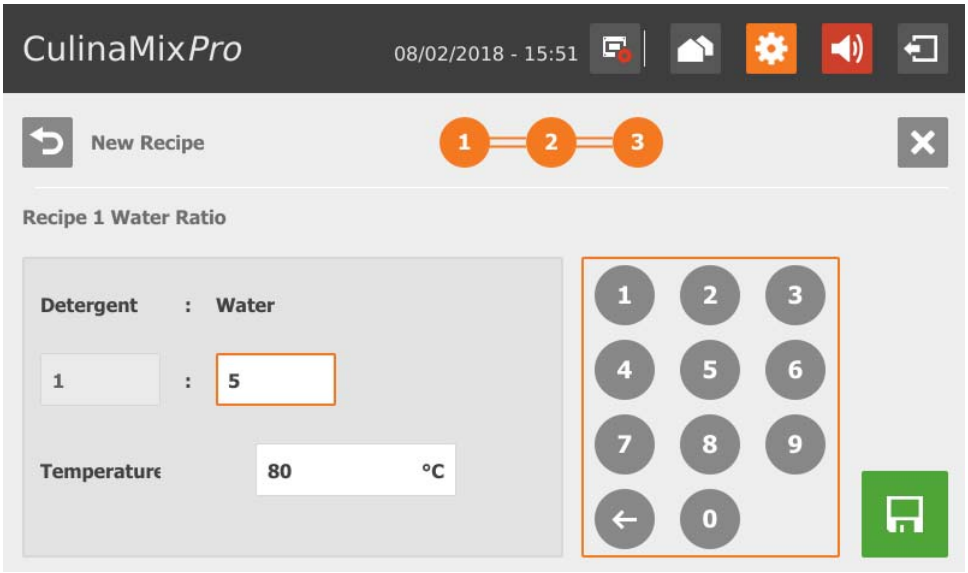
To remove a cleaning component from a recipe, tap on the cleaning component in the recipe and use the arrow pointing to the left to remove it.



3. Go to the next edit window by tapping on  .
4. Define the percentage shares of the cleaning components, based on 100 %.
   - If you use only one cleaning component, the percentage is automatically 100 %.
   - To unlock the input field, tap on the padlock icon  . The input field is then unlocked for inputs  . Tap on  and  to change the percentage.



5. Go to the next edit window by tapping on  .
6. Define the following parameters:
   - Mixing ratio between the cleaning component and water
   - Temperature of the mixture



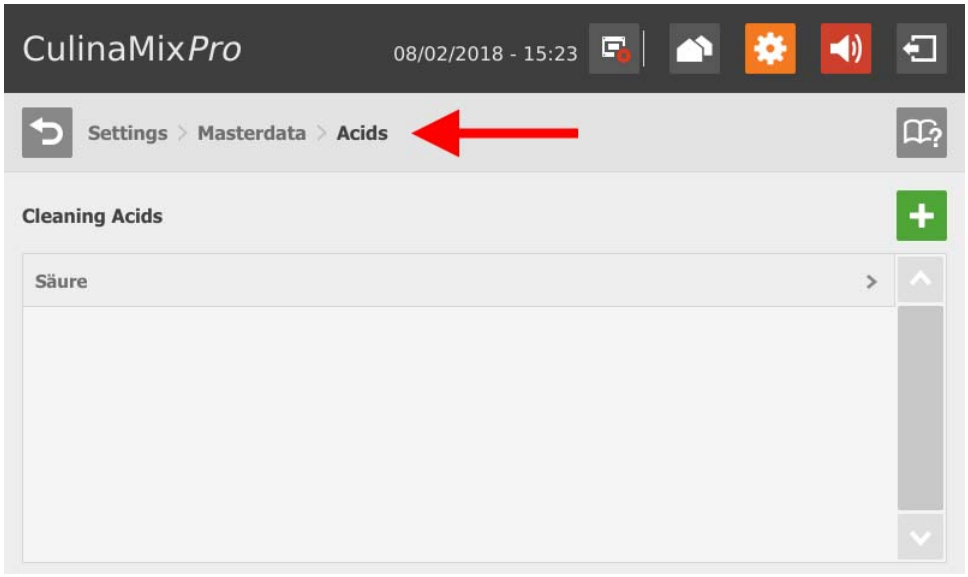
7. When you have configured all settings, tap on  to save the recipe.

   Tap on  to cancel the edit process.

   Tap on  the return to the previous step.

10.9.13 Acid

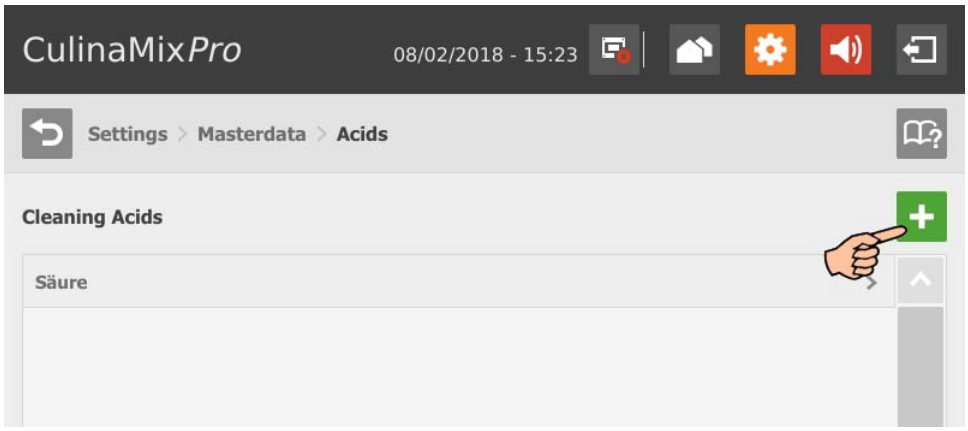
Follow the navigation indicated by the red arrow in the screenshot to access the corresponding settings.



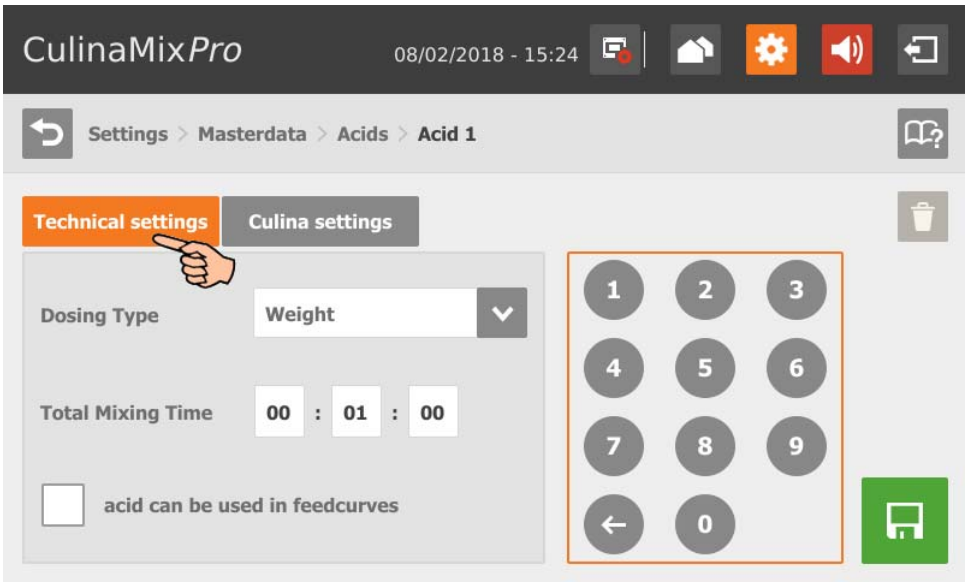
1. Tap on the plus icon to add a new acid.

   OR

   Tap on an existing acid to edit it.

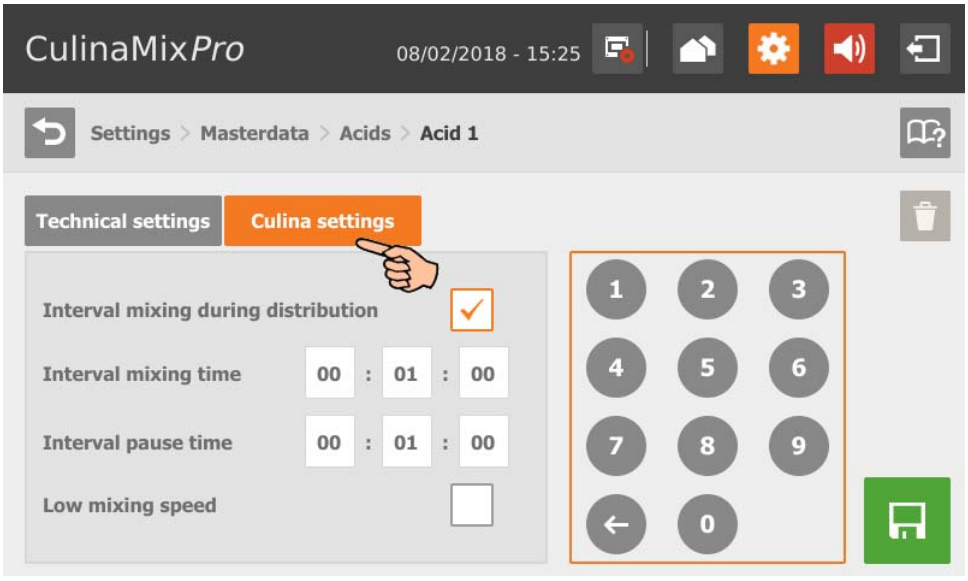


2. Define parameters for feed preparation in the mixing tank and dosing under the tab "Technical settings".



   – Select the **Dosing type**, either "Weight" or "Time".
   – Under **Total mixing time**, define a duration for mixing of the acid.
   – If necessary, activate the option that the acid may be used in feed curves by checking the corresponding box. This option is only applicable for acids.

3. Define the values for the agitator during distribution under the tab "Culina settings":

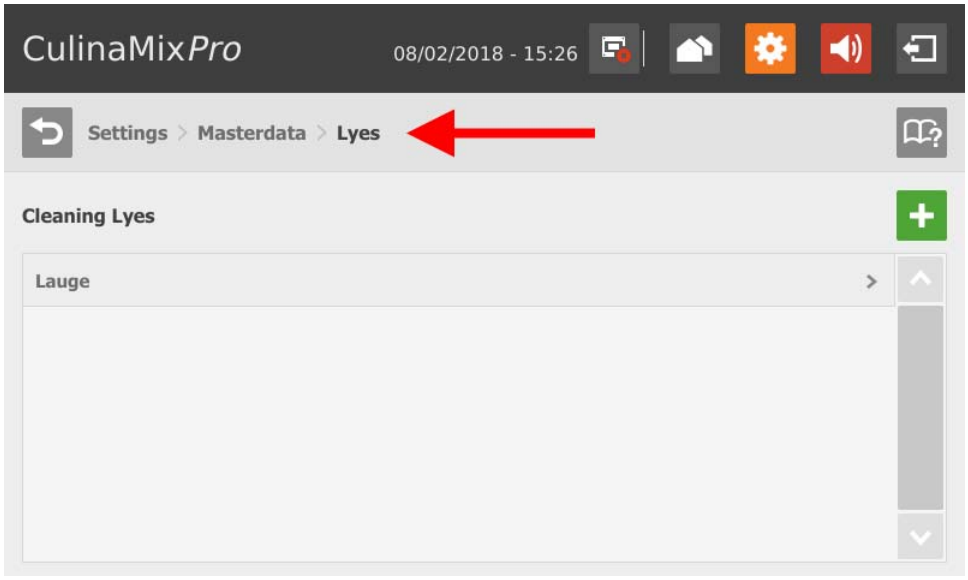


   – If the box **Interval mixing during distribution** is not checked, the agitator will mix permanently.

4. When you have configured all settings, tap on  to save the acid.

10.9.14 Lye

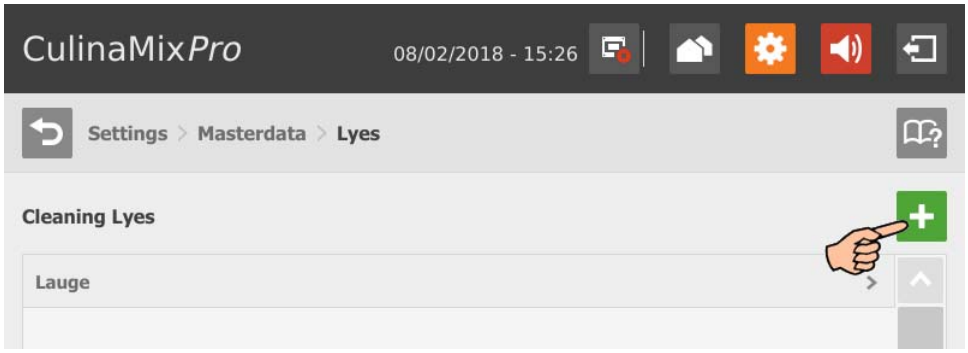
Follow the navigation indicated by the red arrow in the screenshot to access the corresponding settings.



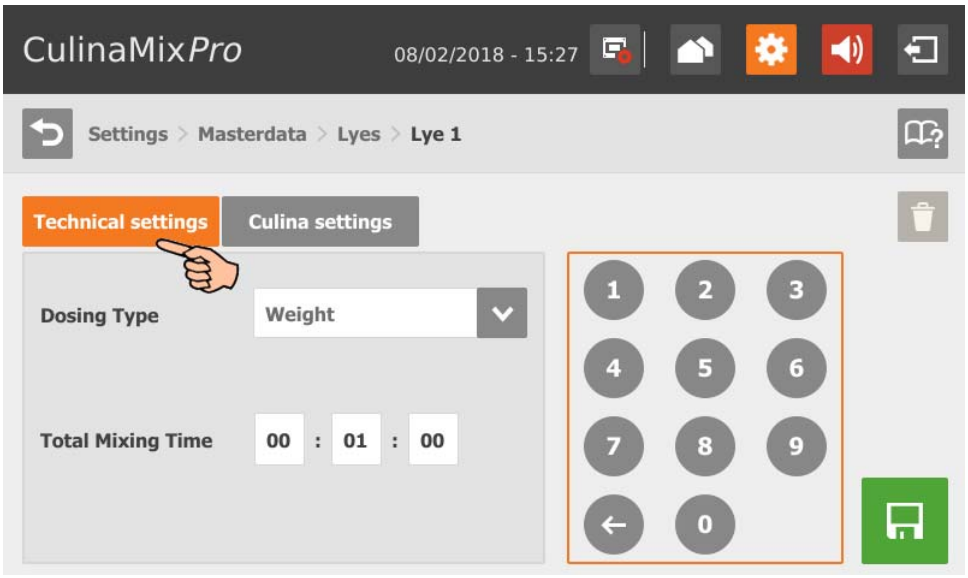
1. Tap on the plus icon to create a new lye.

   OR

   Tap on an existing lye to edit it.

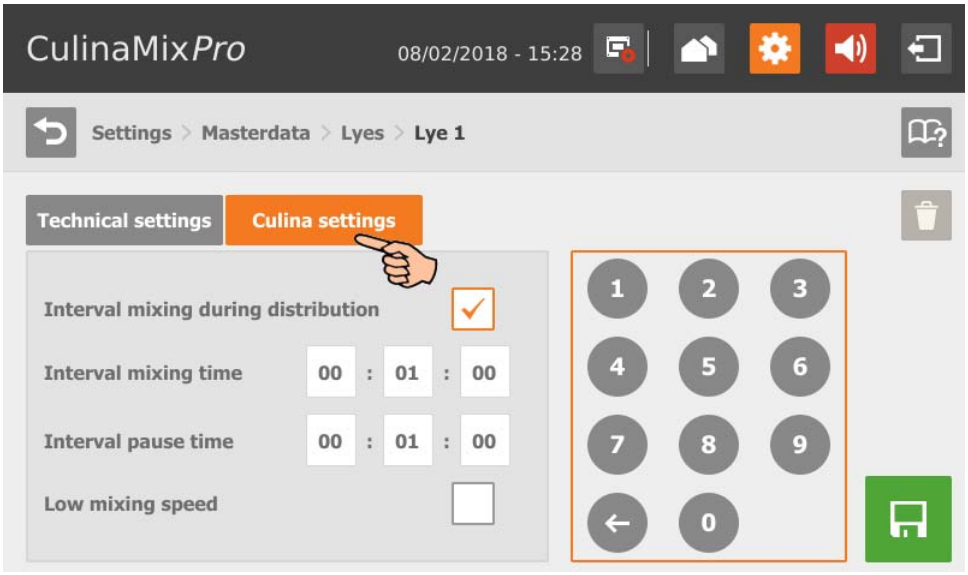


2. Define parameters for feed preparation in the mixing tank and dosing under the tab "Technical settings".



   – Select the **Dosing type**, either "Weight" or "Time".
   – Under **Total mixing time**, define a duration for mixing of the lye.

3. Define the values for the agitator during distribution under the tab "Culina settings":

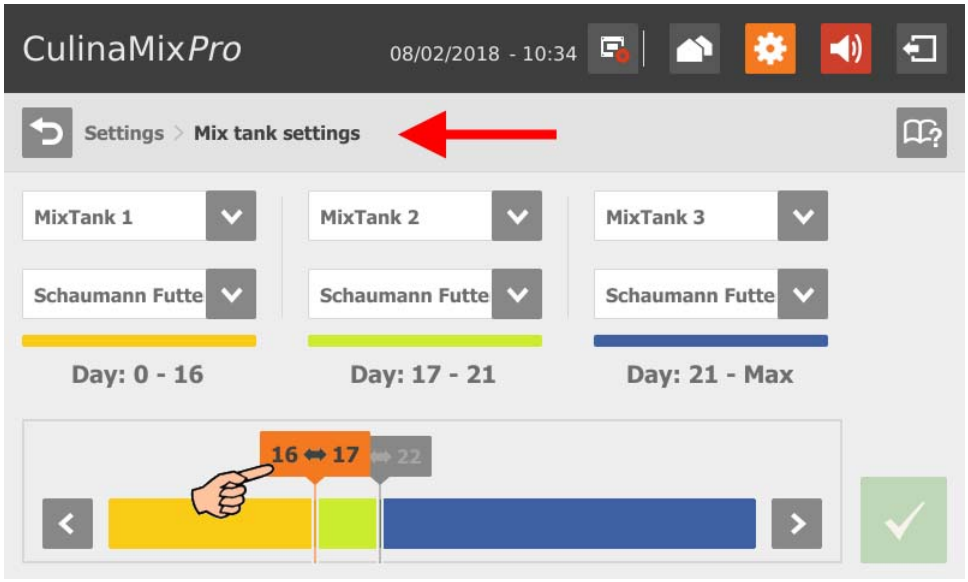


   – If the box **Interval mixing during distribution** is not checked, the agitator will mix permanently.

4. When you have configured all settings, tap on  to save the lye.

10.9.15 Mixing tank settings (assigning)

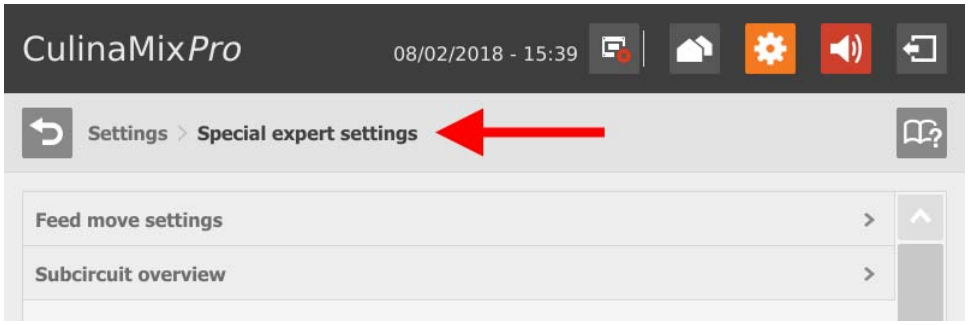
Follow the navigation indicated by the red arrow in the screenshot to access the corresponding settings.



1. Define the order of the mixing tanks based on the piglets' age.
2. Assign a feed curve to each mixing tank.
3. Tap on the time period limit in the colored line and use the arrows to define the corresponding feed curve intervals for the respective mixing tanks.
4. Confirm your input by tapping on ✓.

10.9.16 Expert settings

Follow the navigation indicated by the red arrow in the screenshot to access the corresponding settings.

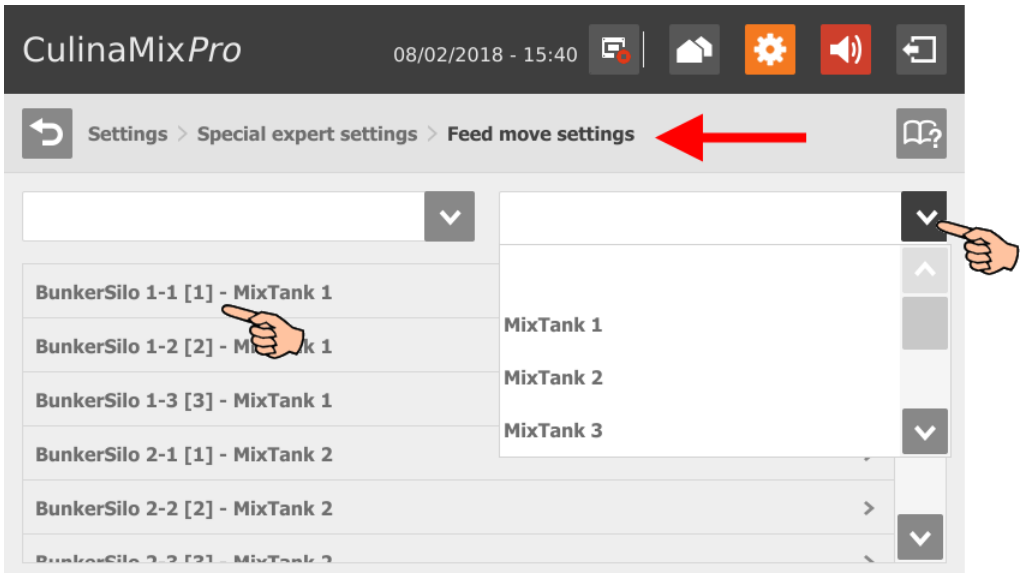


Feed move settings

Tap on the correct feed move in the list.

OR

Filter the correct feed move, e.g. based on start and/or target.



- **Start devices** indicates the devices that belong to the selected feed move and that are started and stopped.
- **Backlash time** to measure the residual flow.

  This time does not apply to feed moves for feeding or watering at a valve or to push to a valve. The corresponding times in the general settings are used for this purpose.
- **Backlash mass:** The residual flow volume determined by the control.
- **Backlash adapt factor:** Weighting of the new value to calculate the residual flow.
- **Dosing speed:** The dosing speed is determined and set automatically for dosing based on weight. Calculate and enter the dosing speed if the system doses based on time.
- The **speed adapt factor** is the weighting of the new factor to calculate the dosing speed.
- **Burst control weight:** This setting is only important for feed moves
  - from one weighed tank to another weighed tank;
  - from one weighed tank to itself (recirculation);

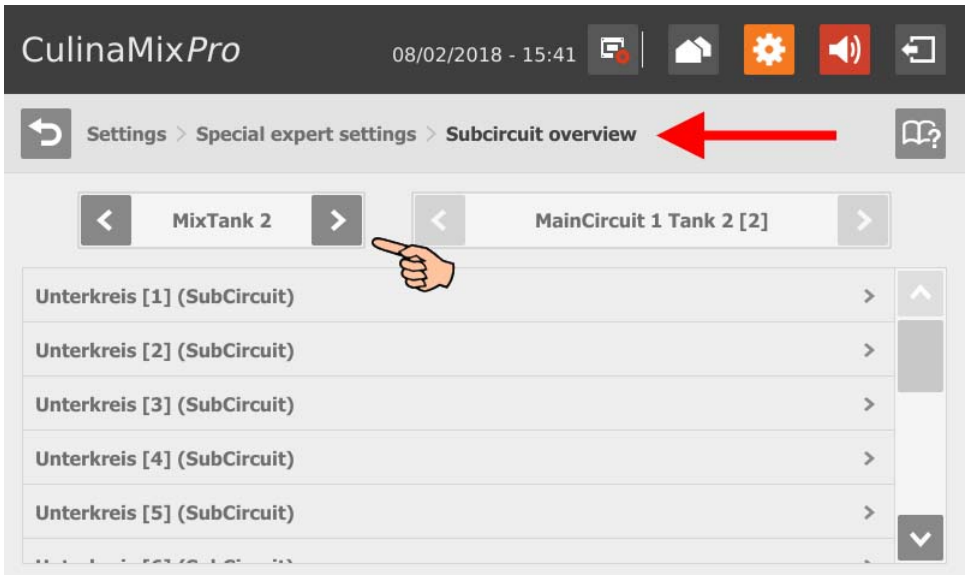
– through a flow meter whose source or target tanks are weighed;

If a weight deviation larger than the value set here is determined while these feed moves are carried out, the alarm "Unexpected weight loss" is generated.

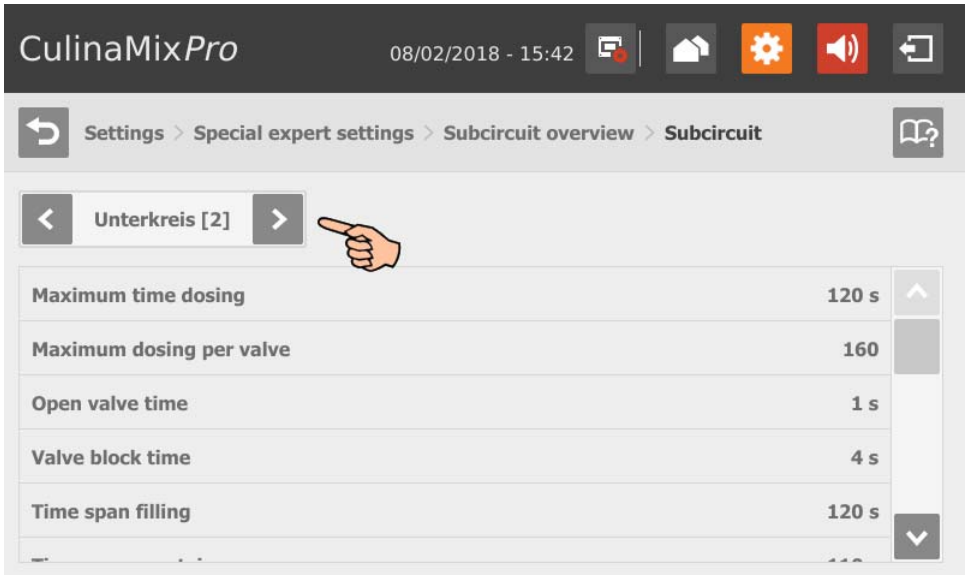
- **Minimum speed:** If this speed is not reached, an alarm is generated, e.g. empty silo, clogging.
- **Control time speed** are time intervals in which the minimum speed is checked.
- **Normal frequency** indicates the frequency inverter's frequency for normal speed. The normal speed is adjusted by the control.
- **Slow frequency:** This setting indicates the frequency inverter's frequency for fine dosing speed. The normal speed is adjusted by the control.

Subcircuit overview

Select the mixing tank and tap on the correct subcircuit.



You can switch between the subcircuits in the settings parameter window.



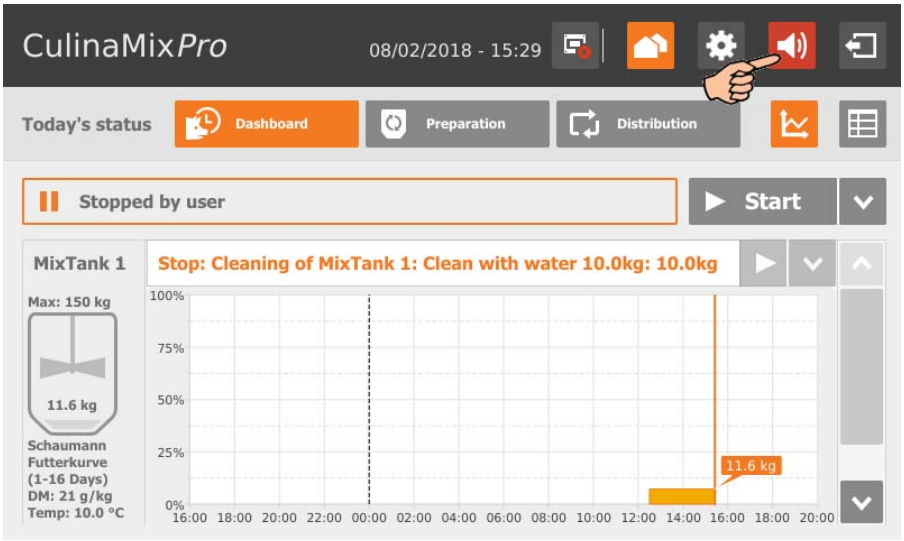
- **Maximum time dosing:** The time period for which feed is dispensed in the subcircuit until the system switches to the next subcircuit. A valve reporting "empty" is irrelevant. The cup should fill up within this time.
- **Maximum dosing per valve:** Maximum number of times a valve can be used for dosing before it is locked. This value refers to one feeding cycle.
- **Open valve time:** Time during which feed is dispensed.
- **Valve block time:** The empty sensor is ignored and the valve is considered full during this time.
- **Time span filling:** The time period required to fill the main circuit completely at the start of feeding or cleaning.
- **Time span emptying:** The time period required to empty the main circuit completely after the end of feeding.
- **Content volume** (pipe content) is calculated automatically from "Pipe type" and "Pipe length". The volume can also be entered directly if the box "Enter volume" is checked. The parameter "Pipe length" is deactivated in this case.
- **Pipe type**
- **Pipe length**
- **Dosing time water** is the water valve's opening time. The pipes are cleaned by water within this time.
- **Usage time of air**: Air is pushed through the pipes during this time after they have been flushed with water.

- **Clean amount mix**: In case of cleaning with recipe, this amount is mixed additionally.
- **Amount valve clean**: Amount for valve or drop pipe cleaning.
- **Time valve clean**: The time period for which the valves opens for cleaning. The "Amount valve clean" may pass through the valve during this time.
- **Squeeze valve dosing delay:** When switching to the subcircuit, the system waits for this time before the pinch valve is opened again.
- **Dose with closed end valve** for better application of the pressure / less pressure loss with long pipes.
- **Adjustment factor:** This factor is a percentage used to adjust the amount for valve cleaning. The adjustment depends on the remaining amount. The percentage is subtracted from the total cleaning amount used beforehand. Example: From a cleaning amount of 20 liters, an amount of 5 liters remains. At an adjustment factor of 50 %, a total amount of 17.5 liters will be used for the next cleaning.
- **Recirculate after pause time:** After a pause, the pipe content recirculates for this time before it is distributed. This parameter refers to "Feed preparation" parameters or to the manual pause (by stopping the system).

10.10 Alarms

If there is an active alarm or warning, the alarm icon is colored.

1. Tap on the icon to open the alarm menu.



   The different alarms and warnings are shown in a list and ordered depending on when they occurred. The table columns contain the following information:

   – alarm type, see chapter 9 ”Alarms”
   – alarm description
   – time of occurrence

2. Tap on the correct alarm to read the full description and to confirm / acknowledge the alarm by tapping on ✓, if necessary.