



User guide for the Feeding Control Tool

Version 1.0

After optimizing your ration with the Ration Optimizer, NorFor offers the Feeding Control tool. This tool will give you the possibility to keep track of the feeding of your herd. By recording the feeding data, such as initial feed, remains, and milk production, the actual parameters of your herd can be calculated to compare with the parameters estimated before. This will allow the precise feeding of your herd, improving the use of the farm resources.

Follow this guide to achieve the feeding control of your herd.

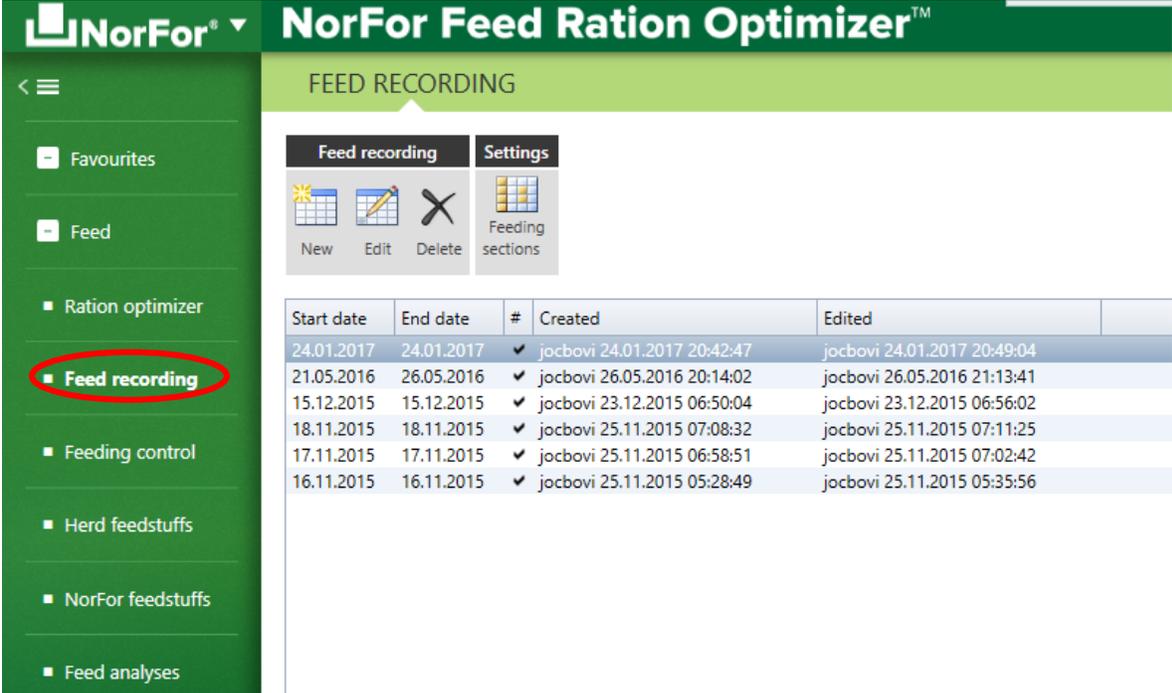
FEEDING RECORDING AND CONTROL

The precise tracking of the feeding will be done in 2 steps.

1. **Feeding recording.** In this step the recorded data of the feeding from the farm should be fill in by the user.
2. **Feeding control.** This step will calculate the actual parameters of your herd.

1. Feeding recording

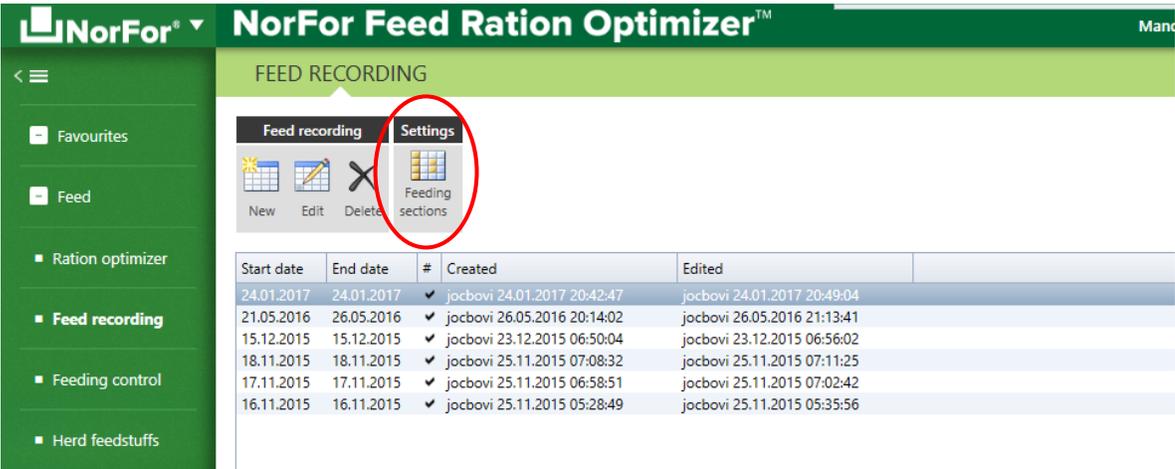
1.1. Click the “Feed recording” tab in the left-side green Menu.



The screenshot shows the NorFor Feed Ration Optimizer interface. The left sidebar menu is green and contains several options: Favourites, Feed, Ration optimizer, **Feed recording** (highlighted with a red circle), Feeding control, Herd feedstuffs, NorFor feedstuffs, and Feed analyses. The main content area is titled 'FEED RECORDING' and features two tabs: 'Feed recording' and 'Settings'. Below the tabs are icons for 'New', 'Edit', 'Delete', and 'Feeding sections'. A table of feeding records is displayed below the icons.

| Start date | End date | # | Created | Edited |
|------------|------------|---|-----------------------------|-----------------------------|
| 24.01.2017 | 24.01.2017 | ✓ | jocbovi 24.01.2017 20:42:47 | jocbovi 24.01.2017 20:49:04 |
| 21.05.2016 | 26.05.2016 | ✓ | jocbovi 26.05.2016 20:14:02 | jocbovi 26.05.2016 21:13:41 |
| 15.12.2015 | 15.12.2015 | ✓ | jocbovi 23.12.2015 06:50:04 | jocbovi 23.12.2015 06:56:02 |
| 18.11.2015 | 18.11.2015 | ✓ | jocbovi 25.11.2015 07:08:32 | jocbovi 25.11.2015 07:11:25 |
| 17.11.2015 | 17.11.2015 | ✓ | jocbovi 25.11.2015 06:58:51 | jocbovi 25.11.2015 07:02:42 |
| 16.11.2015 | 16.11.2015 | ✓ | jocbovi 25.11.2015 05:28:49 | jocbovi 25.11.2015 05:35:56 |

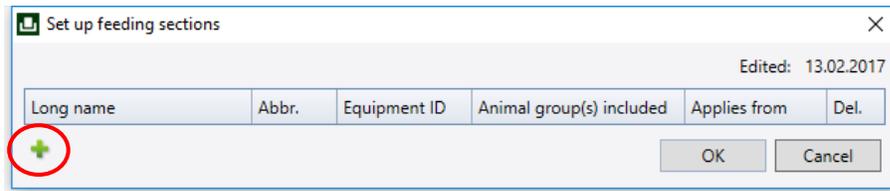
1.2. Define the animal categories to be evaluated by clicking the button “Feeding sections” inside the “Settings” box. The window “Set up feeding sections” will pop-up.



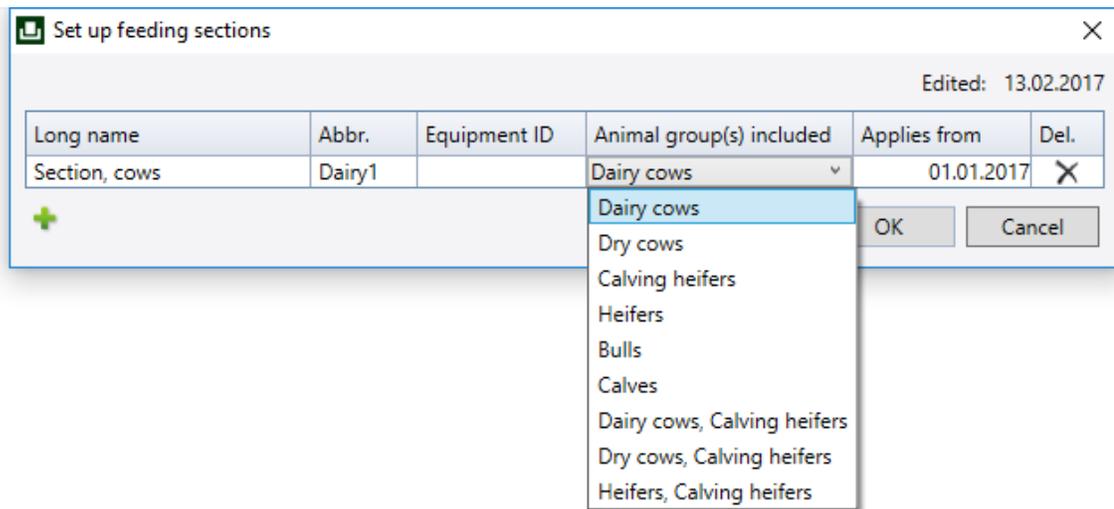
The screenshot shows the NorFor Feed Ration Optimizer interface with the 'Settings' tab selected. The 'Feeding sections' button is highlighted with a red circle. The table of feeding records is visible below the settings area.

| Start date | End date | # | Created | Edited |
|------------|------------|---|-----------------------------|-----------------------------|
| 24.01.2017 | 24.01.2017 | ✓ | jocbovi 24.01.2017 20:42:47 | jocbovi 24.01.2017 20:49:04 |
| 21.05.2016 | 26.05.2016 | ✓ | jocbovi 26.05.2016 20:14:02 | jocbovi 26.05.2016 21:13:41 |
| 15.12.2015 | 15.12.2015 | ✓ | jocbovi 23.12.2015 06:50:04 | jocbovi 23.12.2015 06:56:02 |
| 18.11.2015 | 18.11.2015 | ✓ | jocbovi 25.11.2015 07:08:32 | jocbovi 25.11.2015 07:11:25 |
| 17.11.2015 | 17.11.2015 | ✓ | jocbovi 25.11.2015 06:58:51 | jocbovi 25.11.2015 07:02:42 |
| 16.11.2015 | 16.11.2015 | ✓ | jocbovi 25.11.2015 05:28:49 | jocbovi 25.11.2015 05:35:56 |

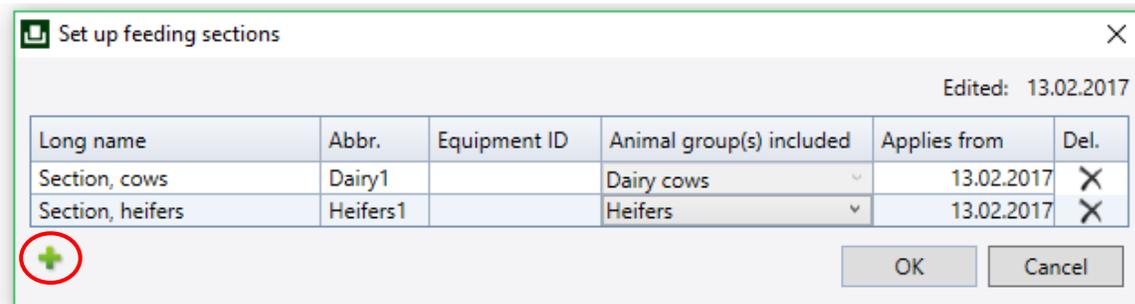
1.3. Click the button “+” to create a new section (new animal category).



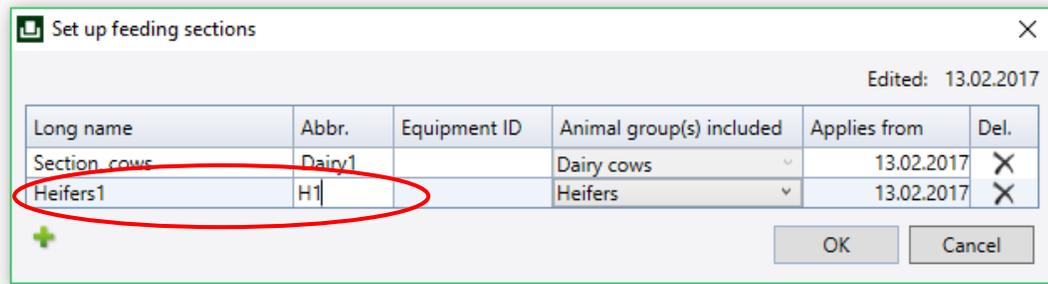
1.4. In the column “Animal Group included” select the option “Dairy cow”.



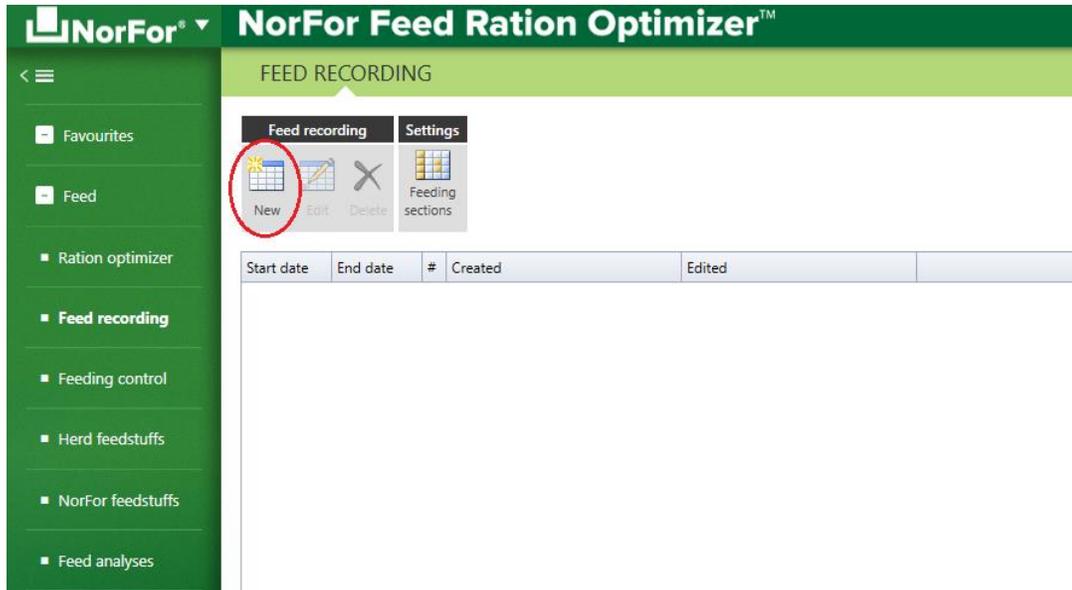
1.5. Click the button “+” for adding more groups (e.g. Heifers).



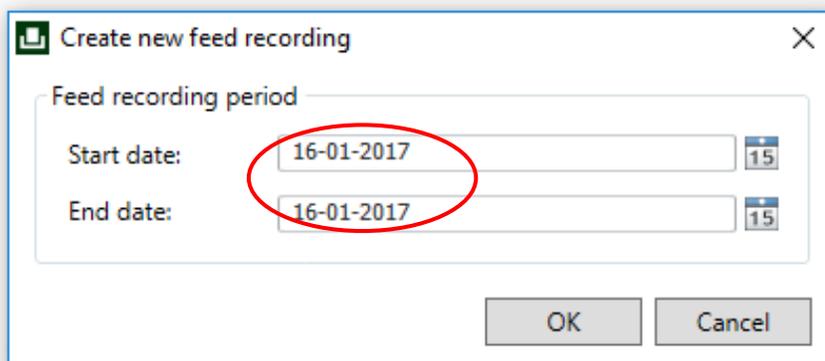
1.6. To customize the group “Long name” or “Abbreviation” click on the group textbox to fill in the new names.



1.7. Click “New” to create a feed recording document. The window “Create new feeding recording” will pop-up.



1.8. Fill in the “Start date” and “End date” when the recording of data of the farm took place. It can be a single day or a period. Then click “OK”.



1.9. In the “Feed consumption” tab, add the used feedstuff in your farm by clicking the button “Add/remove” under the “Feedstuff” box. The window “Select Feedstuff” will pop-up.

The screenshot shows the 'Feed recording' interface. The top navigation bar includes 'Feed recording', 'Printouts', 'View', 'Feedstuffs', 'Feeding control', 'Feed mixture', and 'Close'. The 'Feedstuffs' button, which has a green plus icon, is circled in red. Below this, the 'Feed consumption' section is active, showing a table for 'Feed consumption during feed recording period'. This table has columns for 'Feeding sections' (All, Dairy2, Dry1, Heifers1) and 'Animal group' (Dairy cows, Dry, Heifers). Below this is another table for 'Feedstuffs' with columns for 'Unit', 'Loaded', 'Remains', and 'Animals per feeding section' (Dairy2, Dry1, Heifers1).

1.10. Select the Feedstuff by double clicking on it or using the right arrow. The selected feedstuff should appear in the right box of the window. When finished selecting click “OK”.

The screenshot shows the 'Select feedstuffs for 14.02.2017 - 14.02.2017' dialog box. It has two main columns: 'Herd feedstuffs' and 'Feedstuffs for 14.02.2017 - 14.02.2017'. The 'Herd feedstuffs' column lists various feedstuff codes and names, such as '001-0008-001 Spring barley'. The 'Feedstuffs for 14.02.2017 - 14.02.2017' column shows a list of selected feedstuffs, including '001-0008-001 Spring barley', '006-0242-001 Grass silage, low OMD', and others. A red circle highlights the right arrow button between the two columns, which is used to move feedstuffs from the left list to the right list. At the bottom, there is a search field labeled 'Find feedstuff:' and 'OK' and 'Cancel' buttons.

*If a feed mixture was created in the Ration Optimizer section, it can be selected in the “Herd feedstuff” tab on this window.

1.11. In the “Feed consumption” tab select the number of animals per section group.

The screenshot shows the 'Feed consumption' tab in the software. The 'Animals per feeding section' row is highlighted, and the value '400' is circled in red. The 'Dairy cows' column is also highlighted.

| Feeding sections: | All | Dairy2 | Dry1 | Heifers1 |
|-----------------------------|-----|------------|------|----------|
| Animal group | | Dairy cows | Dry | Heifers |
| Animals per feeding section | 400 | 400 | - | - |

1.12. Fill the column “Loaded” with the total amount of each feedstuff loaded in the mixer wagon or fed directly.

The screenshot shows the 'Feed consumption' tab in the software. The 'Loaded' column is highlighted, and the values are filled in. The 'Dairy2' column is also highlighted.

| Feeding sections: | All | Dairy2 | Dry1 | Heifers1 |
|-----------------------------|-----|------------|------|----------|
| Animal group | | Dairy cows | Dry | Heifers |
| Animals per feeding section | 400 | 400 | - | - |

| Feedstuffs | Unit | Loaded | Remains | Dairy2 | Dry1 | Heifers1 |
|--------------------------------------|------|--------|---------|--------|------|----------|
| test Feed ration,31-12-2016 | Kg | 24.878 | 275 | 24.603 | | |
| - Spring barley | Kg | 1.800 | | 1.780 | | |
| - Rapeseed meal, extracted | Kg | 810 | | 801 | | |
| - Soya bean, extracted | Kg | 1.295 | | 1.281 | | |
| - Beet pulp, dried | Kg | 688 | | 680 | | |
| - Clover grass silage, high OMD, 20' | Kg | 6.925 | | 6.848 | | |
| - Maize silage, medium OMD | Kg | 9.525 | | 9.420 | | |
| - Limestone | Kg | 54 | | 53 | | |
| - Sodium hydroxide | Kg | 33 | | 32 | | |
| - Water | Kg | 3.700 | | 3.659 | | |
| - Minerals and vitamine mix, Type 3 | Kg | 49 | | 48 | | |
| Total | Kg | 24.878 | 275 | 24.603 | 0 | 0 |

1.13. Deduct the “total loaded/fed” amount with the recorded feed remains, to get the consumed figure. This result should be filled under the group of animals that is been calculated.

The screenshot shows the 'Feed recording' interface. The 'Feed consumption' tab is active, and the 'Milk consumption' sub-tab is selected. The table below shows the feed consumption data for various feedstuffs, with the 'Dairy2' column circled in red.

| Feedstuffs | Unit | Loaded | Remains | Dairy2 | Dry1 | Heifers1 |
|--------------------------------------|-----------|---------------|------------|---------------|----------|----------|
| test Feed ration,31-12-2016 | Kg | 24.878 | 275 | 24.603 | | |
| - Spring barley | Kg | 1.800 | | 1.780 | | |
| - Rapeseed meal, extracted | Kg | 810 | | 801 | | |
| - Soya bean, extracted | Kg | 1.295 | | 1.281 | | |
| - Beet pulp, dried | Kg | 688 | | 680 | | |
| - Clover grass silage, high OMD, 20' | Kg | 6.925 | | 6.848 | | |
| - Maize silage, medium OMD | Kg | 9.525 | | 9.420 | | |
| - Limestone | Kg | 54 | | 53 | | |
| - Sodium hydroxide | Kg | 33 | | 32 | | |
| - Water | Kg | 3.700 | | 3.659 | | |
| - Minerals and vitamine mix, Type 3 | Kg | 49 | | 48 | | |
| Total | Kg | 24.878 | 275 | 24.603 | 0 | 0 |

1.14. Select the “Milk Consumption” tab.

The screenshot shows the 'Feed recording' interface. The 'Feed consumption' tab is active, and the 'Milk consumption' sub-tab is selected. The table below shows the feed consumption data for various feedstuffs, with the 'Milk consumption' sub-tab and the 'Dairy2' column circled in red.

| Feedstuffs | Unit | Loaded | Remains | Dairy2 | Dry1 | Heifers1 |
|--------------------------------------|-----------|---------------|------------|---------------|----------|----------|
| test Feed ration,31-12-2016 | Kg | 24.878 | 275 | 24.603 | | |
| - Spring barley | Kg | 1.800 | | 1.780 | | |
| - Rapeseed meal, extracted | Kg | 810 | | 801 | | |
| - Soya bean, extracted | Kg | 1.295 | | 1.281 | | |
| - Beet pulp, dried | Kg | 688 | | 680 | | |
| - Clover grass silage, high OMD, 20' | Kg | 6.925 | | 6.848 | | |
| - Maize silage, medium OMD | Kg | 9.525 | | 9.420 | | |
| - Limestone | Kg | 54 | | 53 | | |
| - Sodium hydroxide | Kg | 33 | | 32 | | |
| - Water | Kg | 3.700 | | 3.659 | | |
| - Minerals and vitamine mix, Type 3 | Kg | 49 | | 48 | | |
| Total | Kg | 24.878 | 275 | 24.603 | 0 | 0 |

1.15. Fill in the amount of milk kept in the farm for different purposes (milk for weaners, self-consumption or discarded).

The screenshot shows the NorFor Feed Ration Optimizer interface. The top navigation bar includes the NorFor logo and the title "NorFor Feed Ration Optimizer™". Below this, a green bar indicates the current date range: "FEED RECORDING » 16-01-2017 - 16-01-2017".

The interface features a left-hand sidebar with a menu containing the following items:

- Favourites
- Feed
- Ration optimizer
- Feed recording**
- Feeding control
- Herd feedstuffs
- NorFor feedstuffs
- Feed analyses

The main content area has three tabs: "Feed consumption", "Milk consumption", and "Observations". The "Milk consumption" tab is active, displaying a table with the following data:

| | Unit | |
|-----------------------|------------|-----|
| Milk for weaners | Litres/day | 400 |
| Self-consumption/sale | Litres/day | 25 |
| Discarding | Litres/day | 0 |

The table is circled in red, highlighting the numerical values in the rightmost column.

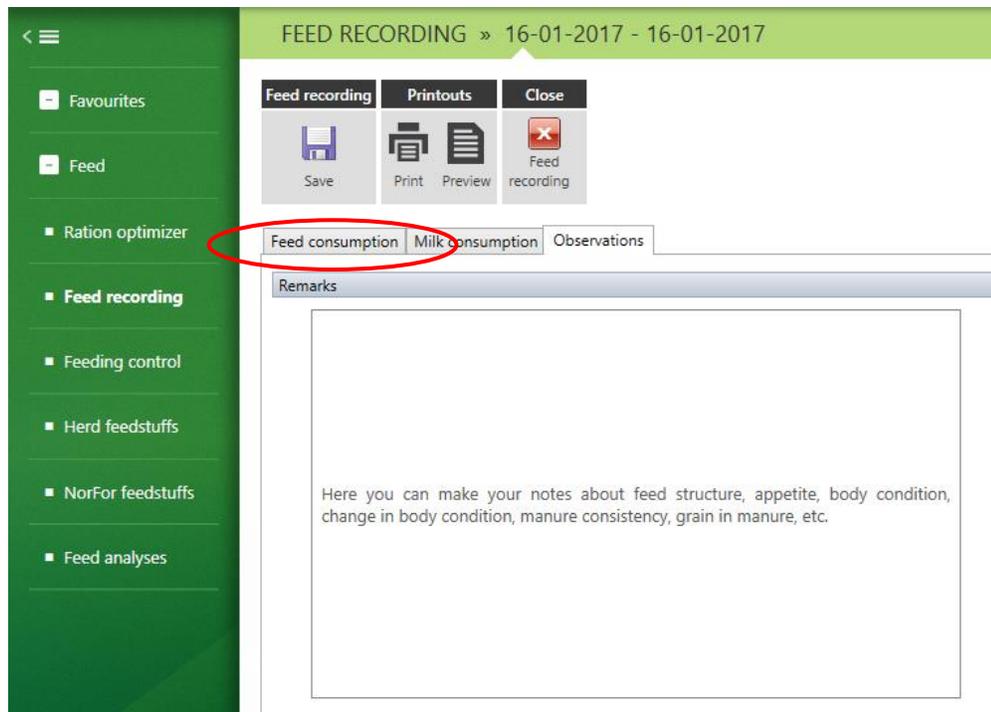
1.16. Click the "Observations" tab. In this tab notes about feed structure, appetite, body condition, and manure consistency, within others, can be made.

The screenshot shows the NorFor Feed Ration Optimizer interface with the "Observations" tab selected. The top navigation bar and sidebar are identical to the previous screenshot.

The main content area has three tabs: "Feed consumption", "Milk consumption", and "Observations". The "Observations" tab is active and circled in red. Below the tabs is a "Remarks" section with a large text input area. The text inside the input area reads:

Here you can make your notes about feed structure, appetite, body condition, change in body condition, manure consistency, grain in manure, etc.

1.17. Click the “Feed consumption” tab to go back. This will finish the “Feed recording” Step.



2. Feeding control

The feed recording is now complete. All the recorded values in the previous steps will be used for the “Feeding control” tool. To complete the feeding control follow the steps below.

2.1. Click the button “Create” under the “Feeding control” box. The window “Create feeding control” will pop-up.

| Feeding sections: | All | Dairy2 | Dry1 | Heifers1 |
|-----------------------------|-----|------------|------|----------|
| Animal group | | Dairy cows | Dry | Heifers |
| Animals per feeding section | 400 | 400 | - | - |

| Feedstuffs | Unit | Loaded | Remains | Dairy2 | Dry1 | Heifers1 |
|--|------|--------|---------|--------|------|----------|
| test Feed ration,31-12-2016 | Kg | 24.878 | 275 | 24.603 | | |
| - Spring barley | Kg | 1.800 | | 1.780 | | |
| - Rapeseed meal, extracted | Kg | 810 | | 801 | | |
| - Soya bean, extracted | Kg | 1.295 | | 1.281 | | |
| - Beet pulp, dried | Kg | 688 | | 680 | | |
| - Clover grass silage, high OMD 20% Kr | Kg | 6.925 | | 6.848 | | |

- 2.2. In the window “Create feeding control” rename the feeding control document to be created. The feeding control period should coincide with the feeding recording period set up before (a single day or a period).

Create feeding control

Name: Cows 16-01-2017

Feeding control period: 16-01-2017 → 16-01-2017

Select animal group(s) and division into feeding sections:

Dairy cows Divide into feeding sections

Dry cows

Calving heifers Divide into feeding sections

Heifers Divide into feeding sections

Bulls Divide into feeding sections

OK Cancel

- 2.3. Select the group of animals that has been recorded in the “Feed Recording” section. Then click “OK”

Create feeding control

Name: Cows 16-01-2017

Feeding control period: 16-01-2017 → 16-01-2017

Select animal group(s) and division into feeding sections:

Dairy cows Divide into feeding sections

Dry cows

Calving heifers Divide into feeding sections

Heifers Divide into feeding sections

Bulls Divide into feeding sections

OK Cancel

2.4. Click the “Feeding control” tab.

The screenshot shows the software interface with the 'Feeding control' tab selected in the top navigation bar. The left sidebar has 'Feeding control' highlighted in green. The main content area shows the 'Milk production' section with the following table:

| Parameter | Unit | Dairy cows |
|--------------------------|------------|------------|
| Milk dairy | Litres/day | 13.800 |
| On-farm milk consumption | Litres/day | 425 |
| Fat pct. | Pct. | 4.01 |
| Protein pct. | Pct. | 3.48 |
| Milk price | Price/kg | 0.33 |

Below this is the 'Feed ration' section with the following table:

| | | Dairy cows |
|----------------|--------------|------------------------|
| No. of animals | | 400 |
| Feedstuff | Cent/kg Unit | Kg/animal/day Total kg |

2.5. In the “Milk production” section fill in the total amount of milk produced per day (liters/day), the fat and protein percentage and the milk price (price/kg).

The screenshot shows the software interface with the 'Feeding control' tab selected. The 'Milk production' table is highlighted with a red circle, indicating the fields to be filled:

| Parameter | Unit | Dairy cows |
|--------------------------|------------|------------|
| Milk dairy | Litres/day | 13.800 |
| On-farm milk consumption | Litres/day | 425 |
| Fat pct. | Pct. | 4.01 |
| Protein pct. | Pct. | 3.48 |
| Milk price | Price/kg | 0.33 |

The 'Feed ration' section below it shows 400 Dairy cows.

- 2.6. The “Feed ration” section is automatically filled from the “Feed recording” data. In this section check if the prices of each feedstuff under the “Cent/kg” column coincide with the actual purchased prices. If needed, click on the textbox to change it.

The screenshot shows the software interface with a green sidebar on the left containing navigation options like 'Favourites', 'Feed', 'Ration optimizer', 'Feed recording', 'Feeding control', 'Herd feedstuffs', 'NorFor feedstuffs', and 'Feed analyses'. The main window has a top toolbar with buttons for 'Feeding control', 'Printouts', 'View', 'Feed recording', 'Ration parameters', 'Key figures', 'Result', and 'Close'. Below the toolbar are tabs for 'General', 'Animal basis', and 'Feeding control'. The 'Feeding control' section is expanded to show 'Milk production' and 'Feed ration'. The 'Feed ration' table is displayed, showing feedstuff details for 400 dairy cows. A red circle highlights the 'Cent/kg' column, which contains values such as 15,0 for Spring barley and 55,0 for Minerals and vitamine mix.

| Feedstuff | Cent/kg | Unit | Dairy cows | |
|--------------------------------|---------|-------|---------------|----------|
| | | | Kg/animal/day | Total kg |
| No. of animals | | | 400 | |
| Spring barley | 15,0 | Kg DM | 3,8 | 1.780 |
| Rapeseed meal, extracted | 26,8 | Kg DM | 1,8 | 801 |
| Soya bean, extracted | 38,3 | Kg DM | 2,8 | 1.281 |
| Beet pulp, dried | 17,5 | Kg DM | 1,5 | 680 |
| Clover grass silage, high OMD, | 4,9 | Kg DM | 6,1 | 6.848 |
| Maize silage, medium OMD | 3,9 | Kg DM | 8,0 | 9.420 |
| Limestone | 12,0 | Kg DM | 0,13 | 53 |
| Sodium hydroxide | 32,2 | Kg DM | 0,08 | 32 |
| Water | 0,0 | Kg DM | 0,0 | 3.659 |
| Minerals and vitamine mix, Typ | 55,0 | Kg DM | 0,12 | 48 |
| Total | | Kg DM | 24,3 | 24.603 |

- 2.7. Click the button “Calculate” under the result box to get the results.

This screenshot is similar to the previous one, showing the same software interface. However, a red circle highlights the 'Calculate' button in the 'Result' section of the top toolbar. The 'Feed ration' table below is identical to the one in the previous screenshot.

- 2.8. Results are shown under the section “Ration Parameters”. Indicating the actual parameters, the minimum and maximum limits. Red values show that the parameter is over or under the specified limits. Yellow parameters indicate the value is in the maximum or minimum limit.

The screenshot shows the 'Ration parameters' section of the software. The 'Ration parameters' tab is selected and circled in red. The table below displays various parameters for dairy cows, with some values highlighted in red (e.g., 101.5) and others in yellow (e.g., 32, 8.7).

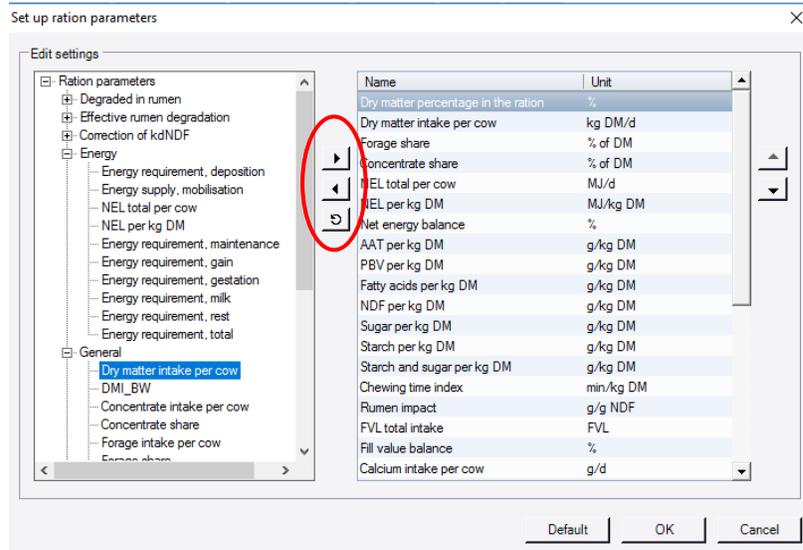
| | | Dairy cows | | |
|-------------------------------------|-----------|------------|-----------|-------|
| Ration parameters | Unit | Min. | In ration | Max. |
| Dry matter percentage in the ration | % | | 39,5 | |
| Dry matter intake per cow | kg DM/d | | 24,3 | |
| Forage share | % of DM | | 57,9 | |
| Concentrate share | % of DM | | 42,1 | |
| NEL total per cow | MJ/d | 157 | 160 | |
| NEL per kg DM | MJ/kg DM | | 6,58 | |
| Net energy balance | % | 100,0 | 101,5 | 101,0 |
| AAT per kg DM | g/kg DM | | 109 | |
| PBV per kg DM | g/kg DM | 10 | 11 | 40 |
| Fatty acids per kg DM | g/kg DM | 20 | 17 | 45 |
| NDF per kg DM | g/kg DM | | 314 | |
| Sugar per kg DM | g/kg DM | | 54 | |
| Starch per kg DM | g/kg DM | | 211 | |
| Starch and sugar per kg DM | g/kg DM | | 265 | |
| Chewing time index | min/kg DM | 32 | 32 | |
| Rumen impact | g/g NDF | | 0,50 | 0,60 |
| FVL total intake | FVL | 8,2 | 8,7 | 8,5 |

- 2.9. To add or change ration parameters shown in the results click on the button “Add/remove” under the “Ration parameters” box. The window “Set up ration parameters” will pop-up.

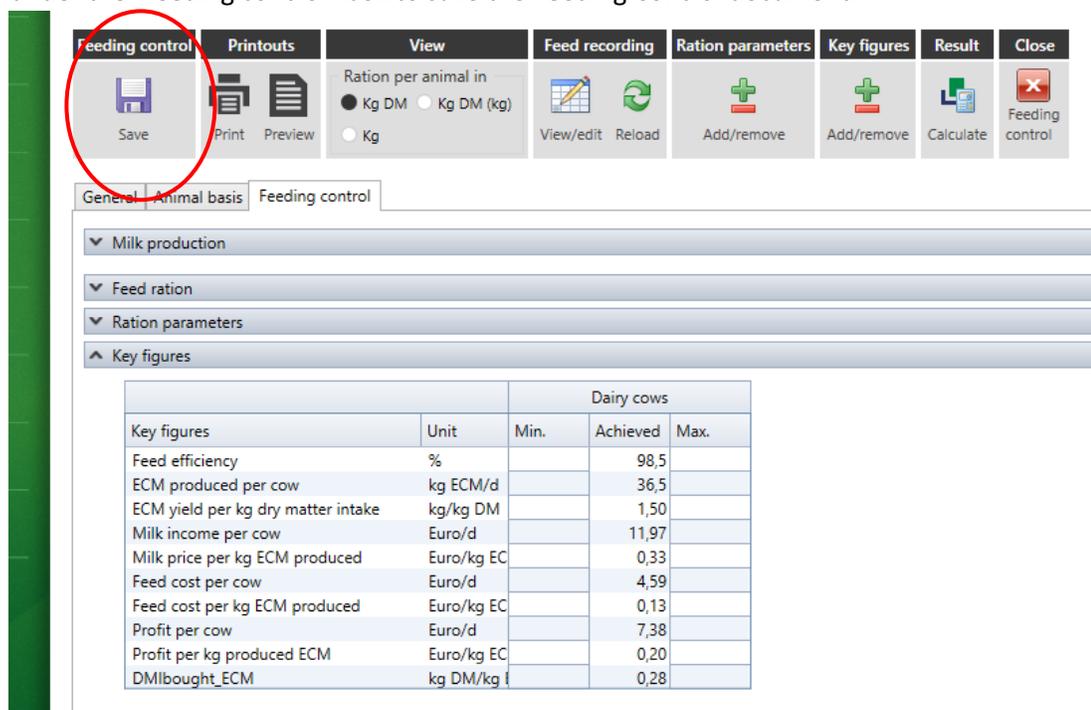
The screenshot shows the 'Ration parameters' section of the software. The 'Add/remove' button under the 'Ration parameters' tab is circled in red.

| | | Dairy cows | | |
|-------------------------------------|-----------|------------|-----------|-------|
| Ration parameters | Unit | Min. | In ration | Max. |
| Dry matter percentage in the ration | % | | 39,5 | |
| Dry matter intake per cow | kg DM/d | | 24,3 | |
| Forage share | % of DM | | 57,9 | |
| Concentrate share | % of DM | | 42,1 | |
| NEL total per cow | MJ/d | 157 | 160 | |
| NEL per kg DM | MJ/kg DM | | 6,58 | |
| Net energy balance | % | 100,0 | 101,5 | 101,0 |
| AAT per kg DM | g/kg DM | | 109 | |
| PBV per kg DM | g/kg DM | 10 | 11 | 40 |
| Fatty acids per kg DM | g/kg DM | 20 | 17 | 45 |
| NDF per kg DM | g/kg DM | | 314 | |
| Sugar per kg DM | g/kg DM | | 54 | |
| Starch per kg DM | g/kg DM | | 211 | |
| Starch and sugar per kg DM | g/kg DM | | 265 | |
| Chewing time index | min/kg DM | 32 | 32 | |
| Rumen impact | g/g NDF | | 0,50 | 0,60 |
| FVL total intake | FVL | 8,2 | 8,7 | 8,5 |

- 2.10. Use the arrows to add and remove ration parameters. All the desired parameters should be in the right-side box of the window. When finished click "OK".



- 2.11. Click "Save" under the "feeding control" box to save the Feeding Control document.



2.12. To print the results click the button “Print” under the “Printouts” box. The window “Print” will pop-up.

| Key figures | | Dairy cows | | |
|------------------------------------|------------|------------|----------|------|
| Key figures | Unit | Min. | Achieved | Max. |
| Feed efficiency | % | | 98,5 | |
| ECM produced per cow | kg ECM/d | | 36,5 | |
| ECM yield per kg dry matter intake | kg/kg DM | | 1,50 | |
| Milk income per cow | Euro/d | | 11,97 | |
| Milk price per kg ECM produced | Euro/kg EC | | 0,33 | |
| Feed cost per cow | Euro/d | | 4,59 | |
| Feed cost per kg ECM produced | Euro/kg EC | | 0,13 | |
| Profit per cow | Euro/d | | 7,38 | |
| Profit per kg produced ECM | Euro/kg EC | | 0,20 | |
| DMLbought_ECM | kg DM/kg f | | 0,28 | |

2.13. Select the unit that the results should be printed and fill in comments under the “Comment” textbox if necessary. Finally click “OK”.

2.14. To see the preview of the print click “Preview” under the “Printout” box.

The screenshot shows a software interface with a top toolbar containing several tabs: Feeding control, Printouts, View, Feed recording, Ration parameters, Key figures, Result, and Close. The 'Printouts' tab is selected, and the 'Preview' button is circled in red. Below the toolbar, there are three sub-tabs: General, Animal basis, and Feeding control. The 'Feeding control' sub-tab is active, displaying a table of key figures for dairy cows. The table has columns for Key figures, Unit, Min., Achieved, and Max.

| Key figures | Unit | Dairy cows | | |
|------------------------------------|------------|------------|----------|------|
| | | Min. | Achieved | Max. |
| Feed efficiency | % | | 98,5 | |
| ECM produced per cow | kg ECM/d | | 36,5 | |
| ECM yield per kg dry matter intake | kg/kg DM | | 1,50 | |
| Milk income per cow | Euro/d | | 11,97 | |
| Milk price per kg ECM produced | Euro/kg EC | | 0,33 | |
| Feed cost per cow | Euro/d | | 4,59 | |
| Feed cost per kg ECM produced | Euro/kg EC | | 0,13 | |
| Profit per cow | Euro/d | | 7,38 | |
| Profit per kg produced ECM | Euro/kg EC | | 0,20 | |
| DMIbought_ECM | kg DM/kg f | | 0,28 | |

Congratulations!!!!

You have a valuable tool to evaluate feeding and productivity.