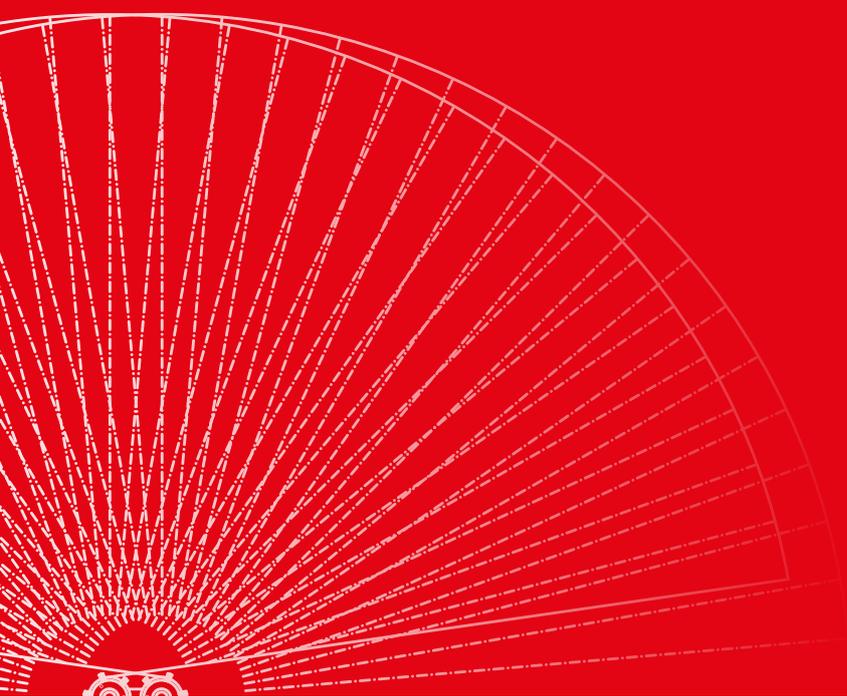




EN

# MANUAL F4



## > EU DECLARATION OF CONFORMITY

(Machinery Directive 2006/42/EC, Annex II, supplement A)

Manufacturer: BREDAL A/S  
Nimvej 1  
DK-7120 Vejle Ø

hereby declares that

BREDAL Type F4 serial number \_\_\_\_\_

is manufactured in conformity with the Machinery Directive (Directive 2006/42/EC), as amended, and with national provisions.

Bredal DK-7120 Vejle Ø

August 2016



Anders Buhl

## > THE SPREADER'S MASTER DATA

The spreader's rating plate specifies the model designation, year of manufacture, net weight, serial number and total weight.



A series of values are entered in the computer of each individual spreader. If a value is mistakenly deleted from the computer, it is possible to re-enter the original value.

The following values must be entered in the computer in order for all functions to work properly:

Weighing:   
Calibration figures

Application rate:   
Volume per impulse

Zero load value  
(Zero load value)

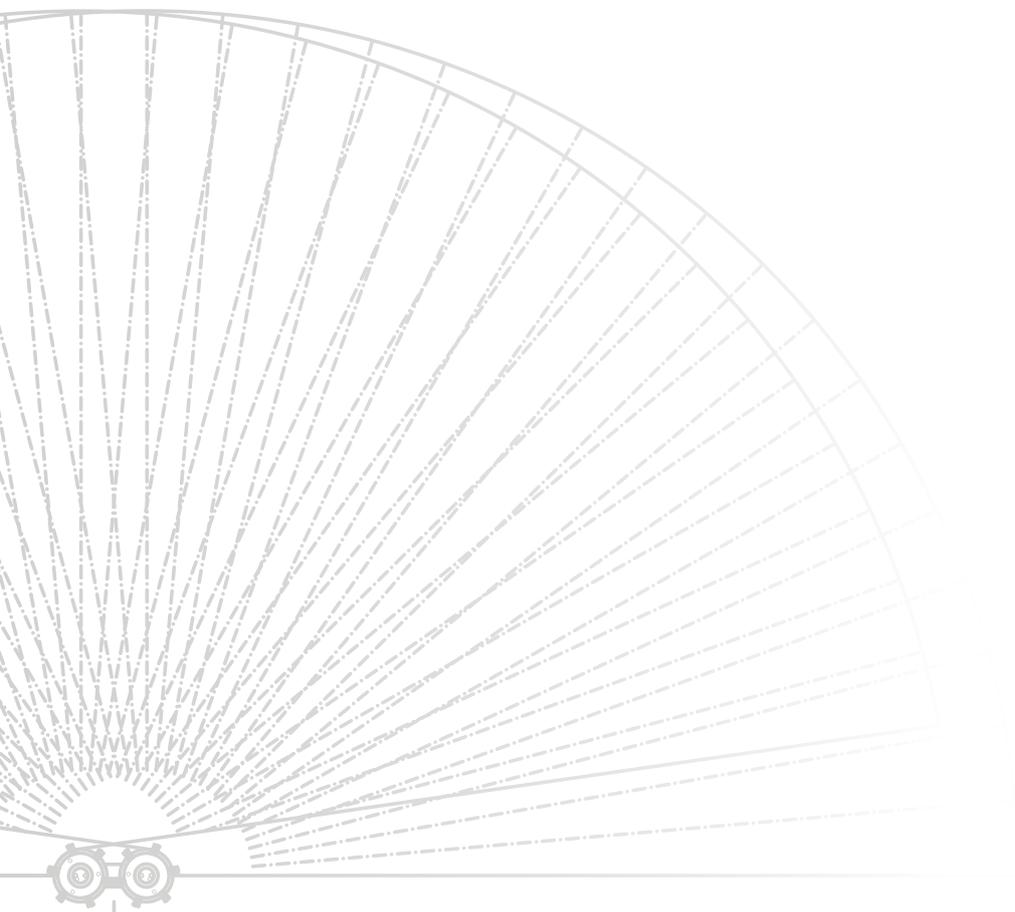
*Errors and omissions excepted.*

*The terms and conditions of sale and delivery can be found on [www.bredal.com/en/betingelser](http://www.bredal.com/en/betingelser)*

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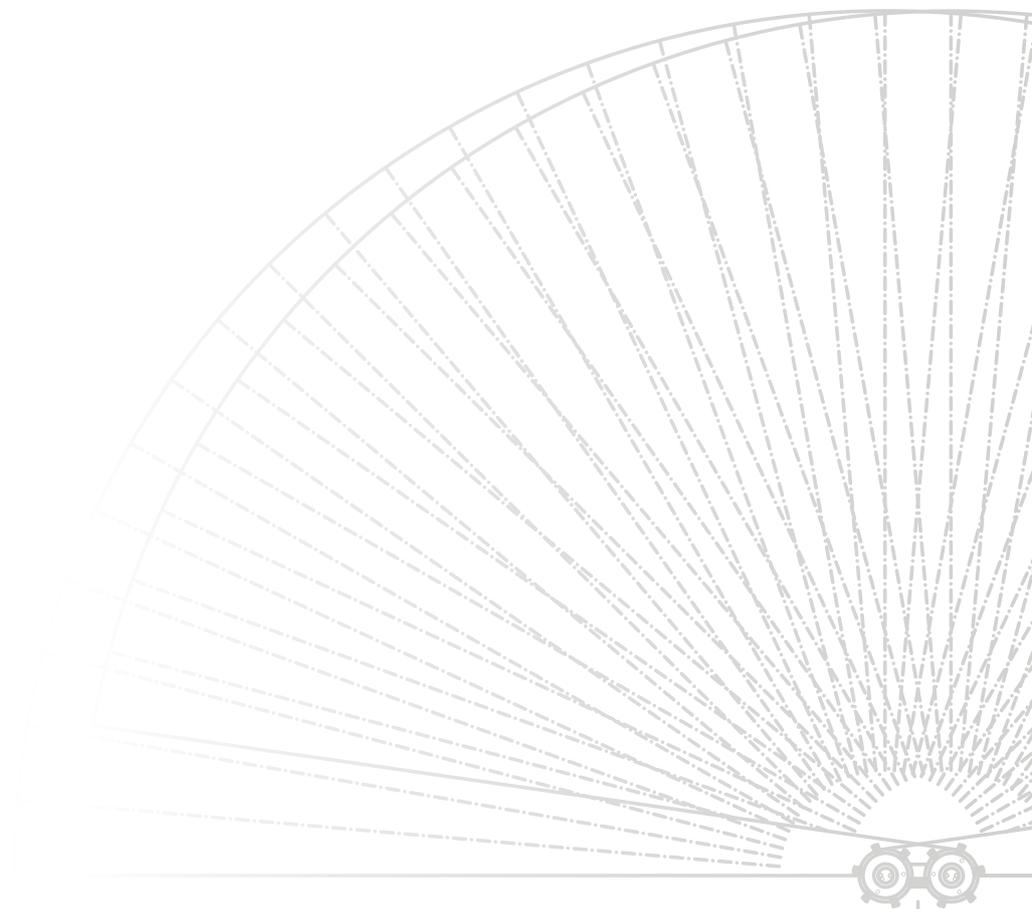
Bredal F4 is designed to spread chemical fertilizers and similarly structured materials on farmland. The operator is responsible for ensuring that the machine is solely used for the intended purpose to avoid property damage and personal injury.

The machine is equipped with a rating plate on which the serial number and year of production are specified. The maximum gross weight and net weight are also specified on the rating plate. The difference between the two is the maximum permissible load.

This instruction manual contains instructions for operating the machine and setting it to spread generally available commercial fertilizers. As fertilizer quality can fluctuate greatly from one year to the next and from consignment to consignment, it is advisable to always perform a spreading test if there is any doubt whether the type of fertilizer can be spread on the preferred working width with reasonable results. The latest settings for the most common types of available fertilizer can be downloaded at any time from Bredal's website. It is advisable to always do a spreading test using the type of fertilizer to be spread to test the settings recommended by Bredal. The user is solely responsible for ensuring that the machine is correctly set and that it works correctly to achieve acceptable spreading. Bredal accepts no liability for spreading errors.

The ISOBUS terminal in the tractor and its software:

The appearance of the user interface varies slightly from one ISOBUS terminal to another. This is because the terminals have different resolutions. Some spreader functions require specific software to be installed in the terminal. Wedge spreading is only possible if the terminal has a section-control program and a tracking program. If fertilizer is applied according to field and crop maps, the terminal must also contain software that can process these maps. When the spreader is connected to the tractor, the spreader's job computer exchanges data with the tractor's terminal and only those functions which are supported by the tractor's terminal will be active. If the terminal does not contain software for wedge spreading, the function cannot be used.



# SAFETY

The safety distance from the spreading discs is at least 30 meters when these are rotating. If people or animals are within this distance, the tractor's PTO must be disengaged.

Never operate the headland gear or adjust the spreader while the spreading discs are rotating.

When loading the spreader, keep foreign objects, such as stones, etc., from getting in the machine's hopper, as they can cause damage and be very hazardous for the surroundings.

Sitting/standing on the machine while it is operating or during road transport is not permitted.

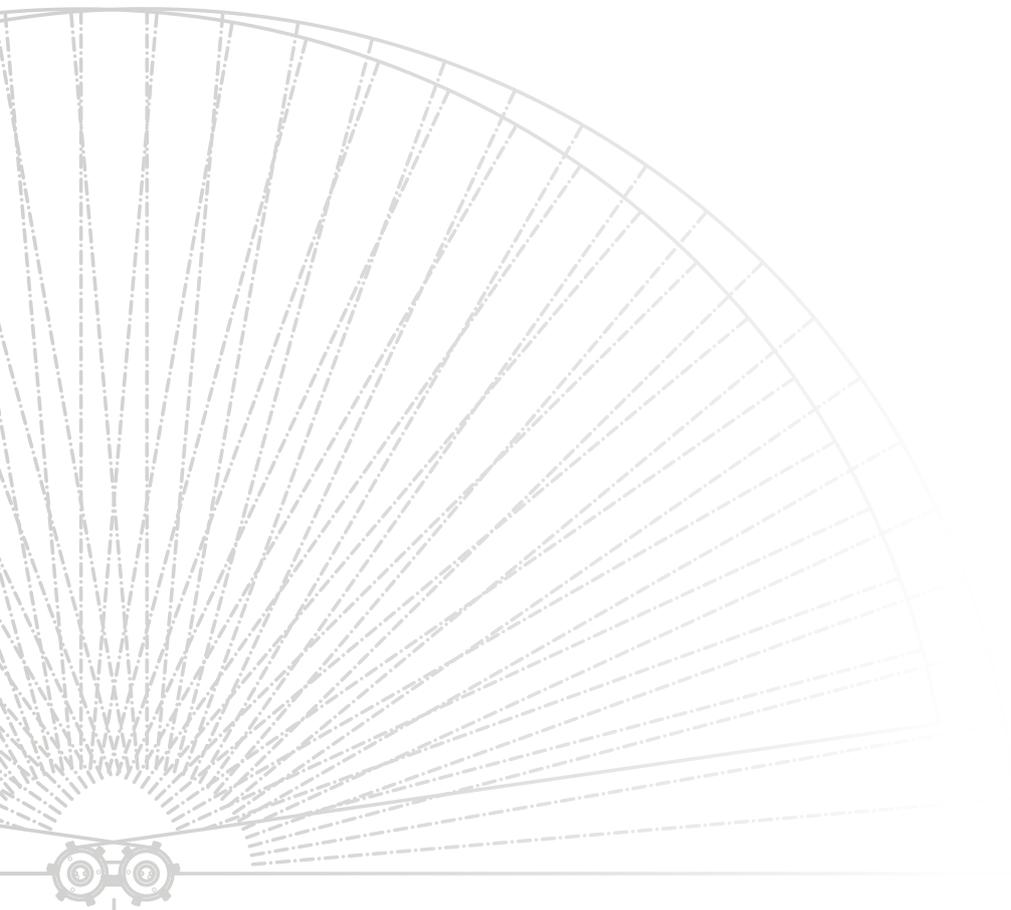
Before working on the machine, make sure to disengage the tractor's PTO and depressurize the hydraulic system.

Shields on PTO shafts and the implement must be intact and correctly attached.

## > TRAFFIC SAFETY

As traffic safety is important when driving on public roads, the following must be checked:

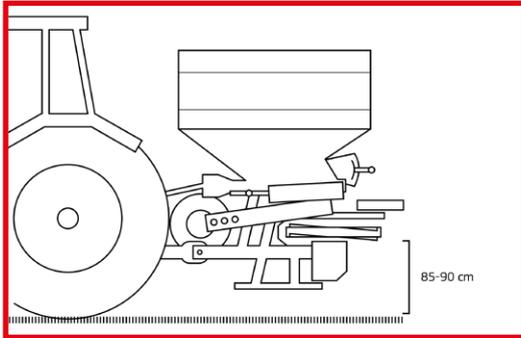
- The light system must be connected to the tractor's light socket, the lamps must be cleaned, and turning signals and brake lights must work correctly.
- Reflective warning triangles must be intact and clean.
- The size of the connector pins in the three-point hitch must be properly dimensioned and locked so that they cannot be ejected.



# CONNECTING THE SPREADER

When connecting the spreader to the tractor, it is important that it is suspended horizontally or tilts slightly forward to obtain the best possible spreading results.

The spreader must not tilt backwards, not even when the hopper is full. The spreader must be mounted directly behind the tractor, i.e. perpendicular to the direction of travel, and it must be centered squarely on the tractor's central axis. The stabilizer chain assemblies must be fully tightened.



The spreading discs' height above crops must be approx. 85–90 cm.

The hydraulic hoses for operating the application process must be connected to a dual-action outlet on the tractor; 50–60 liters/min. are needed.

The hydraulic hoses for operating headland gear are connected to a dual-action outlet.

The hydraulic hoses for operating a hydraulic cover are connected to a dual-action outlet.

Hydraulic discs:

The hydraulic hoses for operating the floor belts and discs are connected to two double-action outlets. The minimum supply of oil required is 110 liters/min.

Attach hydraulic hoses for return-flow oil and drainage.

The light plug is inserted in the tractor's light outlet.

The ISOBUS plug is inserted in the tractor's ISOBUS socket.

Connect the PTO shaft to the tractor's PTO.

# OVERVIEW OF HYDRAULIC CONNECTIONS



Belts.  
Constant flow, 30-40 l/min.  
Pressure (1 red band)  
Return flow (2 red bands)



Headland gear  
Engage (1 blue band)  
Disengage (2 blue bands)



Cover, hydraulic  
Open (2 green bands)  
Close (2 black bands)



## HYDRAULIC SPREAD UNIT, OIL FROM TRACTOR

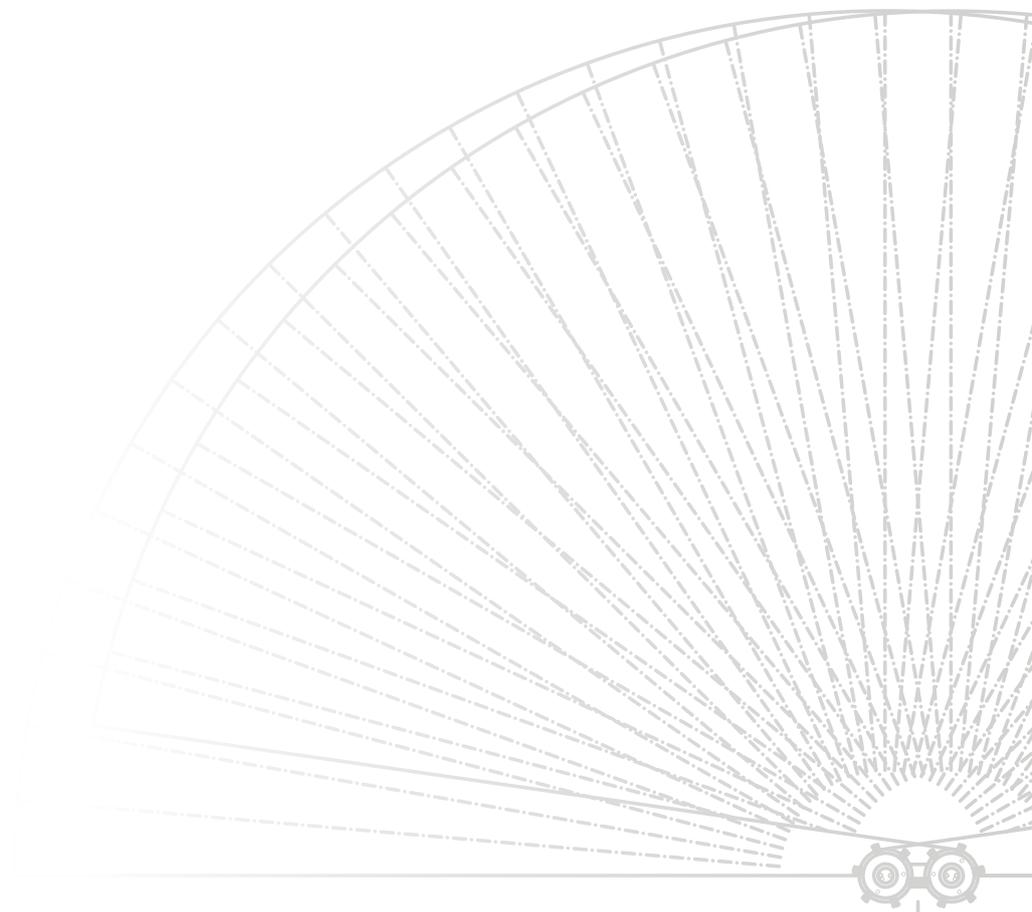
Floor belt + discs, forward motion, two  
Constant flow, 110 l/min. total



Return flow (1" coupling)  
"return to open tank"



Drain from oil motor  
"return to open tank"



# INITIAL INSTALLATION/SET-UP OF A MÜLLER TERMINAL

If an ISOBUS terminal from Müller is included with the machine, some basic set-up needs to be done before the spreader's section control can be used.

For installing the tractor mounting set and a GPS aerial, refer to the enclosed instructions from Müller. Also, please refer to Müller's instructions for operating programs that do not concern spreader operation, such as TRACK-Leader, FieldNav, farmpilot, or other software that can be connected to the Müller terminal.

The basic GPS receiver set-up, its activation, and the basic encoding of the GPS aerial's location can also be found in Müller's installation and operating instructions.

The spreader can be operated once the terminal, tractor-attachment set and GPS aerial have been installed, and the plug from the spreader's ISOBUS socket is connected, and basic encoding is completed. Press the  button for about 3 seconds. It can take up to two minutes after switching on the terminal for the spreader icon to appear on the screen.

If the screen display does not appear, press  on the left side of the screen.



After start-up, the warning "Actuator closing" will appear; press  to accept. If a simulated speed is activated, an alert about this will also appear, and this must be accepted by pressing .

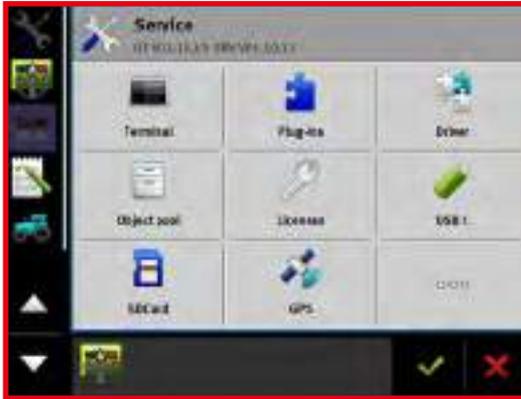


It is now possible to choose from among the various applications on the left side of the screen. The spreader's application is selected on the screen display shown here. It is always possible to return to this page by pressing the "Home" icon , except when an input field is active.

The "Home" start-up screen shows the input application rate, working width, etc.

# LANGUAGE, CONTRAST, BRIGHTNESS AND UNITS OF MEASUREMENT

Press  to modify the settings:



Press "Terminal".



Select the "Language" for instance by scrolling down.



Click the "Language" tab.

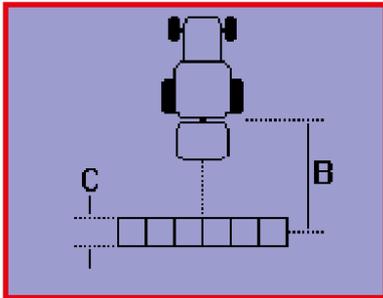


Select from the list.

Press .

# INITIAL SET-UP OF EXISTING TERMINAL IN THE TRACTOR

If the spreader is connected to a tractor with an ISOBUS terminal, it may be necessary to enter the sections' location and length and indicate that a lift-mounted spreader is used. The input data is used to ensure that the spreader starts and stops applying fertilizer at the right time when turning in headland. The Bredal program already contains this information, but not all tractor terminals upload the information from the spreader when it is connected. Some terminals use the input data correctly. In some instances, the tractor's terminal uses only one of the two input distances. Sometimes, the tractor's terminal does not upload the distances at all; in these cases, the distances must be entered in the tractor terminal's section control program. Follow the instructions from the manufacturer of the tractor's terminal.



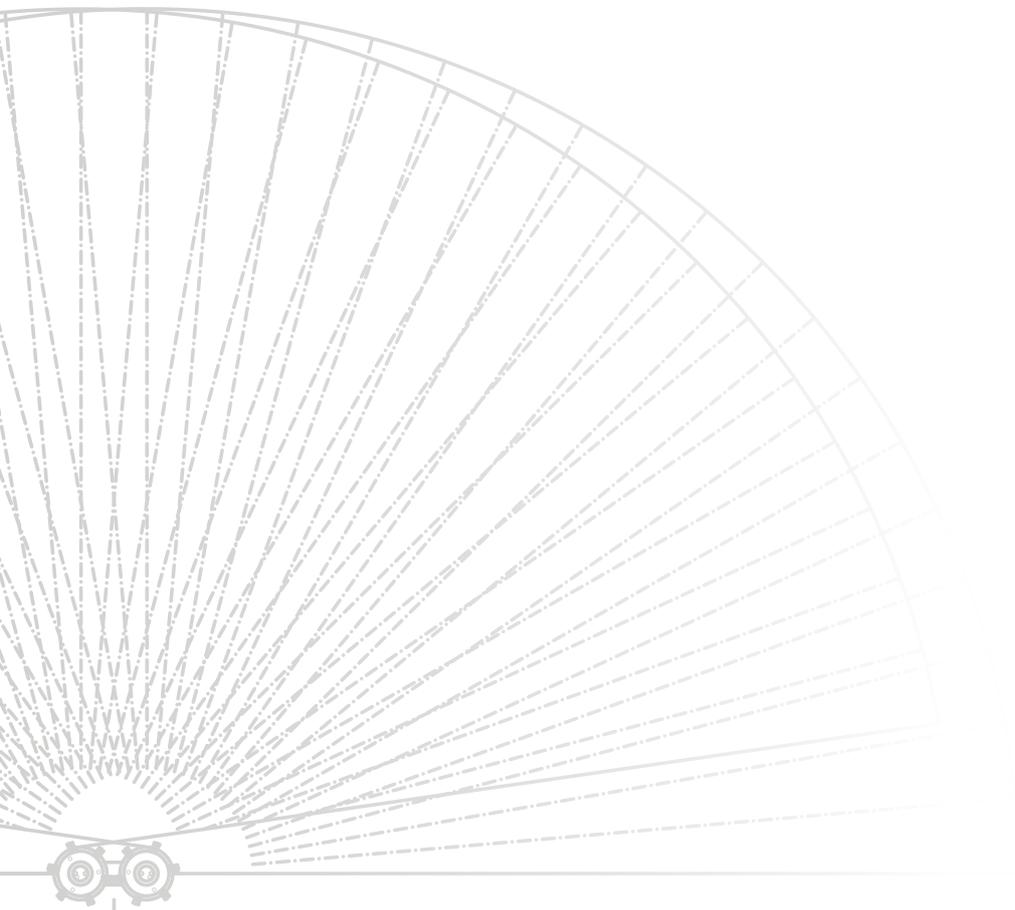
In order for the spreader to start and stop applying fertilizer at the right time, the following distances need to be entered:

- B = distance from the spreader's connection point to the center of the spreading pattern
- C = length of the spreading pattern

Distances recommended by Bredal:

- B = 8.0 meters
- C = 5.0 meters

On most terminals, "3-point hitch" must also be selected.





# DESCRIPTION OF THE BREDAL PROGRAM ICONS

The following sections describe the Bredal program icons; their location on the screen can vary from one terminal to another.  
Icon meaning/function:



**Home: return to start page.**



**Work: go to operating page.**



**Start/stop button: starts and stops the application process.**



**Menu: go to the menu selected.**



**Return: go back to the previous menu.**



**Line down: moves the marking one line down.**



**Line up: moves the marking one line up.**



**Emptying: starts the floor belt, emptying the hopper.**



**Enter application data: goes to the menu where application rate, working width, etc., are entered.**



**Weighing control: goes to the menu for checking the application rate.**



**Accept: accepts the input data, or acknowledges an alarm.**



**Undo, cancel input.**



**Toggles between different displays.**



**Manual closing of a section on the right side.**



**Manual opening of a section on the right side.**



**Manual closing of a section on the left side.**



**Manual opening of a section on the left side.**



**Increase the application rate by 5%.**



**Reduce the application rate by 5%.**



**Return to the originally entered application rate.**



**Warning/Alarm**



**Next page: go to the next page.**



**Delete: delete entered data.**



**ESC: return without changing a value.**



**Calibrate:**



**Start a new calculation**



**Pre-start function**



**Operate the hydraulic system**



**Start/stop hydraulic spreading discs**

# CONFIGURABLE ALARMS

It is possible to set up individual alarms to issue a warning, such as when the hopper is almost empty. The following alarms are configurable:

- Kg/residual in the hopper
- PTO speed
- CAN speed timeout time

Press the  button on the Home screen.



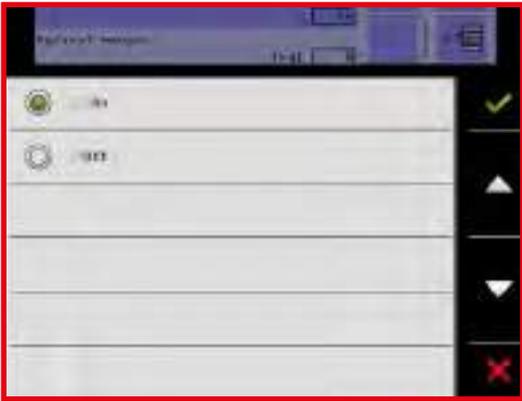
Select "Machine"



Select "Alarm configurations"



Select the alarm to be activated



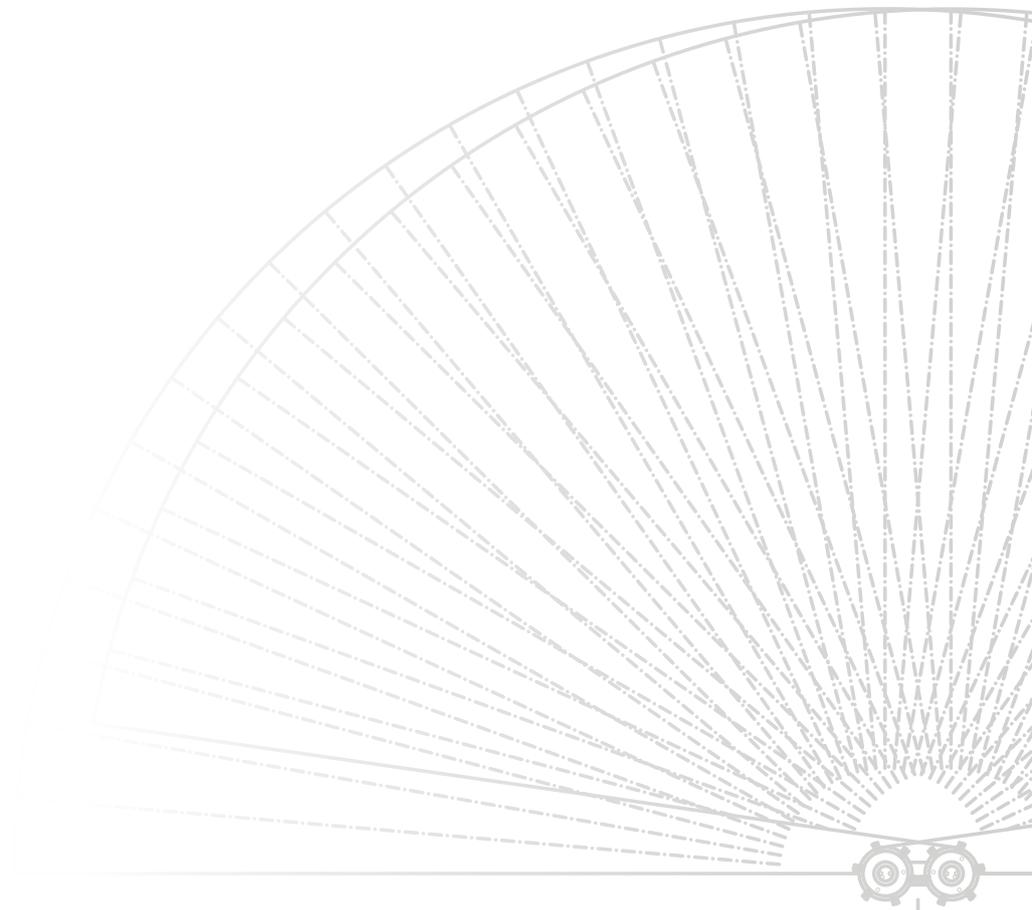
In this example, the alarm is set for Amount rem. alarm On/Off to be on.

Press  to accept.



In the field below, enter the residual volume (Amount rem. trigger level) that will trigger the alarm.

Press  to accept.



# MENU FOR ENTERING THE APPLICATION RATE, WORKING WIDTH, DENSITY, ETC.

The following parameters must be entered before application begins:

- Kg/ha
- Working width
- Scale position, rear doors
- Density
- Flow factor
- Downchute position
- Headland compensation
- Disc rpm (hydraulic spread discs)

## > ENTERING THE APPLICATION RATE



Press  to access the task menu.



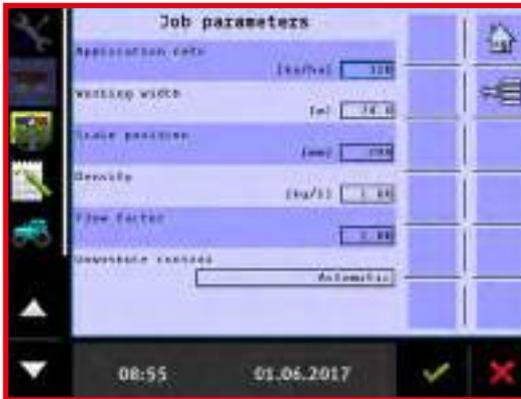
Press the input field "kg/ha" to change the value.



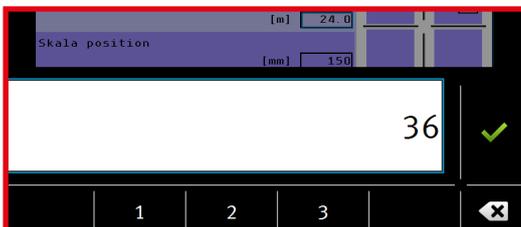
Enter the preferred application rate.

Finish with 

## > ENTERING THE WORKING WIDTH



Press the input field "Working width" to change the value.



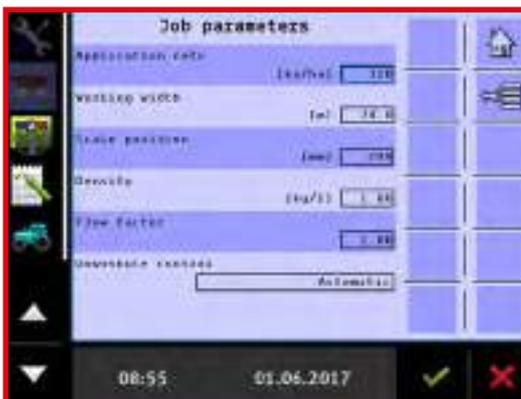
Enter the preferred working width.

Finish with 

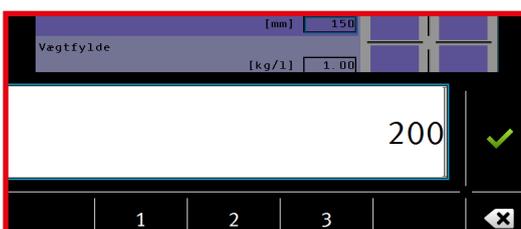
## > ENTERING SCALE POSITION

The setting for the opening of the rear door is entered under scale position. A scale setting of 200 is advisable. If a very large volume is to be spread, the setting can be increased to 250. If a very small volume is to be spread, the setting can be reduced to 150.

**NB: it is important to enter the value of the actual rear-door setting, as otherwise the spreader will spread incorrectly.**



Press the input field "Scale position" to change the value.



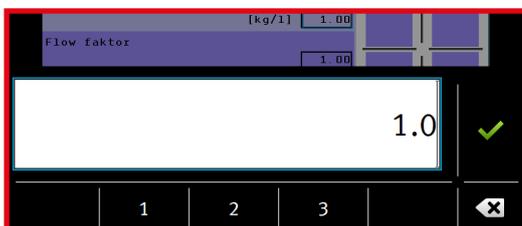
Enter the position of the rear door.

Finish with 

## > ENTERING DENSITY



Press the input field "Density" to change the value.



Enter the fertilizer's bulk density.

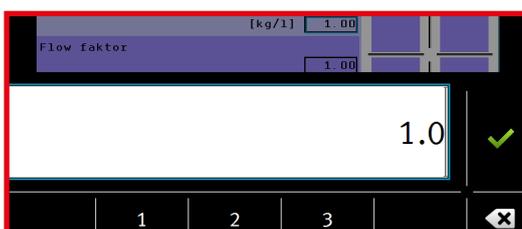
Finish with 

## > ENTERING THE FLOW FACTOR

As a rule of thumb, always start out with a flow factor of 1.0. If the spreader is equipped with weight cells, the flow factor will be continuously calculated during spreading; the most recently calculated flow factor is shown in the input field under flow factor.



Press the input field "Flow factor" to change the value.



Enter the preferred flow factor.

Finish with 

## > ENTERING THE DOWNCHUTE POSITION

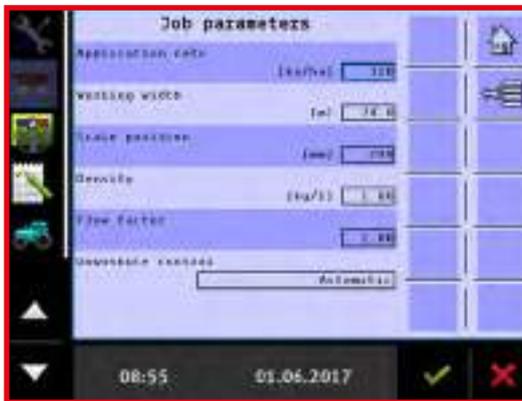
The following different setting options are found under downchute control:

- **Automatic:** the downchutes automatically adjust to a standard setting for the input working width.
- **Manual:** the preferred downchute position has to be entered.
- **Automatic without flow control:** the downchute position is not changed by different flows. Should not be used.

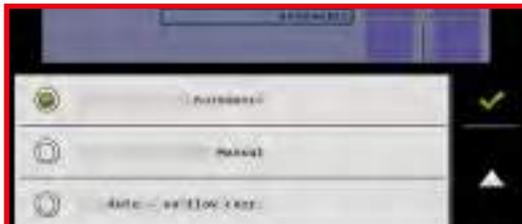


**When the working width is changed, downchute control always returns to automatic!**

Optimized spreading settings for most fertilizer types can be downloaded from the Bredal website. It is advisable to use manual downchute control and enter the downchute position that matches the type of fertilizer to be spread.



Press the input field "Downchute control" to select.



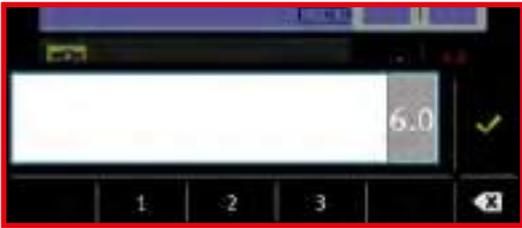
Select the desired setting.

Finish with 



When "Manual" is selected, the downchute position for field and headland spreading can be changed.

Press the field "Downchute pos. - field" to change the setting.

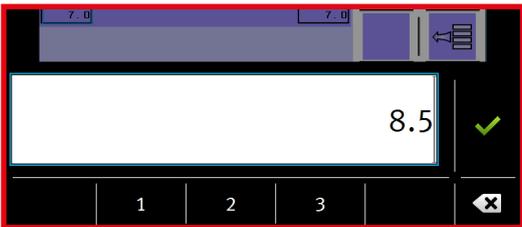


Enter the preferred downchute position for field spreading.

Finish with 



Press the field "Downch. headl. (border side)" and "Downch. headl. (field side)" to change the downchute setting for headland spreading.



Enter the preferred downchute position for headland spreading.

Finish with 

Remember to enter the downchute position for both left and right sides, if both sides need to be changed.

## > ENTERING THE HEADLAND COMPENSATION



Headland comp. border/field side: Here it is possible to enter a reduction or increase of the application rate when headland spreading is activated. If no reduction is wanted, "0" must be entered in both fields. Remember a minus sign is required to reduce the rate; failure to do this will increase the application rate when headland spreading is activated.

The default factory setting is -10% for the border side, which experience shows provides the best spreading results.



When a reduction is entered, this will appear in the operation screen when headland spreading is activated.

## > ENTERING THE DISC RPM (HYDRAULIC SPREAD DISCS ONLY)



When the implement has hydraulic spread discs, the preferred rpm for field and headland spreading can be entered.

Click the field "Disc RPM" to change the rpm for field spreading.

Press the field "Disc headland (border side)" and "Disc headland (field side)" on the next page to change the rpm for headland spreading.

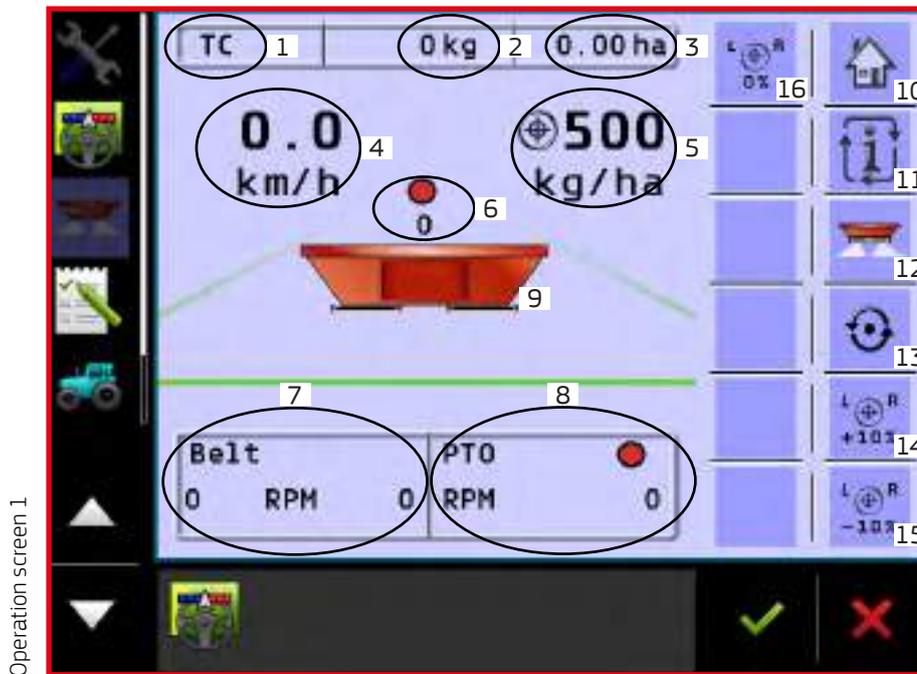


# OPERATION SCREEN

The operation screen is the screen display shown during spreading. It is also where application can be started and stopped and where different messages are given to the driver.



Press  to access the operation screen.



Operation screen 1

1. Task controller: when TC is displayed, the task controller program is active
2. Indicates the number of kg spread as counted by the active counter.
3. Shows the number of ha processed as counted by the active counter.
4. Shows km/h, kg/min., kg/ha and belt speed and flow factor. The red dot indicates whether the weighing signal is sufficiently stable for dynamic weighing to be able use the signal for calculation: green = the signal is stable; red = the signal is insufficiently stable for dynamic weighing to use the calculation. It is possible to toggle between the views by pressing button no. 11.
5. Shows the currently preferred application rate
6. Shows the actual weight in the hopper.
7. Shows the current floor belt speed for the left and right sides.
8. Shows the PTO's current rpm; the dot indicates whether the spreader's PTO is operating at the correct rpm:

For field spreading:

Green = PTO operating at correct rpm

Yellow = the PTO's rpm is close to being correct

Red = PTO operating at incorrect rpm

When headland spreading is activated:

Green = Environment: no or very little fertilizer is being spread beyond the field boundary.

Yellow = Medium: 40–50% being spread in the field boundary; fertilizer is also being spread beyond the field boundary.

Red = Maximum: full application rate all the way out to the field boundary, and a good deal of fertilizer is being thrown beyond the field boundary.

NB: if, as recommended, settings have been downloaded from Bredal's website, use the PTO's rpm setting from here and not the above color markings.

9. Starts and stops the spreading. Oil must be circulating to the belts before spreading starts. Key no. 12 has the same function.
10. Home key
11. Toggles different views on the screen (see also point 4).
12. Starts and stops the spreading. Oil must be circulating to the belts before spreading starts.
13. Starts manual application until it is pressed again or until forward movement is detected and the application becomes driving dependent.  
Note! Section control must be switched off (manually) before this function can be activated.
14. Increases the application rate by 10%
15. Reduces the application rate by 10%
16. Returns to the input application volume.



1. Symbol for headland spreading; the symbol appears when headland spreading is activated
2. Automatic reduction of application rate: when headland spreading is connected, the application rate towards a boundary is automatically reduced by 10%. This reduction can be changed to 0% if it is not wanted; it is also possible to enter an automatic reduction on both sides (see p. 23).
3. Shows the current application rate in kg/ha (the total application rate will be lower when the application rate towards a boundary is reduced by 10%)

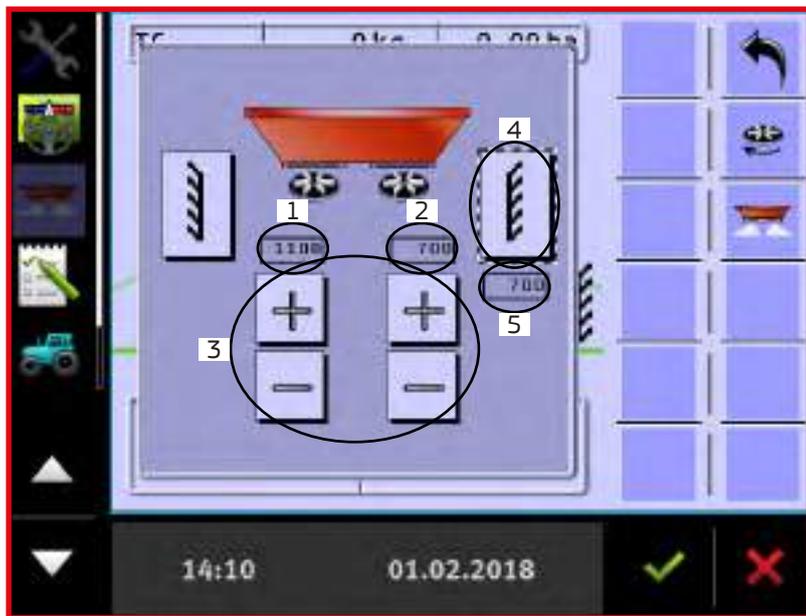
# OPERATION SCREEN (HYDRAULIC SPREADING DISCS)

In addition to the functions described on the preceding pages, the following functions for hydraulic spreading discs are found:



1. Starts and stops the spreading discs.
2. Shows the current disc speed for the right and left side.

By pressing field "2", the following picture appears:



1. Shows the current speed set for the left disc.
2. Shows the current speed set for the right disc.
3. The speed of each disc can be changed using the "+" or "-" key. Alternatively, the preferred speed can be entered by pressing "1" or "2".
4. Toggles between field spreading and border spreading on the side concerned.
5. Shows the headland spreading speed when headland spreading is activated.

## ENTERING THE DESIRED SPEEDS FOR FIELD AND HEADLAND SPREADING

Field spreading: Enter the preferred speed in "1" and "2" when field spreading is selected.

Headland spreading: Enter the preferred speed for the field side and border side respectively in "1" and "2" when headland spreading is activated.

Alternatively, the speeds can be entered under "Job parameters".

# USER SET-UP OF THE OPERATION SCREEN

This menu makes it possible to adapt the operation screen to each user. The following can be changed:

- Preferred screen (if the tractor has more than one terminal)
- Manual operation of sections (icons for the operating of sections will become visible on the operation screen)
- Option of using the large spreader symbol on the operation screen for starting/stopping.

Press the  key on the Home screen.

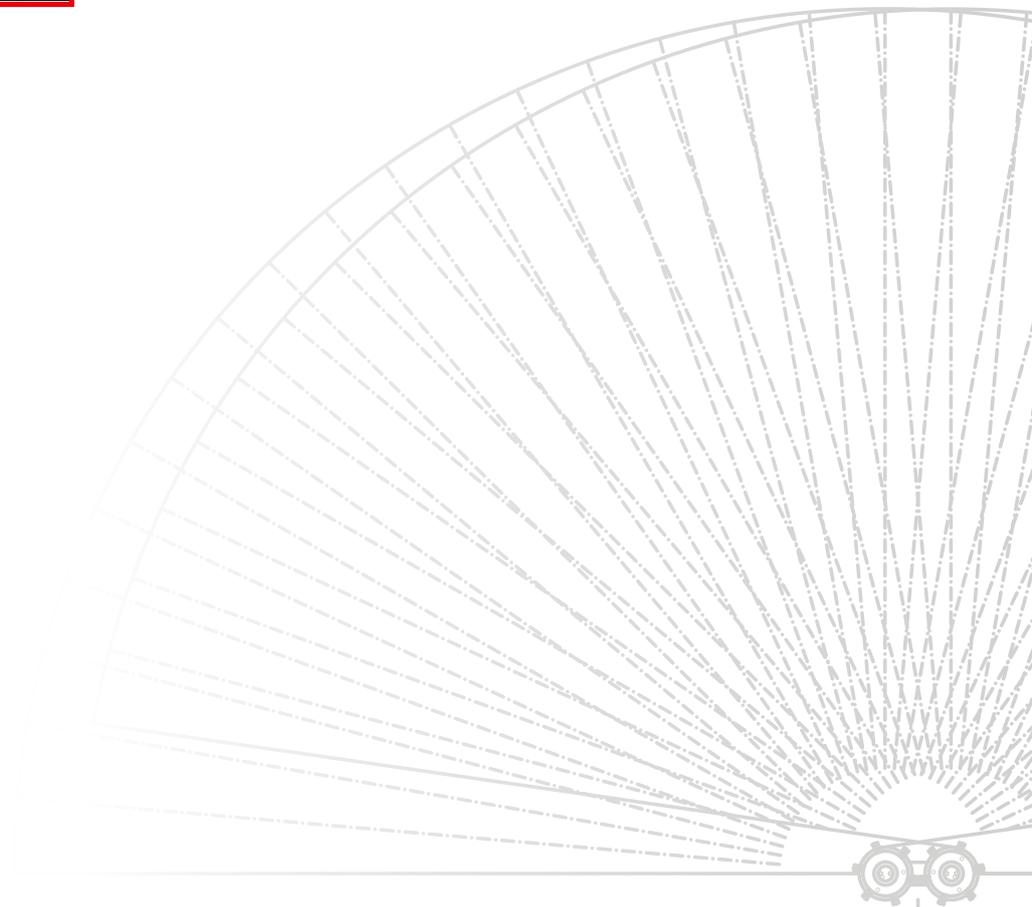
Select "User interface".



Press the "On/Off" field to connect or disconnect the preferred function.

Finish with 

The changes will not be implemented until the terminal has been restarted.



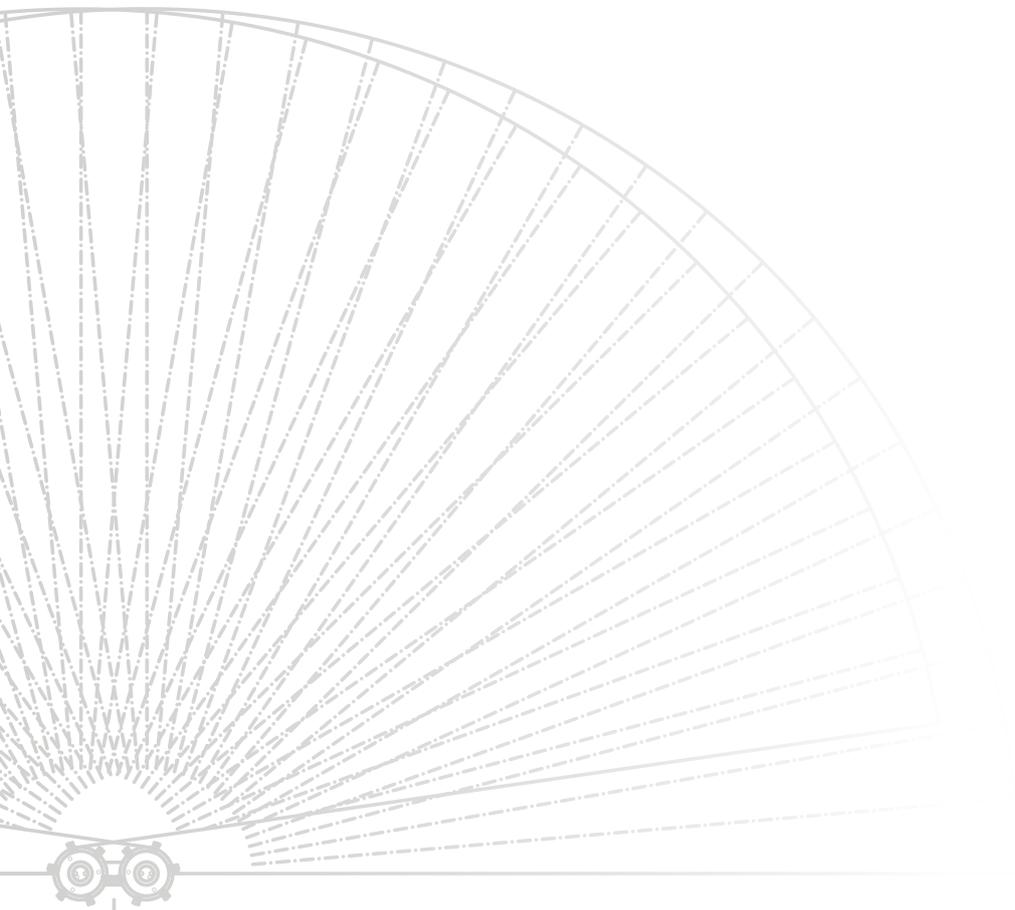
# FAST EMPTYING



Press  on the Home menu.



Press  to start emptying. It is possible to change the floor belts' speed by pressing the rpm and entering a different value.



# WEIGHING MENU

Press the  symbol on the Home menu.

On this menu, it is possible to compare the application rate entered with the actual application rate, if the spreader has weight cells. When dynamic weighing has been activated, a new flow factor is continuously and automatically calculated. Dynamic weighing is activated when the implement is delivered from the factory, but it can be deactivated if preferred. If dynamic weighing has been deactivated, weighing can still be used, but the flow factor will not be automatically calculated or changed.



The active flow factor appears, and the next adjustment of the flow factor ("Corrected flow factor") can be read.

When the spreader is filled, this is automatically registered and a new calculation begins.

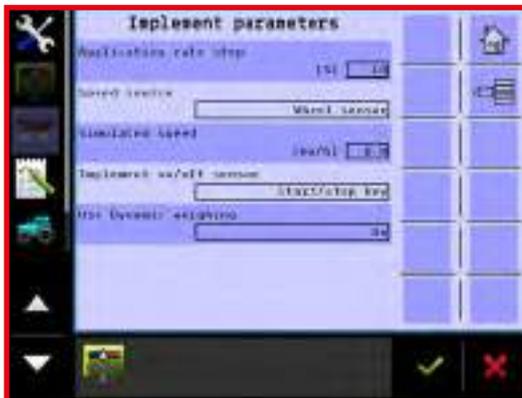
By pressing , it is also possible to start a new calculation. This is used, for instance, when starting on a new task with a different application rate.

Activating/deactivating dynamic weighing:

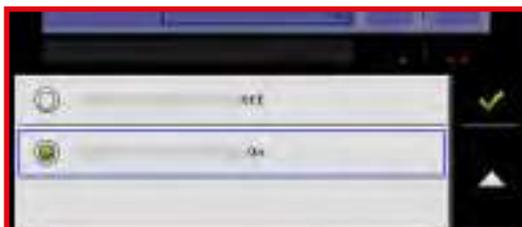
Press the  key on the Home screen.

Press "Machine"

Press "Implement parameters"



Press the field "Use dynamic weighing" to activate or deactivate the function.



Select whether dynamic weighing should be on or off.

Finish with 

# COUNTERS

This Bredal program component has 10 trip counters and these can be used to count a task's area, distance, volume and time. If the tractor's terminal has an active task counter, this will be used to count area, volume, etc. The 10 trip counters in the Bredal program component will be deactivated and only the trip counter TC will appear on the menu under counters. The active counter will also appear at the top of the operation screen.

Press the  key on the Home screen.

Press "Counters"

Select "Trip"



If "Local counters only" is selected, it is possible to select from 10 different trip counters in the trip counter menu.

Press "Active trip counter" to select a different counter.

Enter which counter should be activated; it is possible to select counters 1 to 10.

Finish with .

Press  to delete the values counted by the active trip counter.



If "TC" is the active trip counter, the task controller on the tractor's terminal is active and it is not possible to select other counters. The values counted from TC are shown in the counter, and these values can only be saved or deleted via the TC program.



The active trip counter, the counted kg and the counted area are shown at the top of the operation screen.



If "TC" appears, the tractor terminal's task controller is active, and the counted values that appear come from here.



It is also possible to choose between "Trip" and "Total" on the counter menu.

# SETTING UP IMPLEMENT PARAMETERS

On the implement parameter menu, it is possible to change the following parameters:

- Application rate step: as a percentage (%)
- Speed source
- Simulated speed
- Implement on/off sensor: Choose between the on-screen start/stop button or an external button.
- Use dynamic weighing: Activating and deactivating dynamic weighing
- Use micro dosing: Micro dosing can be activated and deactivated in this menu.

Press the  key on the Home screen.

Select “Machine”

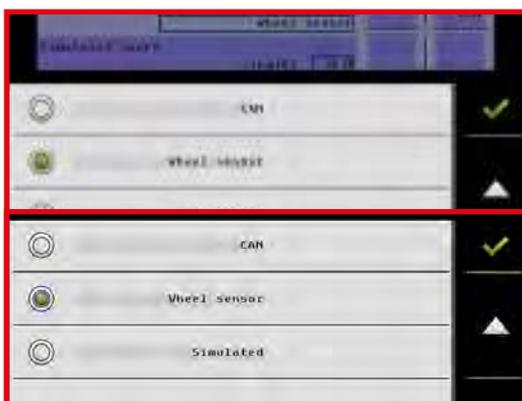
Select “Implement parameters”



Implement parameter menu: On this menu, it is possible to change the various parameters (see an explanation of each individual parameter below).



Application rate step: It is possible to enter the preferred percentage incrementation for each keystroke on the operation screen here.

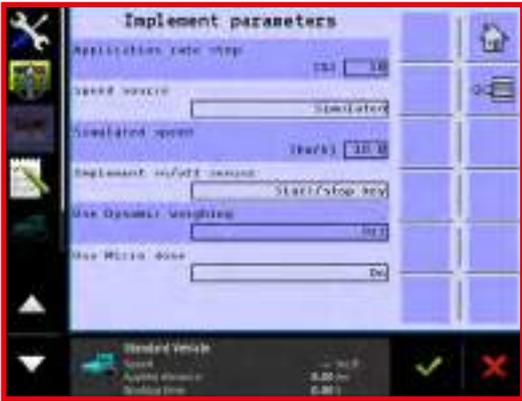


Speed source: It is possible to choose from Wheel sensor, CAN or Simulated.

Wheel sensor: The forward speed is provided by a sensor mounted on the spreader wheel.

CAN: The forward speed is provided by the tractor’s terminal (GPS speed, tractor wheel sensor, etc.). Must be selected and calibrated in the terminal’s basic set-up.

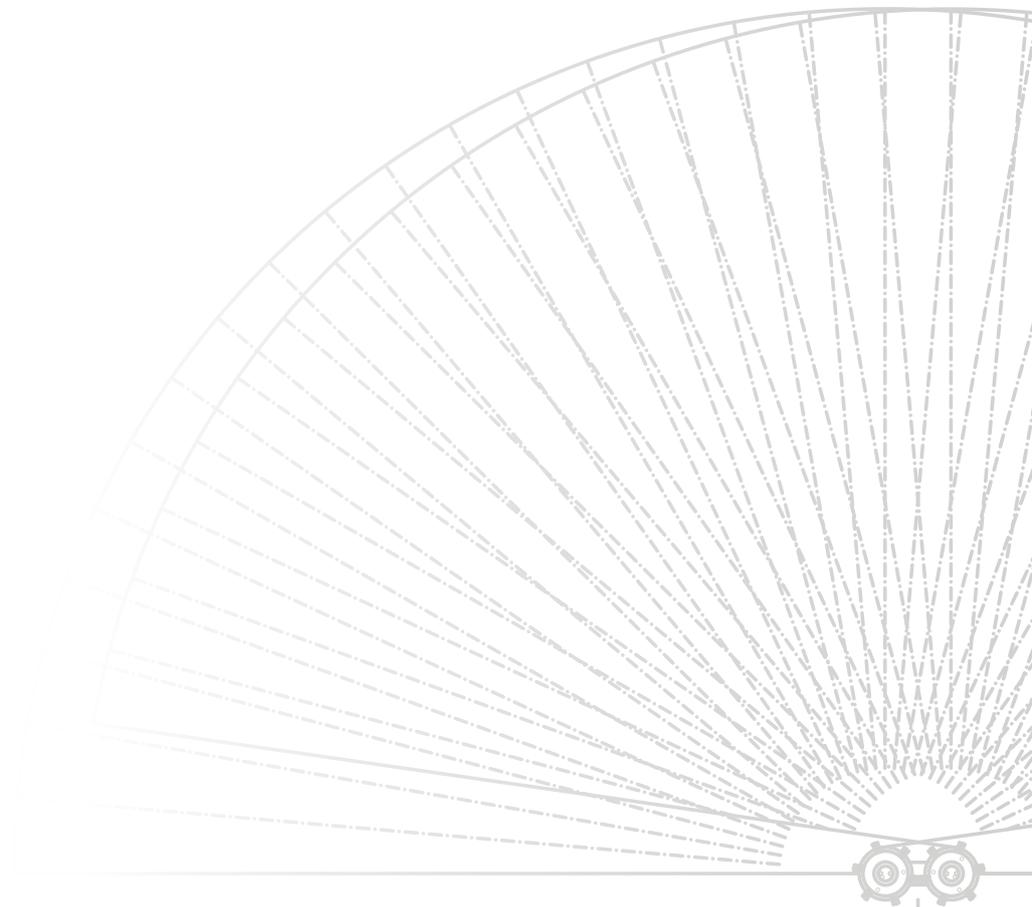
If “Simulated” is selected, the simulated speed must be entered in the “Simulated speed” field.



Use dynamic weighing: This is where dynamic weighing can be activated and deactivated.



Use micro dosing: This is where micro dosing can be activated and deactivated. (See the micro dosing manual.)



# CALIBRATIONS

A few basic settings must be entered on the calibrations menu in order for the spreader to function correctly. All figures have already been entered from the factory, but it may be necessary in a few instances to change some of the entered settings slightly. The following data/calibrations can be entered on the menu:

- Hydraulic calibration
- Hydraulic system, spread discs
- Calibration of implement speed sensor
- Calibrating/Zeroing weight cells
- TC offsets

Press the  key on the Home screen.

Select “Machine” and then “Calibrations”.

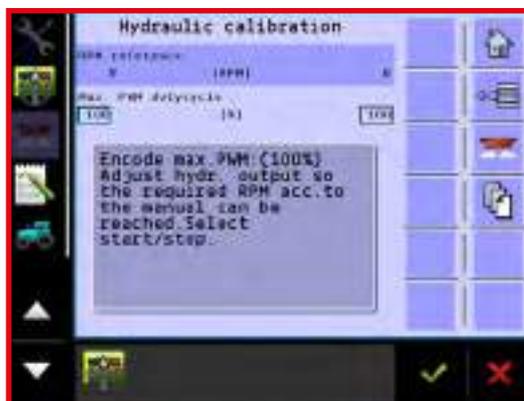
## > HYDRAULIC CALIBRATION

To determine the correct flow of oil from the tractor, a flow test of the tractor’s oil volume can be done during the hydraulic calibration to prevent excess oil being sent to the spreader. This calibration is to be used only for spreaders with mechanical spread units. For spreaders with hydraulic spread discs, see the section ‘Hydraulic system, spread discs’.

 **Make sure that no one is near the spreader when the calibration begins!**



Select “Hydraulic calibration” to go to the calibration menu.



Enter 100% in the “Max. PWM duty cycle”.

Press the start key. 

**The tractor’s engine must be running at operating rpm and the oil must be at operating temperature.**

When the tractor’s oil outlet is opened, the floor belts will start running; set the tractor’s oil flow volume so the floor belts can run at about 600 rpm. Do not set a higher oil flow volume than necessary.

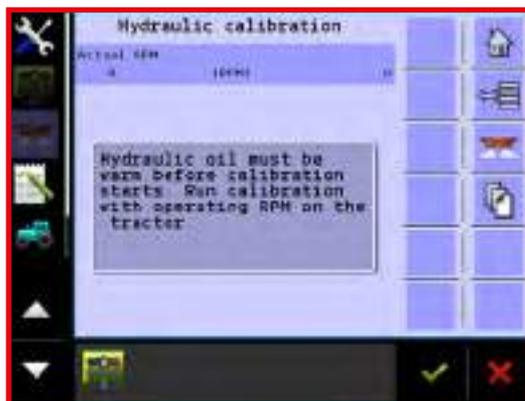
The spreader's hydraulic system is calibrated from the factory and under normal conditions does not need to be recalibrated.

Only if problems arise with the following:

- the belts are slow in starting and reaching the correct application rate when the spreader starts
- if the belt will not stop
- if the belt runs unevenly

In these instances, it is possible to recalibrate the hydraulic system.

Press  to go to page 2 under hydraulic calibration.



When the calibration begins, the tractor's hydraulic oil must be circulating.

**The tractor's engine must be running at operating rpm and the oil must be at operating temperature.**

Press the start button  to start the calibration. The spreader belt begins to run up to the highest speed, then slowly reduce the belt speed until the calibration is completed.

## > HYDRAULIC SYSTEM – DISC

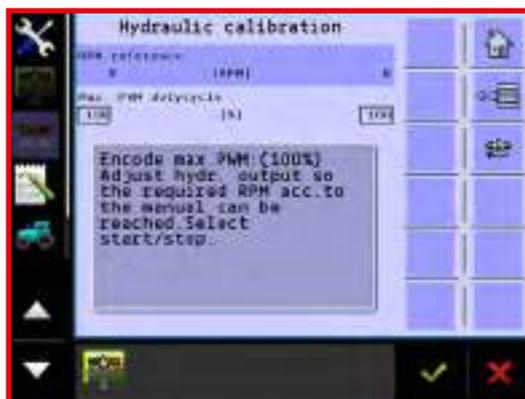
On spreaders with hydraulic spread discs (oil supply from two outlets on the tractor), the correct oil flow from the tractor is found by carrying out a flow test on the discs.



**Make sure that no one is near the spreader when the calibration begins!**



Select "Hydraulic system - disc".



Enter 100% in the "Max. PWM duty cycle".

Press the start key. 

**The tractor's engine must be running at operating rpm and the oil must be at operating temperature.**

When the tractor's oil connections are opened, the discs begin to rotate; set the tractor's oil volume to achieve a disc speed of roughly 100–200 rpm above the preferred rpm for field spreading.

## > ZEROING THE WEIGHT CELLS

If weight cells display does not read 0 kg when the spreader is empty, it is possible to zero the weight cells.

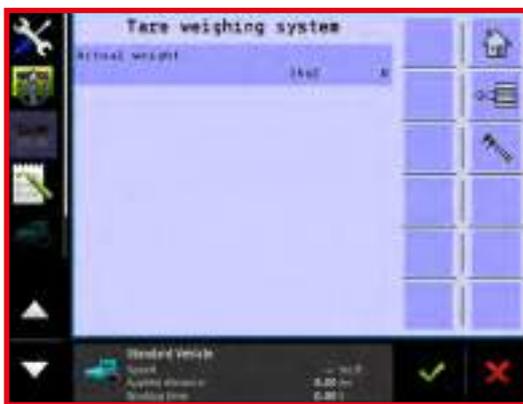
Press the  key on the Home screen.

Select "Machine"

Select "Calibrations"

Select "Weighing system"

Select "Tare weighing system"



Press  to zero the weighing system.

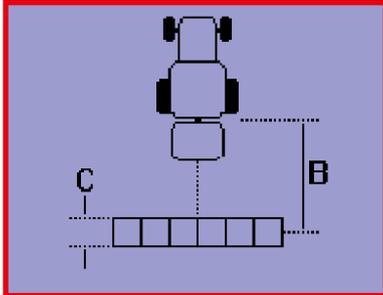
The spreader must be kept in a horizontal position for the zero-setting.



Press  to accept the zero-setting.

## > TC – IMPLEMENT OFFSETS

When operating with section control, and the spreader must automatically start and stop spreading when turning in the headland, the following distances must be entered in order for the spreader to start and stop spreading at the right time:



- B = distance from the spreader axle to the center of the spreading pattern
- C = length of the spreading pattern

Based on Bredal's experience, Bredal has worked out some distances that usually work but there may be slight differences depending on whether the spreader is operating at 24 or 36 meters, and there can also be differences depending on the type of fertilizer used. The Bredal recommended distances for 24 meters are entered at the factory:

- B = 8.0 meters
- C = 5.0 meters

Experience shows that the B value must be higher the wider the working width. A value that is 2–4 meters higher is recommended for 36 meters.

## > ADJUSTING STOPPING/STARTING DISTANCES

Usually, only the B value is changed.

If the spreader starts/stops prematurely, increase the B value.

If the spreader starts/stops too late, lower the B value.

Only change the C value if more or less overlap at both starting and stopping is preferred.

Lowering the C value increases the overlap.

Increasing the C value reduces the overlap.

Press the  key on the Home screen.



Select "Machine"



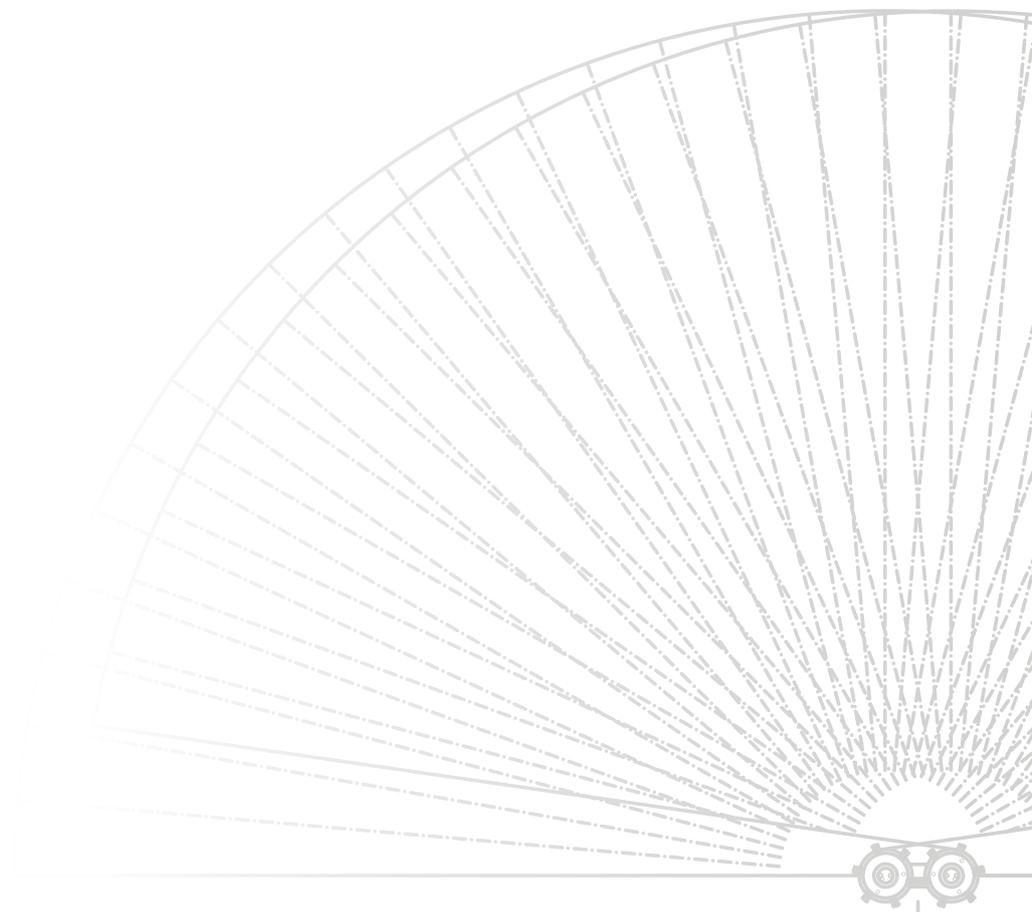
Select "Calibrations"



Select "TC - implement offsets"



Press one of the input fields "(m)", to change the entered value.



# TESTING INPUT AND OUTPUT

It is possible to test the spreader's input and output on the testing menu.

## > TEST INPUT

Press the  key on the Home screen.

Select "Help"

Select "Diagnostic"

Select "Test input"



All the inputs from the spreader are listed on the test input menu. For instance, when an inductive sensor is affected, its status changes between high and low, and all impulses coming from the sensor are added up.



In this case, 29 impulses have been counted from the inductive sensor on the left spreading disc.

After exiting test input, all impulses counted will be deleted. It is also possible to delete the counted impulses by pressing .

Press  to view input from the weight cells.



Input from the weight cells can be seen on this page. When they are working correctly, the weight cells send impulses all the time. If one of the weight cells fails to show a value, there is something wrong with it. Perhaps the load cell is not working properly, i.e. a cable is ruptured or improperly attached to the terminal box.

## > TEST OUTPUT

Press the  key on the Home screen.

Select "Help"

Select "Diagnostic"

Select "Test output"



**Make sure that no one is near the spreader when functions are being tested!**



Here it is possible to test the proportional valves that regulate floor belt speed. Enter a % value in the text box. If 100% is entered, the valves will fully open, and the belts will operate at maximum speed.

Press  to start the floor belts. Oil must be flowing from the tractor in order for the floor belts to run.



Here the actuators' function can be tested by pressing the arrow buttons. Impulses are counted from the right and left actuators when these are activated. If an actuator is not operating, a alarm will be emitted and computer must be subsequently restarted.

# RELOAD FACTORY SETTINGS

If any values in the basic settings are mistakenly deleted or changed, the original factory settings can be reloaded. Note that any values that have possibly been changed since the implement was delivered from the factory will be reloaded to the original values when the factory settings are reloaded.

The values reloaded with this function are as follows:

- Application rate (cm<sup>3</sup>/impulse)
- Weight cells' calibration figures
- TC – implement offsets
- No. of pulses per disc revolution
- No. of pulses per oil-motor revolution
- Gear factor for headland gear (headland-gear downshifting as a percentage)
- The proportional valves' PID parameters

After reloading the factory settings, the spreader's application rate and weighing should both be checked and monitored, as there is a risk of making application errors if a reloaded figure is incorrect.

Press the  key on the Home screen.

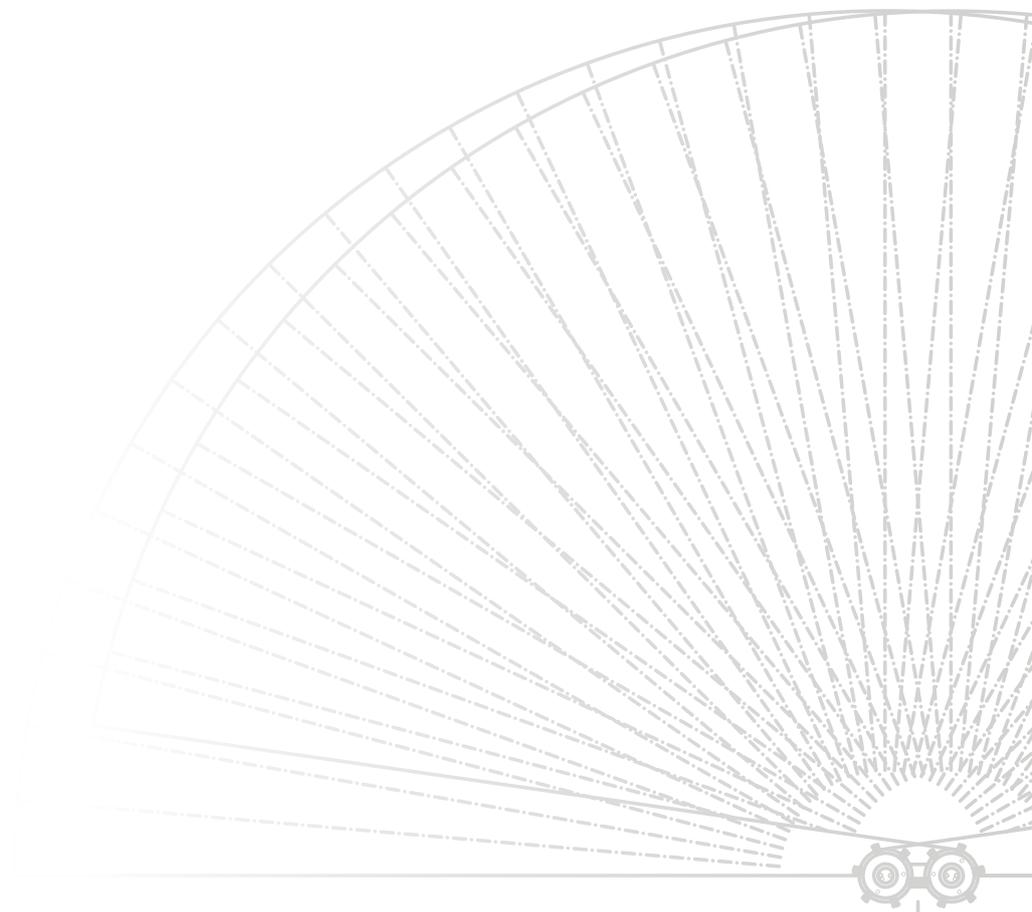
Select "Help"

Select "Load factory settings"



Press  to reload the factory settings.

Press  to return without making any changes.



# FERTILIZER QUALITY

Fertilizer quality is crucial for spreading quality. In order to check fertilizer quality and get an idea of the spreading power, the following values are the most important to know:

- Particle strength
- Particle size
- Dust content
- Bulk density
- Particle shape

Particle strength can be measured using the crushing strength tester included in the supply. Press the granule with the crushing strength tester until the granule ruptures and then read the crushing strength. Repeat this with several granules, big and small, and then calculate the mean crushing strength.

Particle size can be measured using Bredal's sieve shaker. Fill the space above the biggest-meshed sieve, attach the lid and shake until the distribution of granules remains constant. Turn the sieve shaker so the lid is facing up again. Now it is possible to determine the distribution of particle size.

The dust content appears after finding the distribution of particle size, as relative percentage of the fertilizer below the smallest sieve. In many cases the dust content can also be estimated visually.

Bulk density is usually specified by the fertilizer manufacturer; otherwise it can be determined by using a Bredal calibration kit (extra accessory).

Particle shape can be assessed visually. The smoother and rounder the particle, the further it can be flung through the air. A very angular granule or a granule with many surface nodules is less aerodynamic, impeding its ability to cover the entire swath of wide working widths.



## > EFFECT OF FERTILIZER QUALITY ON SPREADING PROPERTIES

Low crushing strength means that the fertilizer tends to get crushed, both during transportation and spreading. Low crushing strength is often related to dust content, as fertilizer with a low crushing strength is easily crushed during transportation and reloading. The crushing strength is usually up to par when the fertilizer leaves the factory, but if the fertilizer has been subjected to moisture or water, it loses its original crushing strength and never regains it, even if the fertilizer consignment is dried. Certain types of fertilizer always have a low crushing strength, such as prilled urea. In order to be able to spread a fertilizer over wider working widths (24 meters or more), the crushing strength should at least be 3-4 kg. If it is below this, the discs' rpm setting needs to be reduced to avoid crushing the fertilizer, thereby narrowing the working width. This will eliminate the option of wide working widths, however.

The particle size affects how far the fertilizer can be flung. Large fertilizer granules can be flung further than small ones, which means that a certain particle size is required to cover the entire swath of wide working widths. The average particle size should be more than 3 mm to make it possible to spread up to 36 meters. In other words, more than 50% of the particles should be in the section above the 3 mm sieve in Bredal's sieve shaker.

The dust content increases with the number of treatments (reloading, transportation, etc.) to which the fertilizer is subjected. If much of the fertilizer has been crushed into dust, this will be deposited as a layer behind the spreader, usually 4–5 meters wide across the tracks, and it will usually make it difficult to obtain satisfying spreading results.

Heavy fertilizer particles can be flung further than light ones, which is why fertilizer density is crucial for the working width. Most types of fertilizer have a density of around 1.0 kg/liter or slightly more. A few have a lower density (0.7–0.75 kg/liter), but it is difficult for these types to fully cover 36-meter working widths.

Rectangular or irregular fertilizer has poor aerodynamic characteristics, which is why it cannot be flung as far. Wide working widths require aerodynamic fertilizer granules. These characteristics are difficult to measure in practice, but a visual assessment is sufficient and not difficult to make, as round and especially smooth granules can be thrown the furthest.

# MAXIMUM CAPACITY PER MINUTE

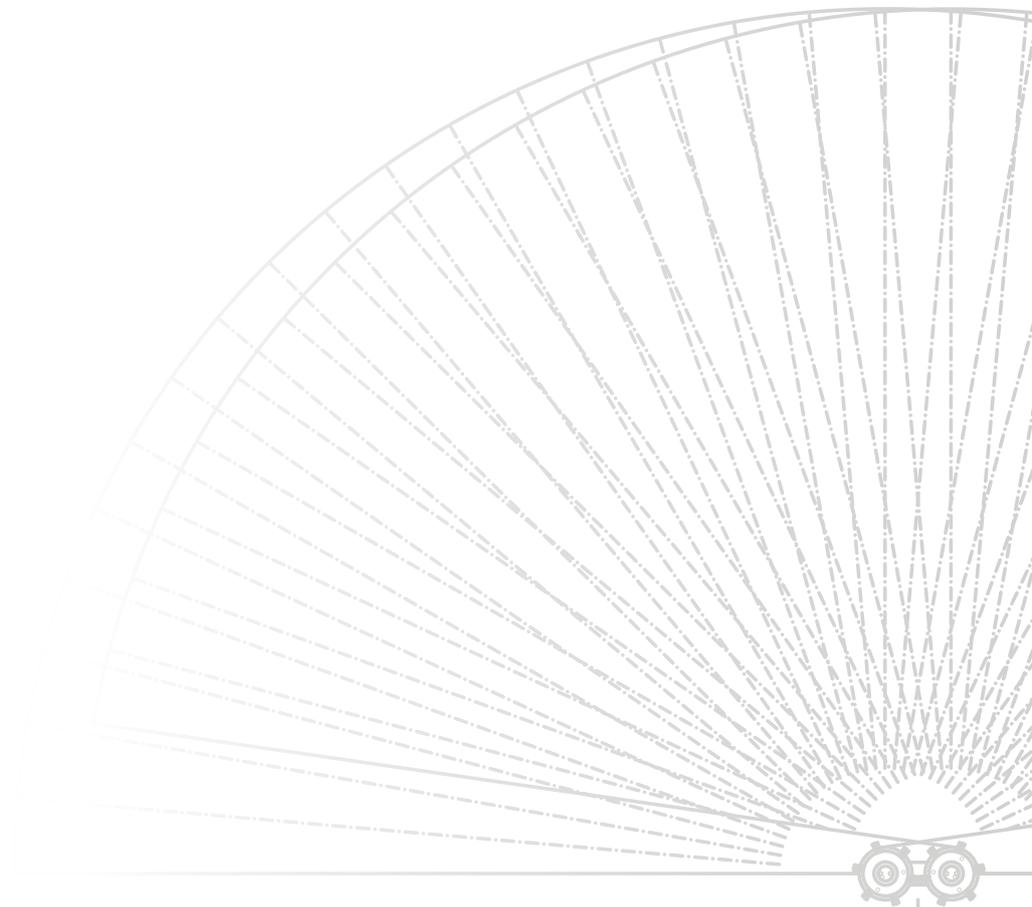


**It is advisable not to spread more than 350 kg/min.**

The spreader can spread large volumes but the spreading pattern of certain types of fertilizer will be impaired if the application rate exceeds 350 kg/min.

If a larger volume needs to be spread, a spreading test should always be done in the field at the given volume to ensure that satisfactory spreading results can be achieved.

The current application rate can be seen on the operation screen when the indicator "kg/min." is selected.



# HEADLAND SPREADING

The headland spreading system works by reducing the speed of the spread disc on the side facing the boundary. At the same time, the downchute positions are changed to optimize the headland spreading.

When headland spreading is activated, this is shown by a symbol on the operation screen, and the downchutes automatically adjust to the values entered for headland spreading.

Use the rpm and downchute settings specified in the spread charts on the website.

If automatic downchute control is selected, use the suggested rpm indicated with a red, yellow or green dot on the operation screen (equivalent to full, moderate or low headland application).

## > MECHANICAL SPREAD UNIT WITH HEADLAND GEAR

The headland gear is positioned under the left spread disc and reduces the disc's rpm when it is activated.

Drive with the left side facing the boundary.

To adjust the spreader for headland spreading, move the gear selector on the spread unit to the lowest position.

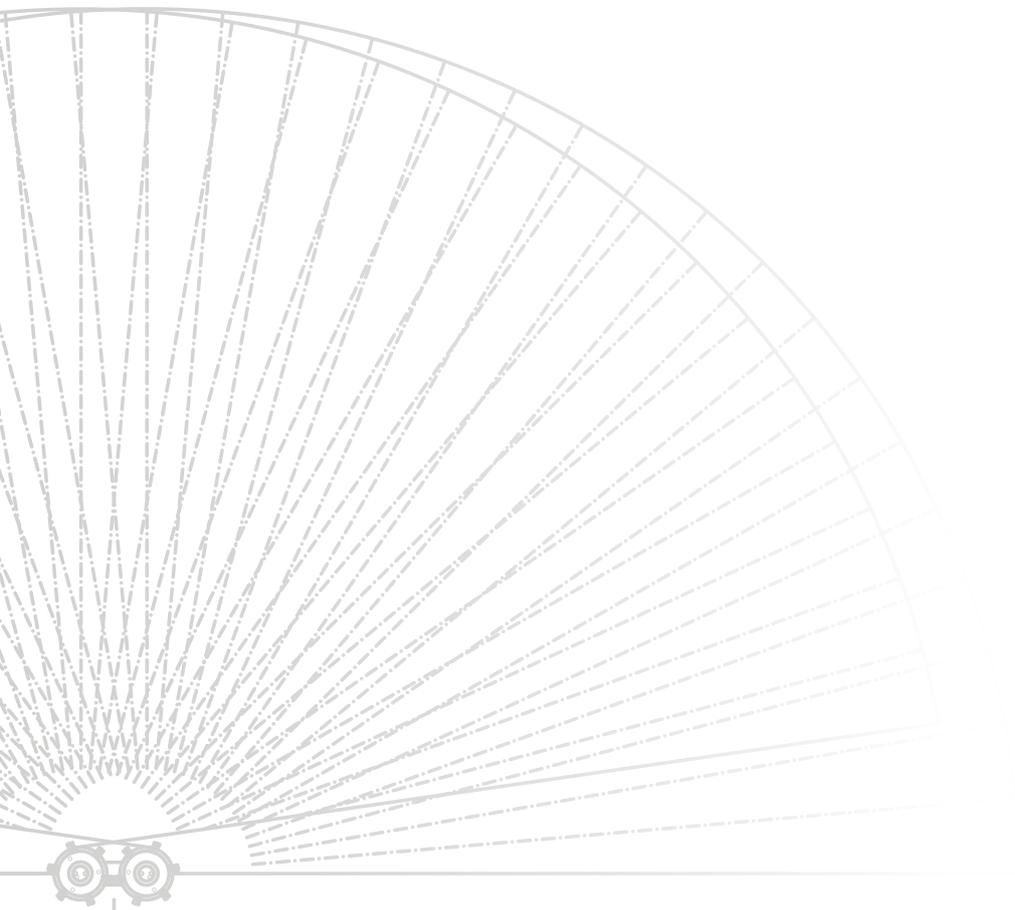
If the spreader comes with a hydraulic operated headland gear, use the double-action hydraulic outlet on the tractor to activate/deactivate the headland spreading.

The spread discs must **NOT** rotate when changing between field and headland spreading.

## > HYDRAULIC SPREAD UNITS

On spreaders with hydraulic spread units, it is possible to select spreading to the right or left side along a boundary.

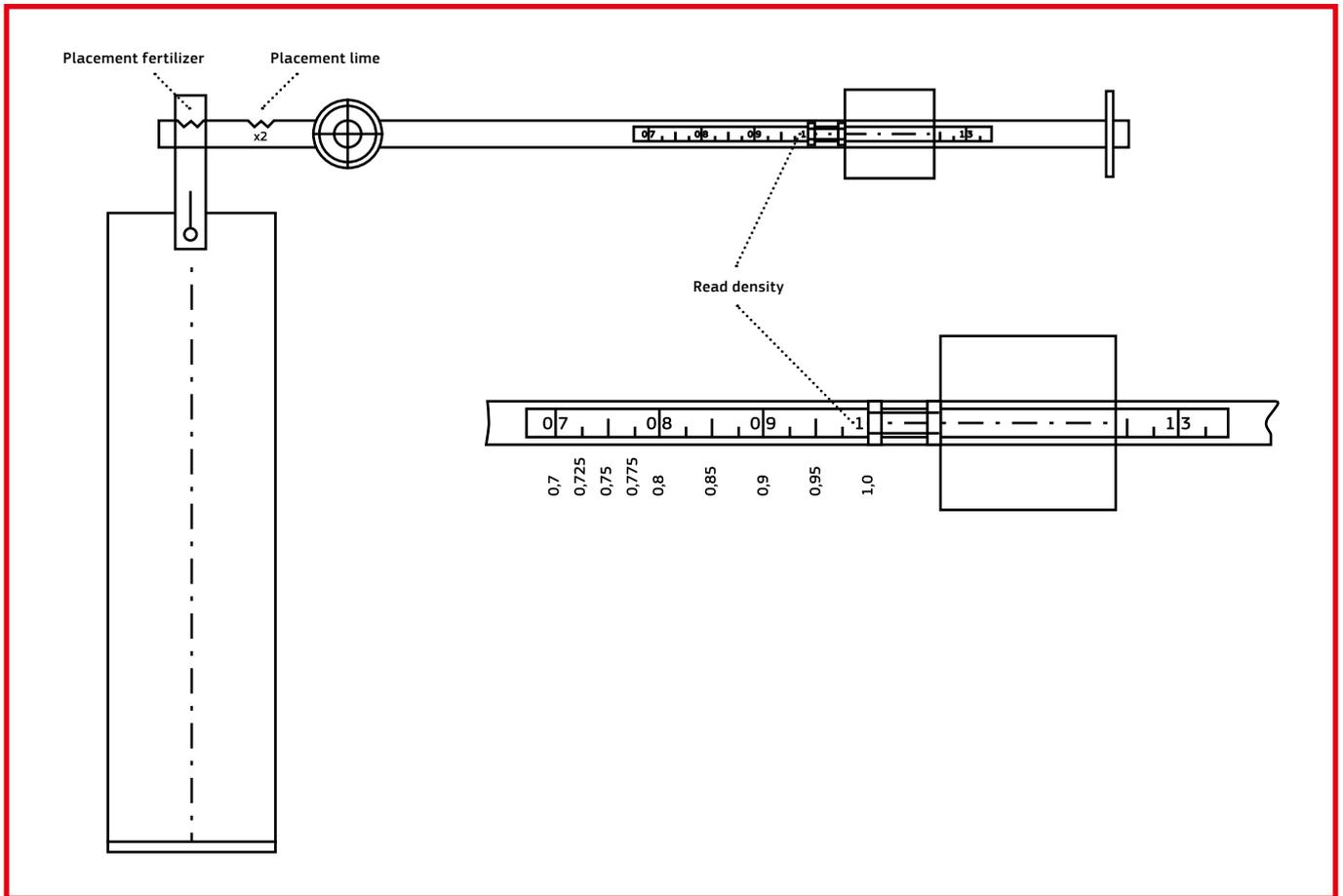
Activate/deactivate headland spreading during operation via the operation screen.



# CALIBRATION KIT

Use the calibration kit to determine the bulk density of the material.

Fill the bucket with fertilizer, hit it against the floor a few times and replenish. Smooth off the top. Then hang the bucket on the scale in the notch (X1). Set the counterweight so the bracket balances. Read the fertilizer's density on the scale next to the end of the bolt. (The calibration kit is an extra accessory.)



If the scale needs adjustment or verification, do this by filling the bucket with water. When the weighing bracket is in balance, the bolt end must be at 1.0 on the scale. If this is not the case, adjust the bolt until the setting is correct.

# SETTINGS FOR VARIOUS TYPES OF FERTILIZER

Settings for various fertilizer types can be downloaded from Bredal's website. The settings are determined by testing the various fertilizers in practice. Update the settings on an ongoing basis to make sure they are up to date. It is advisable to use these settings. It is also advisable to carry out a fertilizer spreading test in the field to make sure that a satisfactory spreading pattern is achieved. (See p. 49.)  
 Go to Bredal's website [www.bredal.com](http://www.bredal.com)



At the website, select "Spread Chart" in the menu at the top of the screen.

Under "Machine type", select "F4"

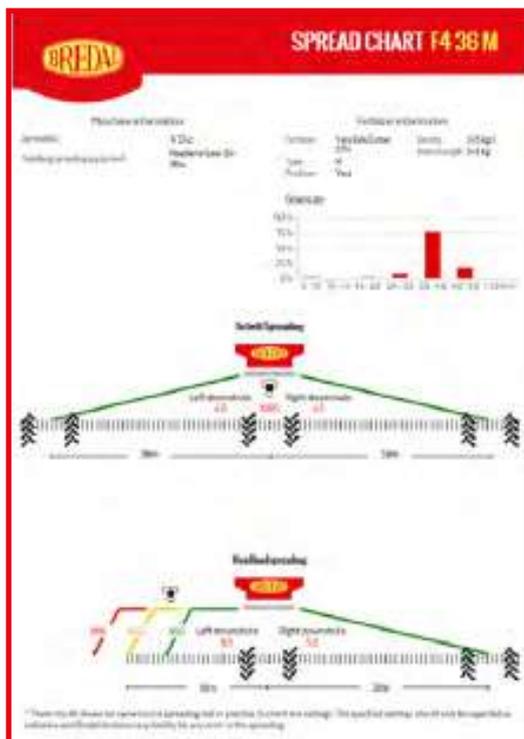
It is possible to choose between an A or H disc (F4's default setting is A discs)

Select mechanical or hydraulic spread unit

Select the type of fertilizer to be spread

Select the working width to be used

Press "Download as PDF"



This will take you to the results page with the settings that fit the type of fertilizer selected.

Enter the recommended downchute settings for field and headland spreading in the computer.

Also, the spreader should be set to run at the PTO's recommended rpm.

The fertilizer, name, manufacturer, density, crushing strength and granule distribution selected appear in the spread chart at the top of the results page.

The recommended downchute settings and the PTO's rpm for field spreading are shown in the center of the chart.

The recommended downchute settings and the PTO's rpm for headland spreading are shown at the bottom of the chart (scroll down).

Red = complete spreading to boundary

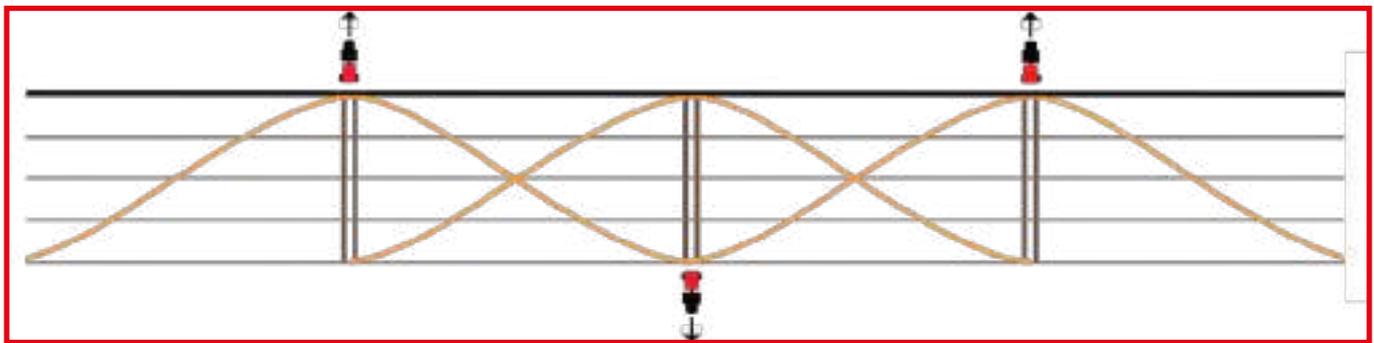
Yellow = medium spreading along boundary

Green = very little fertilizer beyond boundary

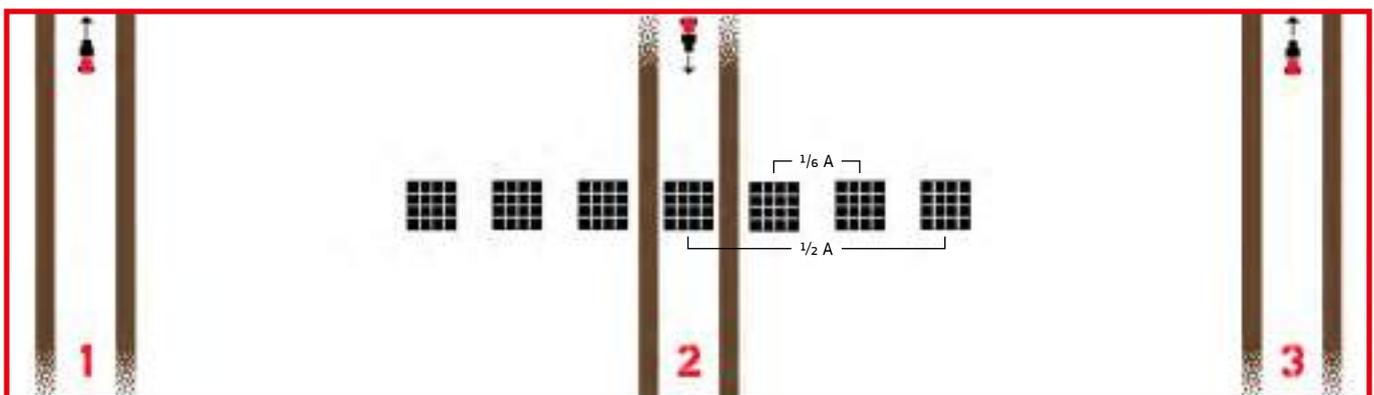
# FERTILIZER SPREADING TEST AND SPREADING ADJUSTMENT

A spreading test should always be done in the field to ensure satisfactory spreading patterns. Consider the following factors when conducting a fertilizer spreading test:

- Perform the test in dry conditions (field/implement)
- Perform the test in a field covered with a healthy crop: approx. 10 cm of thick plant growth, to avoid ricocheting granules.
- Conduct the test on a flat section of the field and, when setting out trays, make sure that all of them are level wherever possible.
- Conduct the test at the forward speed normally used for spreading (ideal: 14–15 km/h, if the field allows).
- Let 100–200 kg of fertilizer run through the spreader before conducting the test. There may be deposits of old fertilizer, verdigris or rust on the spreading discs and vanes. These deposits must be worn off before the spreader can produce a constant spreading pattern.
- Set up the trays at one-half of the working width on both sides of the centermost of the three wheel tracks. **Distance between the trays = 1/6 of the working width**  
Example: 30-meter working width = 5 meters between the trays. Drive forward in the first, back in the second and forward again in the third track. To get sufficient volumes in the trays so that they can be used for an assessment, it is necessary to spread at least 200 kg/ha.
- Make sure to drive far ahead of the trays before disengaging the application, as the spreader flings the fertilizer far to the rear.



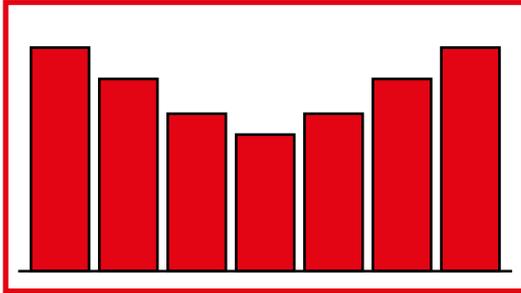
Ideal distribution of fertilizer using overlapping.



Setting up testing trays in the field.

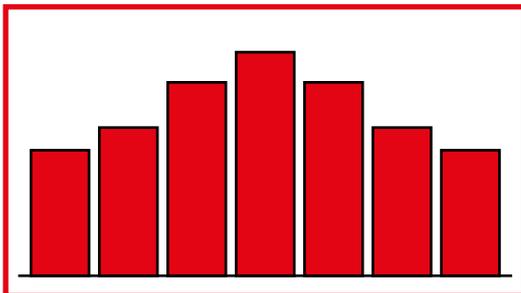
After pouring the fertilizer into the measuring cups, assess the spreading results. A correction of the spreading picture is shown on the next page.

### IF EXCESS FERTILIZER IS DEPOSITED BETWEEN THE WHEEL TRACKS



Enter a lower value under “downchute position”. Preferably enter 2 steps less. If a subsequent test shows that two steps was too much, the difference between the two tests will indicate how much the scale needs to be moved back.

### IF EXCESS FERTILIZER IS DEPOSITED BEHIND THE SPREADER

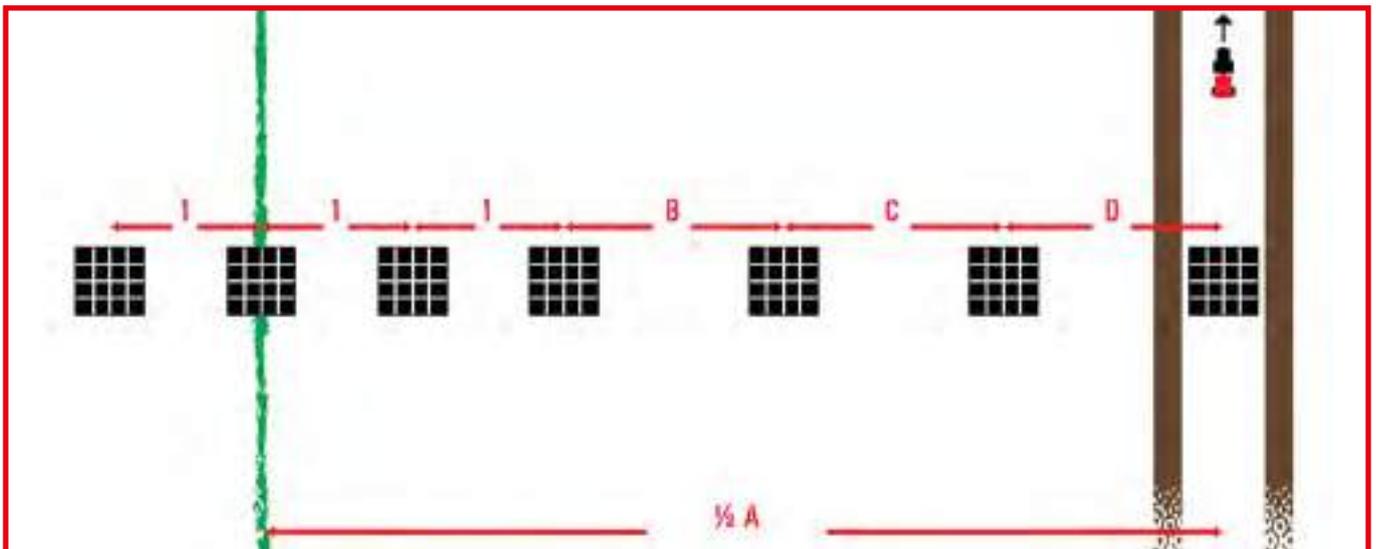


Enter a higher value under “downchute position”. Preferably enter 2 steps more. If a subsequent test shows that two steps was too much, the difference between the two tests will indicate how much the scale needs to be moved back.

If lots of fertilizer dust accumulates right behind the spreader, this could be caused by fertilizer being crushed at an excessively high disc speed or if the crushing strength of the fertilizer is too low.

Try reducing the rpm by 100–200 rpm

### > SPREADING SAMPLE: HEADLAND SPREADING



Position the trays as shown below. If the spreader deposits too much fertilizer beyond the boundary in relation to the preferred amount, lower the rpm by 50–100 rpm per test until the spreading result is acceptable. Conversely, the rpm setting should be increased by 50–100 rpm if spreading to the boundary is insufficient.

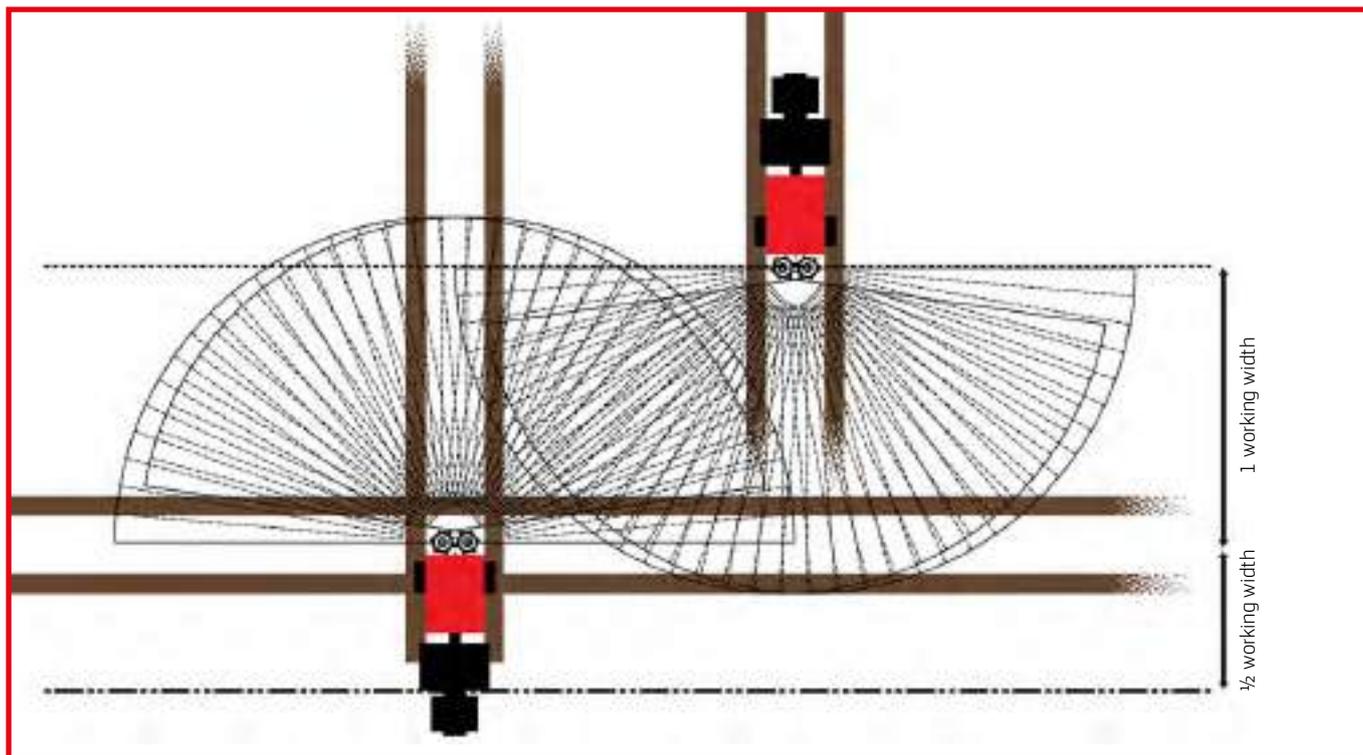
# ENGAGING/DISENGAGING IN HEADLAND (MANUALLY)

If the spreader is operated without using section control, the application must be disengaged and engaged at the right time.

## General rule:

When the discs pass the headland's tracks, disengage them (for working widths above 24 meters, slightly before this, however).

Re-engage when the discs are one working width from the headland's tracks.



# LATE APPLICATION

Late application of fertilizer can be done in one of two ways:

## > WITH THE SPREADER IN RAISED POSITION

The best spreading result is achieved by raising the spreader high enough so the spreading discs are at the recommended height (85–90 cm) over the crop. It is possible to achieve an acceptable result as low as 50 cm over the crop, however, but this heightens the risk of damaging the plants and makes them more easily affected by an incorrect spreader angle.

Use the standard late-application settings when using this method.



## > USING LATE APPLICATION EQUIPMENT

Late application equipment can be used to spread in tall crops when parts of the crops are at a height up to the top edge of the spread discs. (Late application equipment is an optional feature.)

Bolt the late application equipment to the brackets holding the safety bars on both sides, and in the middle it will rest on the center bracket.

It is crucial to mount this equipment in a level position on the spreader, as otherwise the spreading will be laterally distorted.

Note that the late application equipment lifts the fertilizer, which means that the spreading will be more sensitive to wind than usual, so do not use this equipment in windy conditions.

The PTO setting must be slightly lower and the downchute setting should be slightly lower than normal when late application equipment is attached. The table below shows how much needs to be subtracted compared to the settings for normal operation.

For headland spreading, activate the headland gear/headland spreading as usual, but using the settings specified below.



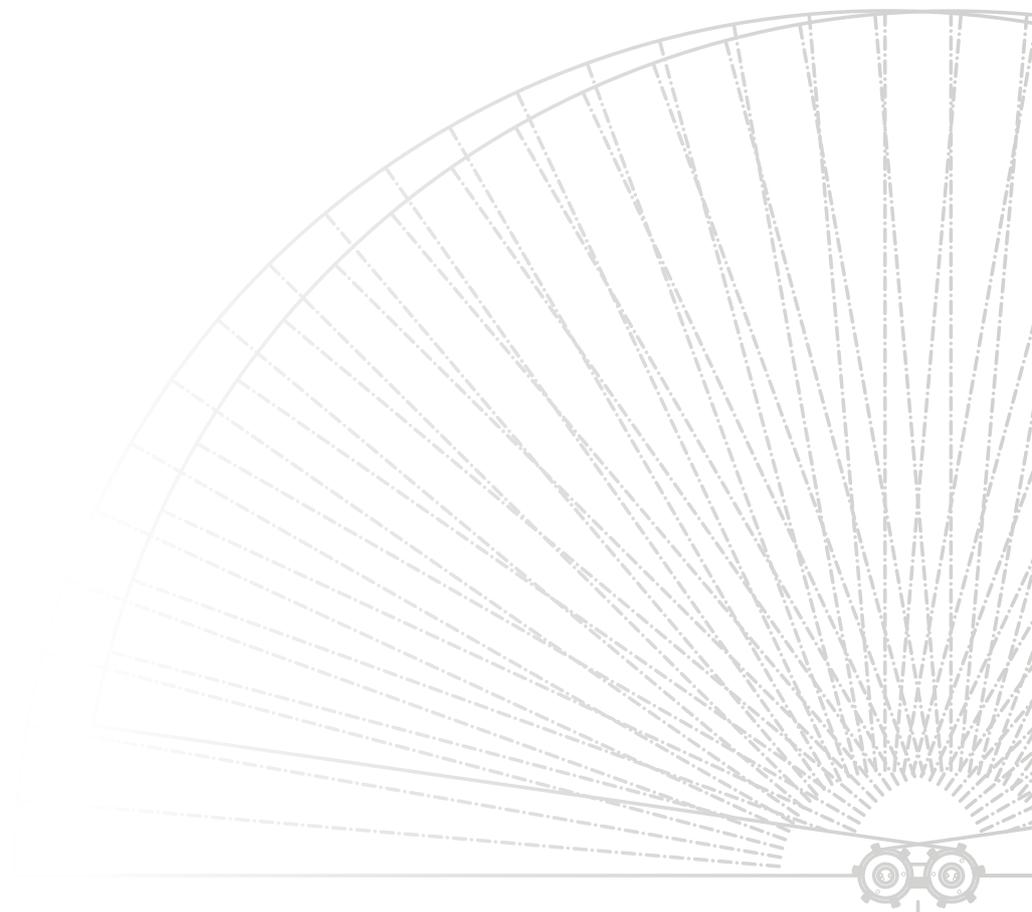
Working width	Field spreading		Headland spreading	
	rpm	Downchute	rpm	Downchute
24	-200	-2.0	-150	-2.0
28	-200	-1.0	-100	-1.0
30	-150	-0.5	-100	-0.5
32	-150	0	-50	0
36	-150	0	-50	0

Example:

A 30-meter working width will be used. According to the settings on Bredal's website, the PTO rpm should be set at 1000 rpm and the downchute position at 5.0.

According to the table under 30 meters, subtract 150 rpm from 1000 rpm, so that the spreader operates at 850 rpm.

Normally the downchute position is 5.0, but according to the table, 0.5 should be subtracted from so the downchute position is 4.5.



# TROUBLESHOOTING

This section describes the most common faults that can occur as well as the possible cause of the various error messages. It also provides some help for troubleshooting the spreader's electrical components.

## > ELECTRICAL FAULTS IN GENERAL

The vast majority of electrical faults and irregularities in the ISOBUS program are caused by a poor connection in the ISOBUS outlet. Therefore, start by blowing the outlet clean, spray it with contact spray and make sure to insert the plug correctly. Check to make sure that the ISOBUS cable is not damaged.

## > RATE OFF TARGET



The most commonly occurring error message appears when the spreader's floor belts do not run at the right speed or do not run at all. The alarm can often be emitted very briefly and it will automatically stop as soon as the fault stops. If this is the case, it does not mean that there is a fault in the spreader, but that the application rate has briefly been outside the application range. If the error message does not stop, it is because the fault prompting the message has not been resolved. There may be several reasons for this:

### **IF THE FLOOR BELTS ARE RUNNING, THE ERROR MESSAGE MIGHT BE CAUSED BY THE FOLLOWING:**

- The forward speed is too high, preventing the spreader from applying the preferred amount.
- The oil-flow setting on the tractor's oil outlet is too low.
- The spreader is set to spread a large volume and the rear doors are set at a small opening.
- The spreader is set to spread a small volume and the rear doors are set to open too wide.

### **IF ONE FLOOR BELT APPEARS TO BE RUNNING CORRECTLY AND THE OTHER BELT IS RUNNING TOO FAST:**

- No impulses are being sent from the gearbox's inductive sensor on the side where the belt is running too fast.

### **IF THE FLOOR BELTS ARE NOT RUNNING AT ALL, THIS COULD BE CAUSED BY THE FOLLOWING:**

- The flow of oil through the tractor's oil outlet has not been opened.
- The tractor has blocked the return flow of oil. Try to briefly reverse the direction of oil pressure against the normal circulation direction, and then re-open the oil circulation in the correct flow direction.
- Poor connection in the ISOBUS outlet: try pulling out and re-inserting the plug.
- A loose connection or damaged electrical cable connected to oil-motor activation.
- The floor belts need to be tightened: tighten both nuts one revolution at a time until the belts keep pace.

If the problem is due to a fault in the control or electrical system, the belts can be manually operated by screwing in the thumb screws on the oil motor/gear valves, while oil flow from the tractor is open (see photo p. 70). If the floor belts still do not run, the fault is in the hydraulic system.

## > RIGHT (LEFT) ACTUATOR BLOCKED



Make sure the downchute can move freely and that no fertilizer deposits or anything else is jammed against the motor regulating the downchute position.

Another typical cause is that the actuator is not receiving enough power. This could be due to a poor electrical connection, usually in the ISOBUS outlet or the tractor's electrical system.

Restart the computer to reset the alarm.

If the error message continues and the downchutes' working areas are unobstructed, and nothing is jammed, the actuator could be defective and need to be replaced.

## > CHECKING THE GEARBOX SENSOR



It is possible to check a sensor's function. If a sensor does not count or if it counts incorrectly, it is often the pick-up distance, i.e. the distance between the sensor and the tooth being scanned, that is too great. The pick-up distance of the gearboxes' sensors is 1–1.5 mm, so if the sensor is not close enough to the gearbox cogwheel, it cannot detect the teeth and therefore will not send a signal to the computer.

Press the sensor on the gearbox as far as possible into its installation hole. It is held in place by an 8 mm screw. Loosen the screw and make sure the sensor is pressed in as far as possible. It may be necessary to rotate the sensor slightly as it will otherwise tend to return to the same position when the screw holding it in place is retightened.

Check whether the sensor is working by holding it against a piece of metal. In the terminal, select "Test input" (Home – Menu – Help – Diagnostic – Test input). Now all inputs from the implement's sensors will be viewable.



By holding the gearbox sensor against a piece of metal, the input in the terminal's test menu will change and an impulse will be counted. If the input does not switch between high and low and if impulses are not counted, the sensor is either defective or is not being supplied with power (12 V). If there is no power, the implement's other sensors will not work either.

If the gearbox sensor is defective, it must be replaced by the same type of new sensor (Bredal order no.: 301001258).

## > CHECKING OTHER SENSORS



Sensors for disc RPM, headland gear and driving speed can be tested in the same manner as the gearbox sensor.

The key distance for these sensors is approx. 2 millimeters.

Bredal order no.:

Disc RPM : 301001240

Headland gear : 301001201

# BASIC SETTINGS, ADJUSTMENT OF DOWNCHUTE POSITION

To get the best possible spreading pattern, it is important that the downchutes' basic setting is correct. Both downchute pivot points must be centered over the middle of the discs; also the downchute position must be correctly adjusted.

**Only do this check and adjustment if parts of the spread unit or downchute have been disassembled.**

## > CHECKING DOWNCHUTES' CENTERING



Remove the bolt holding the shield over the actuator, and lift off the shield.



Unscrew the two socket screws so the downchute and actuator can be dismounted.



Disassemble the cones over the center of the discs.



Disassemble the downchutes, as the baseplates must be used for the adjustment. Loosen the M8 bolt on the inside and then unscrew the countersunk socket screw. Make sure that the guide disc centering the downchute in the hole is put back in place when the downchutes are reassembled. It is also important to keep the right and left sides separate so these are not interchanged.



Reattach the downchutes' baseplates to the shield.



Screw a long M16 screw into the threaded holes in the center of the discs so these penetrate the center hole of the baseplate. Now, it is possible to check whether the downchutes are centered over the center of the discs. If they are not centered, shift the rearmost shield to which the downchutes are attached.



Loosen all four of the screws holding the rearmost section of the shield in place, and loosen the three screws holding the rearmost and front part of the shield together. Now the rearmost shield section can be shifted both sideways and lengthwise. Move the shield until the center of the downchutes is precisely centered over the center of the discs. Be meticulous: the better the downchutes are adjusted, the better the spreading pattern that can be subsequently achieved. When the shield is adjusted, tighten the screws holding the shield attached to the frame first and then retighten the front and rear shield sections together.



After the adjustment, reassemble the downchutes. These should rotate easily when the center screw is tightened. Once they rotate with proper ease, tighten the lock nut. Remember to correctly position both the centering disc and the large washer.



Reattach the cone over the center of the disc and reattach the downchutes and actuator. Now check/adjust the basic setting of downchute scale.

## > CHECK/ADJUSTMENT OF DOWNCHUTE SCALE

Follow this procedure to make sure that the downchutes are correctly positioned.



Enter "36" meters working width in the computer.  
Select "**Auto – no flow corr.**" under downchute control.

Return to the operation screen and click "start spreading" . NB: headland spreading must not be activated, as otherwise the downchutes will not move out into the correct position. Also all sections must be turned on.



After clicking "**start spreading**", the downchutes must move out and align with the small arrow cut into the downchutes' baseplate. If the arrows do not align, they must be adjusted until the basic setting is correct.



Adjust the actuator's threading until the downchute's arrow aligns with the baseplate arrow.

After completing the adjustment:

Remember to re-enter the following settings in the computer: the working width for spreading and the downchute position to be used for spreading.

# FLOOR BELT ADJUSTMENT

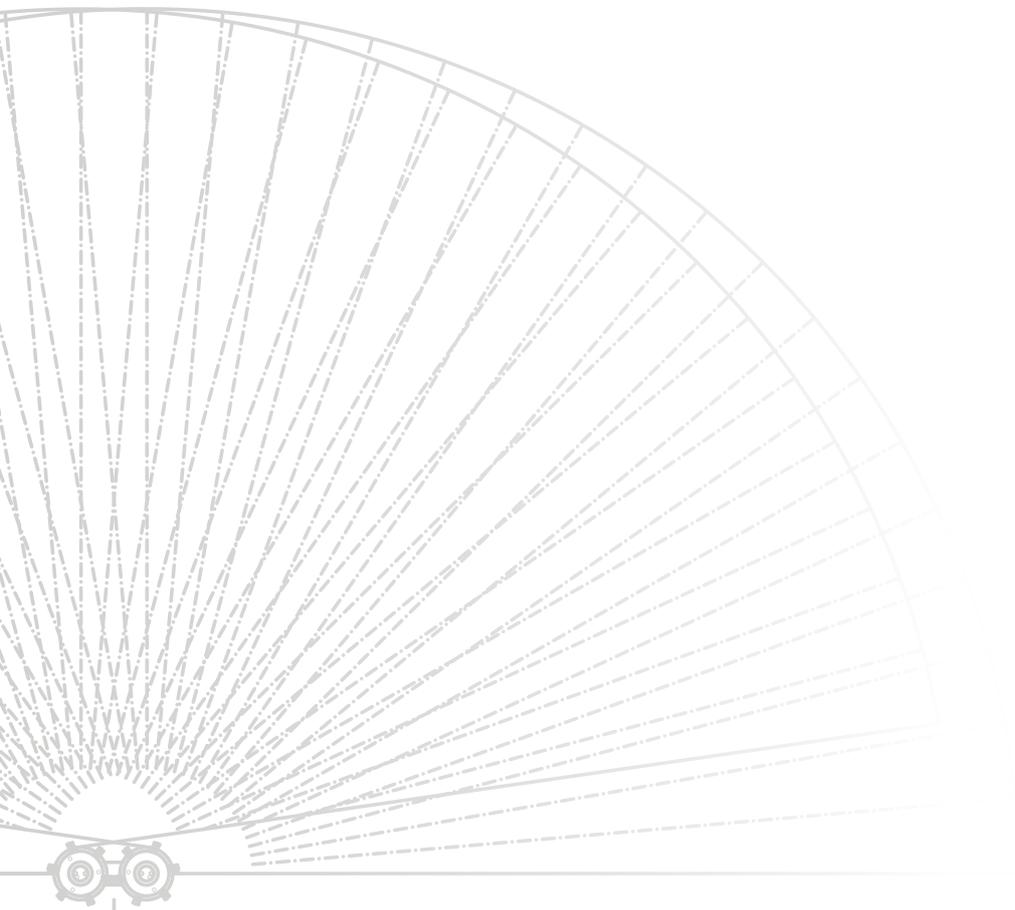


Normally, the belts do not need to be tightened, unless they are sliding on the rollers and cannot keep up. In many cases, this may be necessary after the first few days of operation, as the belts stretch a little when new.

If a floor belt needs to be tightened, tighten the bolts on both sides of the belt one-half of a revolution at a time until the belt moves with the rollers.

The belts must run on the center of the rollers.

If the belt runs out to one side, tighten the nut on the side to which the belt is running out. Tighten the nut about one-quarter of a turn at a time.



# CHECKING THE REAR DOORS AND THEIR BASIC SETTING

The basic setting of the rear door must be correct in order for the spreader to apply correctly. It is possible to check the setting by setting the scale at 200 and placing a 40 mm square pipe on the belt underneath the door. If the setting is incorrect, adjust the door on its tension rod. Also, it is a good idea to check the spacing between the floor belts.



Set the rear doors' scale at 200



Place a 40 mm square pipe under the door. The square pipe should be able to move freely under the door with almost no clearance. Adjust the door's drawbar if this setting is not correct.



The spacing between the floor belts must be 110–115 mm in the rear door opening. Make sure that the belt and edge molding do not bulge outwards/upwards, as this will change the area of the door opening and thus the application rate. This can occur if they have been exposed to oil, in which case they should be replaced.

# LUBRICATION POINTS

The different lubrication points on the implement are shown below. The number of operating hours for each lubricating interval is specified at each lubricating point.

## > EVERY 50 HOURS



PTO shaft. Disassemble the PTO shaft and lubricate the 6-grooved ends with grease.

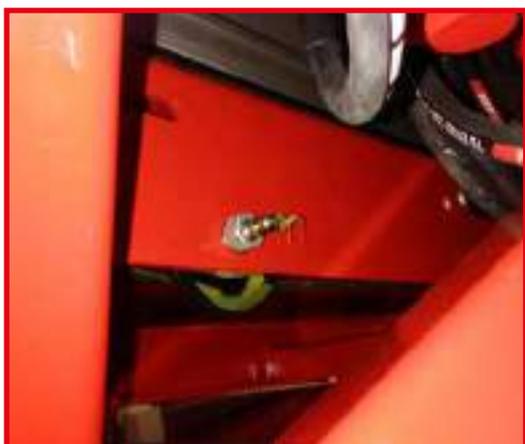


Input shaft on the spread unit.

## > EVERY 100 HOURS



Floor belt guide rollers (2 for each belt)





Right and left top, just below the discs.

**> EVERY 200 HOURS**



Tightening device on the spread unit.



Weight cells front and rear.



# MAINTENANCE AND LUBRICATION OF SPREAD UNIT (SPC4500-1)

It is important to keep the spread unit properly maintained/lubricated. There is a general time interval for how often the spread unit should be lubricated. Otherwise, it is important to lubricate the headland gear, etc., especially after washing the spreader and before putting the spreader into storage for winter. Also, it is important to test the headland gear's function when the spreader is attached to the tractor and after a long idle period. Check the tightness of the V-belts at regular intervals. The procedures for inspecting and maintaining the spread unit are shown below.

## > V-BELT TIGHTNESS



A spring to tension the V-belts is attached to the right side of the spread unit. Tension the spring to 93–95 mm when the spread unit is cold. Check the tightness after every 20 hours of operation. Re-tighten if the spring is measures more than 95 mm.

## > HEADLAND GEAR FUNCTION



Check the headland gear by rotating the left disc after switching between field and headland spreading. If the headland gear is activated, the left disc must rotate more slowly than the right disc. If field spreading is active, the discs must rotate at the same speed. After switching, a distinct “clunk” sound will be heard when rotating the disc to indicate that the claw clutch is engaged.

## > LUBRICATION AND ADJUSTMENT OF HEADLAND GEAR

The headland gear's claw clutch is protected by a plastic tube perforated by a 3 mm hole. Lubricate the clutch before the season begins and after every 100 operating hours by spraying a thin oil or rustproofing oil through the hole. Always lubricate if the inside of the spread unit has been washed and before putting the spreader into storage for the winter.

The spring that keeps the headland gear's V-belt tight must be tightened to a length of 43–45 mm when the spread unit is cold. Check the tightness after the first 20 hours of operation and then after every 100 hours of operation. Re-tighten if the spring measures more than 45 mm.



# GEAR FOR FLOOR BELT OPERATION

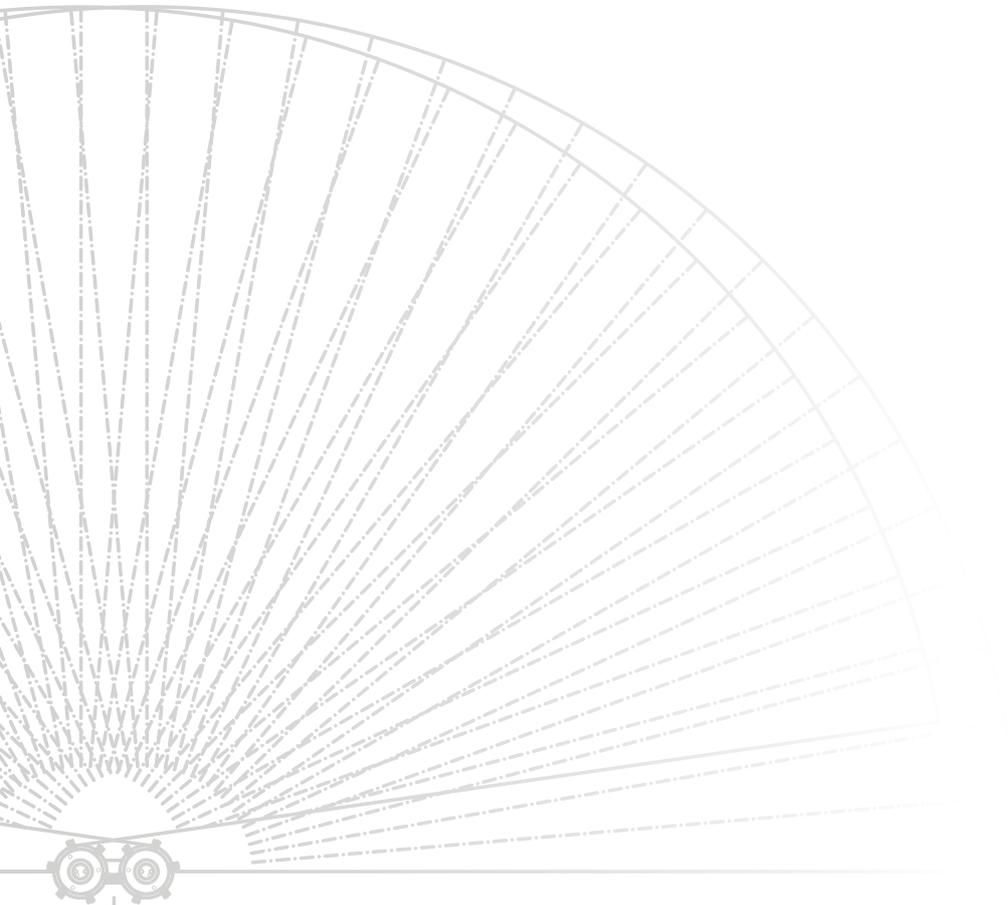


Each floor belt has its own gearbox. These gears are filled with a special type of grease at the factory, and do not need to be refilled or lubricated.



Two valves with a thumb screw for manual operation of the belts are placed under the implement. When there is oil flow from the tractor, each belt can be started by screwing in the thumb screw.

NB: screw out the screws as far as possible for normal operation.



# OTHER MAINTENANCE AND CLEANING

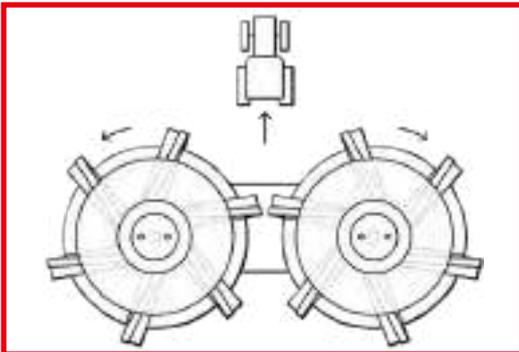
## > OIL FILTER



The spreader's hydraulic system for operating the belts is fitted with an oil filter. The filter's replacement interval largely depends on the operating conditions, and the meticulousness with which the tractor's hydraulic system is kept clean, but it is advisable to replace the filter every two to four years.

The oil filter is placed in under the spreader and it is easiest to access it from the front end of the spreader >

## > SPREADING SYSTEM



Check that the spreading system is clean and in working order every day. Insufficient cleaning or worn-out spreading vanes can result in poor spreading patterns.

Certain types of fertilizer and humid weather can create coatings on downchutes and spreading vanes, so these should be inspected and cleaned regularly during operation.

Replace the spreading vanes if holes are worn into them. **It is very important that the spreading vanes are correctly mounted on the spreading discs, as shown in the drawing.**

## > ACTUATORS



The electrical actuators controlling the downchutes are protected by a stainless steel shield. The shield only protects them against mechanical impacts but does not prevent fertilizer and dust from getting in. Therefore, remove the shield regularly and clean around the actuators. This should always be done before washing or prolonged idle periods. NEVER use water for cleaning if the shield has been removed.

## > WASHING AND STORAGE

Always be careful when washing with a high-pressure washer and never spray directly on bearings, sensors, etc.

Before winter storage, clean the spreader carefully and apply a layer of rust-protective oil to the implement. **Be careful not to apply oil on the rubber belt as this will dissolve the rubber.** It is advisable to first spread a layer of cat litter or sawdust on the belt to absorb excess oil. Remember to remove the material after four or five days once all the oil has been absorbed.

# REPLACING V-BELTS ON SPC4500-1



Completely disassemble the three plastic bearings for the headland gear's shifter shaft.  
If the headland gear is hydraulically shifted, screw off the hydraulic cylinder from the shifter shaft.



The shifter shaft with shifter fork is now clear and can be removed.



Completely unscrew the headland gear's belt tightener with spring.



Disassemble the bottom two and then the upper two V-belts on the headland gear.



Disassemble the spring for the belt tightener.



Take off the belt tightener and remove the belt.



The spread unit is now ready to be fitted with a new belt.



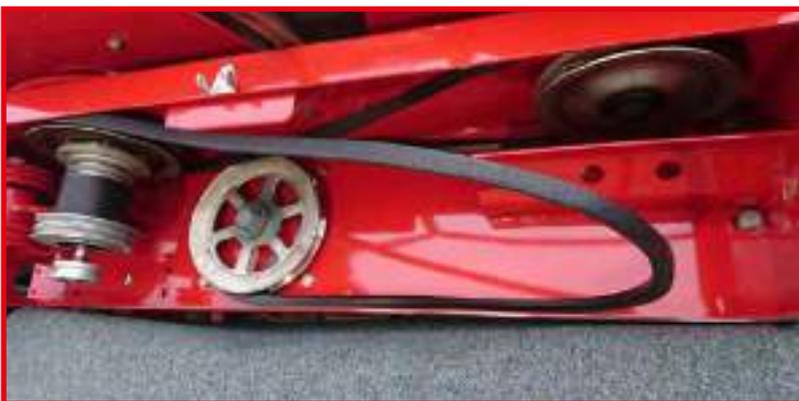
First wind the belt around pulley 1.



Twist the top of the belt on pulley 1 and lead it behind pulley 2.



Twist the belt half a turn.



Wind the belt around the pulley on the headland gear.



Insert the belt tighteners into the loose ends of the belt. Then attach the spring to the belt tightener.



Tighten the spring until it has a length of 91–93 mm.



Attach the upper two V-belts to the headland gear.





Attach the bottom two V-belts to the headland gear.



Use a screw clamp to tighten the belts for the headland gear.



Attach the screw for the belt tightener with a spring and tighten until the spring length is 43–45 mm.



Attach the shifter shaft with shifter fork.



Attach the spring to the spring guide and insert the guide into the hole.

Loosely mount the plastic bearing furthest to the right.



Mount the last two plastic bearings. If necessary, use a crowbar or similar to move the shifter shaft into place.

Tighten all plastic bearings. Make sure the shaft can still freely rotate when tightening, i.e. do not overtighten.



If relevant, complete the process by attaching the hydraulic cylinder for shifting the headland gear.







[ ]

[ ]



# MANUAL

## F4

EN

For more than 50 years, BREDAL has specialized in the development and production of high-quality lime and fertilizer spreaders for agricultural purposes. The company's goal is to build reliable machinery, precise in use, and simple to operate and maintain. In recent years, the product line has also included winter equipment such as sand and salt spreaders.

The company's interests in countries importing BREDAL machinery are represented by local importers who sell BREDAL spreaders and provide technical support and service.

BREDAL is located in Vejle, Denmark, where it has state-of-the-art production facilities with the latest technologies ensuring the production of top-quality machines.

**SIMPLE**  
**PRECISE**  
**RELIABLE**