

Bredal F4 4000



Iconic fertilizer spreader with belts and hydraulic drive

Overview: Bredal's biggest lift-mounted fertilizer spreader still features its iconic belt-based application system dosing, with the crucial hydraulics and electronics systems doing everything else.

By Max Madsen
mam@landbrugsmedierne.dk
 tel. +45 3339 4773

If you are looking for an in-centre fertilizer spreader, Bredal is one of two suppliers of this in Denmark.

In-centre means that the right-hand disc turns clockwise and the left-hand disc turns counter-clockwise. Accordingly, the spreader spreads fertilizer over an area equivalent to twice the working

width being fertilized by both discs. In so doing, it spreads fertilizer over the entire field with quadruple overlap and the spreading pattern is close to the spreader. This minimises the wind's effect on how the

fertilizer is spread. Nor do you need to drive any further forward than the spray track at the end of the field to get complete coverage behind the spreader.

Compared to off-centre

The Bredal F4 4000 is the top of the line among its lift-mounted fertilizer spreaders. It can hold 4,000 litres and spreads up to a width of up to 48 metres. Photo: Max Madsen.



Ups & Downs

Benefits

- In-centre spreading principle = quadruple overlapping.
- Spreading pattern close to the spreader.
- Few edges or protrusions in the hopper.
- Section control in the outer lap.
- Headland spreading on both sides.
- Micro-dosing equipment integrated into the spreader.

Drawbacks

- Downshutes can clog up in wet weather.
- High hydraulic capacity required (130 litres/minute).
- Lot of data entries needed when changing fertilizer.
- The front of the spreader is not shielded from tractor spatter.
- The terminal cannot access the internet.

spreaders, an in-centre spreader may seem restricted in being able to divide the spreading pattern into sections. Nor are in-centre spreaders equipped with the latest methods such as radar surveillance and anemometers to compensate for shifting winds and varying fertilizer grades. Bredal response: their spreaders don't need these features because they are sufficiently precise without them.

Rubber belt forced-application

Another distinguishing feature of the Bredal fertilizer spreaders are the two rubber belts which force-apply the fertilizer from the bottom of the hopper down to the spreading discs via separate downshutes.

Today, the belts are driven by separate, electronically controlled hydraulic motors which adjust the speed according to the current driving speed and the required application rate. Besides the driving-dependent application rate, belt-speed changes enable the use of different application rates on either side of the fertilizer spreader.

When spreading in wedges or driving at half-traction, the spreader automatically adjusts the spreader's downshute positions to narrow the spreading width. This can also be done independently on either or both sides of the spreader.

On the other hand, the two application shutters behind the belts – which restrict the volume of fertilizer that can be fed out of the hopper – do not change position during many spreading tasks. Only if the application rate is changed, such as a 200 kilo decrease/increase, is it necessary to change their opening. This is done with a handle.

Hydraulic drive

Most of those who have driven the older Bredal B2 spreaders probably remember both how the tractor had to run the PTO

at 1000 rpms to attain the correct speed for the spreading discs and that the typical calibration kit made of a brown plastic drainpipe was a permanent fixture whenever the spreader had to change its settings for a new type of fertilizer.

The test-driven F4 offers hydraulically driven discs as an optional accessory this year. Consequently this model will never require running the PTO at 1000 rpms.

On the other hand, the calibration kit is still necessary, at least if you want precise application rates from the outset. To achieve this, it is not always enough to use the fertilizer producer's specified weight per litre as this can fluctuate. And if you let the spreader automatically calculate the application rate, a precise application rate will not be calibrated until 400 kilos of fertilizer have been spread.

Higher price

The hydraulic drive for the spreading discs adds DKK 21,025 to the price and means that spreading disc speed can be separately changed for each side.

This enables headland spreading on both sides whereas belt-driven models can only spread in headlands on the left. At the same time, it is possible to activate the headland spreading feature during operation without having to stop the discs. Also, their speed can be fine-tuned with a touch of the screen during operation. And no more PTO shafts or having to check belt tightness.

Contemporary legend from Denmark

Therefore !

The Danish lift-mounted spreaders from Bredal are almost legendary. A closer look at the latest well-equipped F4 model shows that, basically, only belt application and in-centre spreading have been kept. The rest of the spreader features all the modern technological possibilities that are expected of any modern fertilizer spreader. This includes section control and spreading according to an application map. Headland spreading on both sides of the spreader – if the new hydraulically-driven disc option is chosen – is also possible.

Therefore, Mark decided to take a closer look at the top-of-the-line model from Vejle, Denmark in 2018.

Bredal F4 4000



quick and easy loading from either the tractor's rear fender or a ladder and big platform.

When idling, the discs had to be disengaged before the tractor's infinitely adjustable transmission could drive faster than 15 km/hour.

As the spreading pattern is close to the spreader, it was easy to see how far the grains of fertilizer sprayed during headland spreading. And it is easy to fine-tune the disc speed by pressing an icon. Another fine point is the camera inside the hopper which can show when it is empty. This is relevant, especially if you have to spread lots of wedges which could cause you to run out of fertilizer on one side first.

Micro-dosing equipment

Micro-dosing equipment must be used for spreading less than 40 kilos per hectare. The equipment includes an additional damper that extends down behind the rear doors. Everything is permanently installed and easy to activate. By contrast, the initial setting procedure requires both spreading discs and downshutes to be removed to be able to attach the two collection trays. After this, a feed test is conducted and the results are weighed and entered.

The wide platform on the rear of the spreader provides safe access to the hopper which has very few protrusions where residue can accumulate – even when a 4,000-litre hopper extension is added. The spreader's tapered exterior makes it fairly easy to get in behind the tractor during mounting. On the other hand, the front of the spreader is not shielded against tractor splatter, which befouls the calibration kit and belt openings.

In wet weather, you have to be particularly aware of whether the downshutes are clogging and prevent fertilizer from falling from the belts onto the discs.

Switching fertilizer requires lots of data entries

Focus: Although many values need to be entered before spreading can begin, once the spreader is running it has many benefits.

By Max Madsen
mam@landbrugsmidierne.dk
tel. +45 3339 4773

Lots of factors are involved for setting up the F4 to spread a new type of fertilizer. Because in addition to all the usual data like width, application rate and speed, you also have to enter data like the fertilizer's weight per litre and set a position on the downshutes. Also, the position of the rear doors and disc speed should be specified.

At the end, two final values (downshute setting and disc speed) have to be entered, as they control the headland spreading. Because these figures differ on the left and

right side of the spreader and depend on which of the three types of headland spreading is preferred.

The information is found on spread charts on Bredal's website, but because the spreader cannot save the settings for each type of fertilizer it holds and retrieve them later on, start-up can seem a little difficult. In return, the spreading vanes are permanently attached and never have to be moved.

The actual spreading

Once the spreading begins, the experience dramatically improves. First and foremost,

it is possible to use GPS section control even when driving around on headland, thus avoiding excessive application in field wedges. Besides the graphic depiction of the spreading pattern's 12 sections on the terminal, the display also shows how belt and disc speed are changing all the time. Also, the belts are visible through two openings in the front of the frame.

As the hydraulically operated discs require lots of oil, the spreader is fed simultaneously by two hydraulic outlets. The tractor had a 120-litre pump and had to run at 2,100 rpms to meet the spreader's needs.

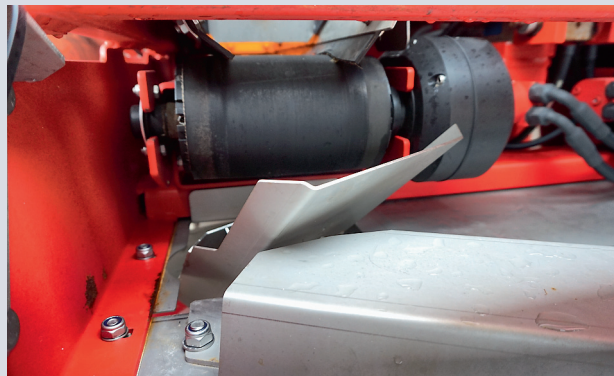
Details



Spreading discs are usually belt-driven, but the latest feature on the list of optional accessories is this hydraulic drive. It can be used for headland spreading on both sides and can be disengaged during operation without having to stop the discs. This avoids having to maintain the PTO shaft and check the belt tightener. It does require the tractor to have a hydraulic pump that can supply at least 120 litres a minute, however. The drive also uses two hydraulic outlets.



This shows belt and disc speeds, etc. A small cut-out view from GPS or a camera is seen at the very bottom. The spreader can also be controlled on a different ISOBUS screen.



Belt application is a distinguishing Bredal feature. It is hydraulically driven and automatically adjusts to the driving speed.

Company comment

Working to lessen data entries

By Jacob Banggaard
Technical Sales, Bredal

A Bredal spreader is simple, precise and reliable. The downshutes have been used on our other spreaders for years. Under normal conditions, the spreader doesn't have clogging problems.

Bredal F4's spreading discs have a big diameter and six spreading vanes. This means a small amount of fertilizer per vane and highly reliable spreading. A Bredal F4 with hydraulic drive can be operated at 110 litres per minute, which most large tractors can supply.

As fertilizer spreaders are spreading a valuable commodity, fertilizer, they must do this precisely. This is why the ISOBUS program is configured so that mark and headland settings can be entered

manually when starting up a task. The settings are easy to download from our website. We are working to further develop the software by pre-installing settings for various types of fertilizer and making it possible to save the most recently used settings for each type. This will mean fewer data entries when switching fertilizer.

We are working on a solution with mudguards in front of the spreader.

The test-driving session involved the use of a user-friendly Müller terminal to handle section control, variable application rates and steering lines for driving on dark soil and grassland. Terminal internet access may come sometime in the future.

Specs



Bredal F44000

Model series: F4 1500, F4 2500, F4 3000, F4 3200 and F4 4000

Max. hopper volume, litres: 4,000

Spreading principle: In-centre

Spreading width, metres: Up to 48

Hopper width, cm: 300

Tare weight, kg: 950

Belt drive: Hydraulic

Max. spreading volume: 500 litres/minute

Disc drive: Hydraulic (optional accessory)

Hydraulics requirement: Two outlets and unobstructed back-flow. Min. 110 litres/minute (for hydraulic disc drive)

Automatic functions: Driving-dependent application, wedge spreading, section control

Number of sections in spread pattern: 12

Operation: Müller terminal or other ISOBUS display

List price, basic model: DKK 158,367. (includes belt drive, red, 1,500 litre mechanical headland-spreading changeover)

List price for test-driven model: DKK 274,300 (includes hydraulic drive, load cells, stainless steel 4,000-litre hopper, Müller terminal, hydraulic tarpaulin, platform and micro-dosing)