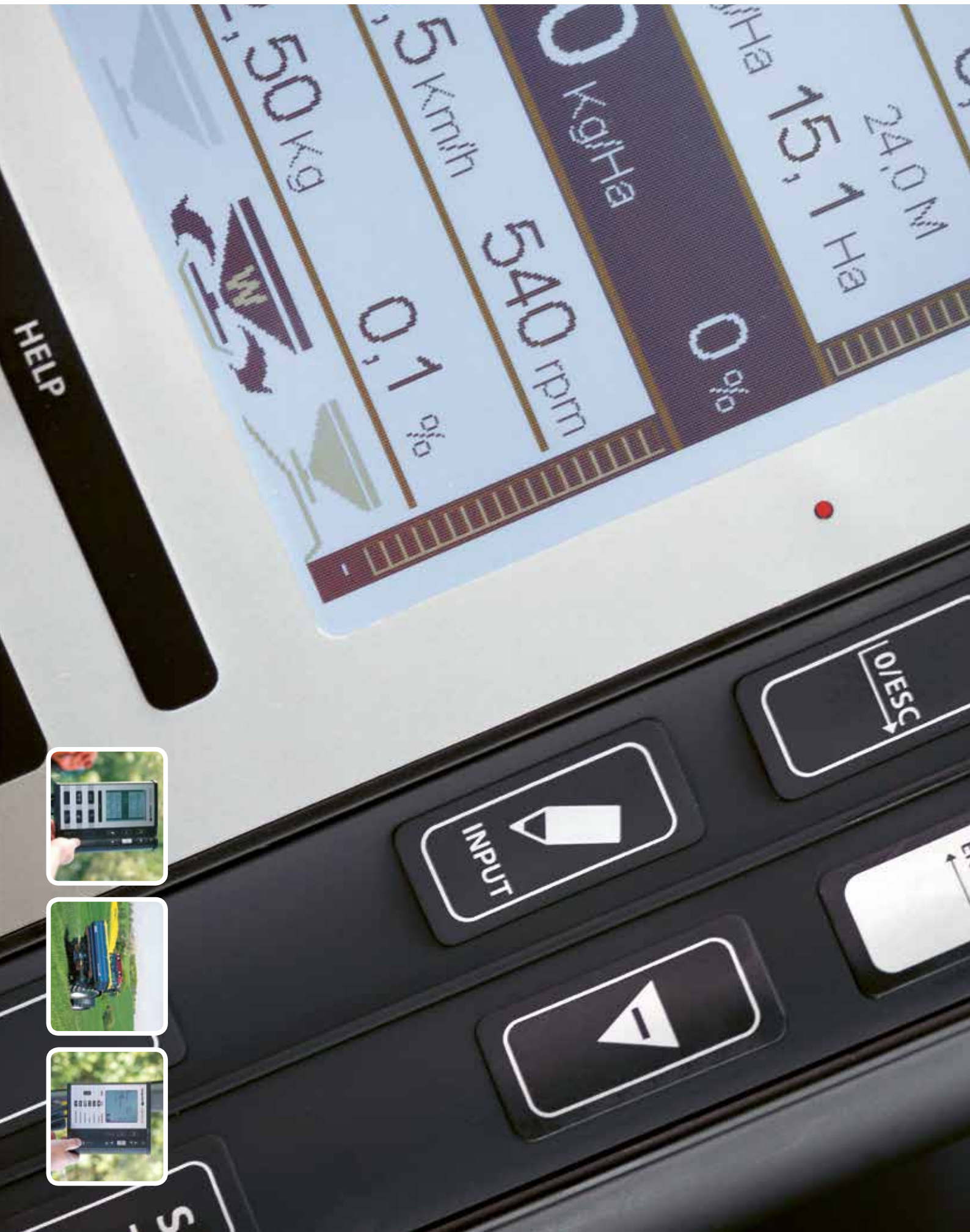
CALIBRATOR

bogballe



CALIBRATOR. Speed Relation and Much More.

Since 1991, the CALIBRATOR has been the solution for intelligent spreading by using a computer to automatically control application rate relative to forward speed. In this way daily spreading capacity is significantly increased because the driving speed can be optimized to field conditions.

BOGBALLE introduced the world's first fertiliser spreader with an integrated weigh cell (W) for automatic calibration operated from the tractor seat. Since 1994, direct linking to GPS systems has also been possible.

Today "W"-spreaders are delivered with our very latest development - Non-Stop Calibration - which means that the spreader is constantly calibrated "on-the-move" without any action being taken by the driver.

Computer control for M-line and L-line is offered in two variants:

CALIBRATOR ZURF - the super intelligent
CALIBRATOR ICON – the intelligent

2: The Factory
3: Test hall – Robot welding – Quality control of CALIBRATOR


CALIBRATOR ZURF
bogballe
6895 m
3889 Kg
16,5 Ha
Area 6
24,0 M
235 Kg/Ha
4,5 Ha
235 Kg/Ha
0 %
15,0 Km/h
0 rpm
23,20 Kg
5,5 %
HELP
O/ESC
ENTER
INPUT
START
DIST

Intelligent or Super Intelligent.

CALIBRATOR ICON is the intelligent solution for controlling M3, M2, L2 and L1 spreaders without the weighing system. Operation is by easy to understand icons. CALIBRATOR ICON contains all necessary functions required for a professional spreading result. Field data for different fields can be downloaded to a PC and imported to Excel. Average rate (Kg/ha), total spread area (ha) and total kg applied for each field is recorded.

CALIBRATOR ZURF which is standard on M3W and M2W, is the super intelligent solution meeting the extraordinary needs. Can also be used with M3, M2, L2. User friendly logical layout and function is supported by a help function and operating instructions in the display. CALIBRATOR ZURF includes the PC programme ZURFcom, which makes it possible to plan jobs and can be used for planning and recording applications during the whole season of growth. Supplied with a USB memory stick, field data can easily be moved between farm PC and the CALIBRATOR ZURF. See more about the special ZURF functions on page 13-21.

4: CALIBRATOR ZURF
5: M3W plus 3300 litres – L1 plus 1150 litres – M2W plus 2550 litres


bogballe
CALIBRATOR ICON
248 M
No. 1
2209 Kg
266 Kg/Ha
8.3 Ha
236 Kg/Ha
5 %
12.3 Km/h
MENU
ICON
FUNCTION
Calibration
Spread Width
KG / HA
Quantity
HA TOTAL
Field Information
Open for Cleaning
Headland Spreading
9994-02 GB
MENU
O/ESC
ENTER
SETUP
START

Common Functions. Clear Advantages.

Both CALIBRATOR types contain a number of useful functions which form the basis for an accurate spreading result.

Speed monitoring is achieved by a speed signal from a standard speed sensor on a wheel hub or a drive shaft, or from the tractor transmission via a 7-pin ISO 11786 plug. Additionally the CALIBRATOR can receive speed signals from radar and various GPS speed sensors.

A test kit for checking the fertiliser specification is supplied as standard. The kit consists of a particle strength tester (F-indicator) and a sieve unit for identifying the particle size range (D-indicator). This key data can then be used for finding a suitable spread chart for any unknown type of fertiliser via www.bogballe.com.

GPS variable rate control can be connected via the RS232 plug. As an option CALIBRATOR can be fitted with external start/stop remote switch which can be mounted with other conveniently positioned operation handles in the cabin.

6: CALIBRATOR ICON
7: RS232 serial plug – Start/stop remote – Tractor plug ISO 11786 for speed

Common Functions. Clear Advantages.

A single 30 second calibration test is carried out before starting spreading. For quick setting, the calibration value can be entered directly from the spread chart. After this the system automatically sets to the correct application rate at the spread width required, independent of the forward speed.

The electric shift system between normal and headland spreading is operated directly from the driver's seat. The headland spreading mode is clearly shown in the display for optimum safety. The remote controlled function is useful while spreading on many small areas where shifting is often required. (To border is standard on "W")

The application rate can be adjusted on-the-move using the +/- keys. In this way it is possible to adjust the fertiliser rate to match the requirements of individual parts of each field.

To match future needs CALIBRATOR can be updated with new software and facilities. The update can be made directly via internet.

8: Quadro calibration
9: Calibration, CALIBRATOR ZURF – Remote controlled headland spreading, CALIBRATOR ZURF - Quantity adjustment


M2W base
bogballe
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CALIBRATOR ZURF. Fully Automatic Calibration.

During any working day a fertiliser spreader can handle large quantities of fertiliser and also therefore a large monetary value. Back in 1988 we pioneered and first launched a spreader which could control and monitor the quantity spread to improve spreading precision and efficiency. Many years experience and ongoing development is the reason why today BOGBALLE are the leaders in this technology.

We now supply the CALIBRATOR ZURF for M2W and M3W spreaders with weighing technique – this is the 6th generation computer based on more than 20 years experience.

CALIBRATOR ZURF and the spreader parallel weighing system constantly carry out intelligent monitoring on the move and automatically adjust the shutters. The intelligent software is working non-stop, calculating the weight signals to monitor hopper contents and fertiliser flow. On the basis of this the spreader is carrying out fully automatic calibration on-the-move.

Possible changes in fertiliser flow are shown directly in the display. These give a high level of accuracy with low risk of error for the driver because it shows the measurable flow rate changes and that the spreader is making corrections while driving.

12: Parallel weight frame
13: Fill in – Load cell – Fully Automatic Calibration switched on and 0,4% change in fertiliser flow

Intelligent Control. Up/Down/Across Slopes Without Problems.

The combination of the parallel weighing system and quick-working software with Intelligent Control means that the system can work unhindered and correct even under hilly conditions. Measuring and registration of the spreader position on the terrain generates high quality and accurate data which is used for total and precise control of the quantity required.

CALIBRATOR ZURF is receiving non-stop large amounts of data from the weighing system and the Intelligent Control is sorting the data received. Data appearing from bumps is sifted out.
All remaining useful information is used for fully automatic operation with high precision.

This system ensures market leading accuracy by constantly updating data on registered measurements of the spreader position and comparing against field conditions and fertiliser flow characteristics. In this way, the required application quantity is precisely maintained irrespective in fertiliser flow or variations in the landscape.

14: M2W working in hilly conditions
15: Spreading in hilly conditions


CALIBRATOR ZURF

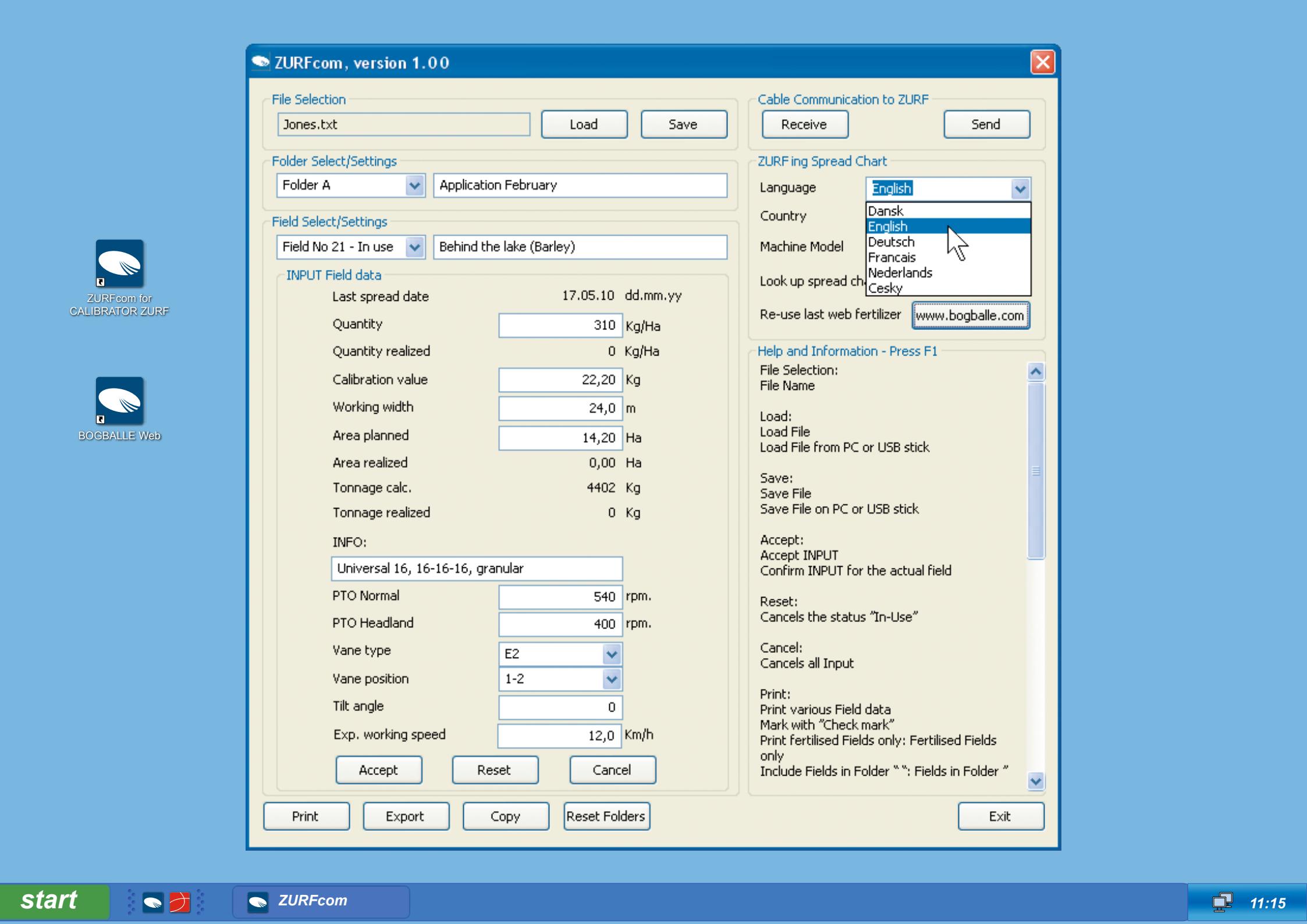
USB Communication. Pocket Data.

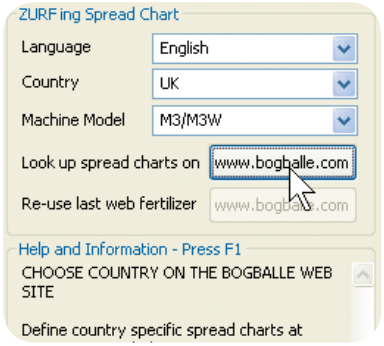
CALIBRATOR ZURF has integrated USB communication which can be used for a number of tasks. It gives access to not only quick and flexible but also “wire-free” transfer of data to and from CALIBRATOR ZURF. Using the USB memory stick, data is easily moved between farm PC and tractor.

The USB communication is used for both the upload and download of field data. It offers the opportunity for keeping 100% track of fertiliser consumption during the whole growth season. The data can be recorded and used for a complete documentation of field work.

Software update in CALIBRATOR ZURF is also updated via the USB stick.

16: USB communication
17: Upload / download of field data – Spreading – Documentation for field work


ZURFcom, version 1.00
File Selection
Jones.txt
Load
Save
Cable Communication to ZURF
Receive
Send
Folder Select/Settings
Folder A
Application February
ZURFing Spread Chart
Language
English
Dansk
English
Deutsch
Francais
Nederlands
Cesky
Country
Machine Model
Look up spread ch
Re-use last web fertilizer
www.bogballe.com
Field Select/Settings
Field No 21 - In use
Behind the lake (Barley)
INPUT Field data
Last spread date
17.05.10 dd.mm.yy
Quantity
310 Kg/Ha
Quantity realized
0 Kg/Ha
Calibration value
22,20 Kg
Working width
24,0 m
Area planned
14,20 Ha
Area realized
0,00 Ha
Tonnage calc.
4402 Kg
Tonnage realized
0 Kg
INFO:
Universal 16, 16-16-16, granular
PTO Normal
540 rpm.
PTO Headland
400 rpm.
Vane type
E2
Vane position
1-2
Tilt angle
0
Exp. working speed
12,0 Km/h
Accept
Reset
Cancel
Help and Information - Press F1
File Selection:
File Name
Load:
Load File
Load File from PC or USB stick
Save:
Save File
Save File on PC or USB stick
Accept:
Accept INPUT
Confirm INPUT for the actual field
Reset:
Cancels the status "In-Use"
Cancel:
Cancels all Input
Print:
Print various Field data
Mark with "Check mark"
Print fertilised Fields only: Fertilised Fields only
Include Fields in Folder " ": Fields in Folder "
Print
Export
Copy
Reset Folders
Exit
ZURFcom for CALIBRATOR ZURF
BOGBALLE Web
start
ZURFcom
11:15



ZURFcom. Field Work Planning.

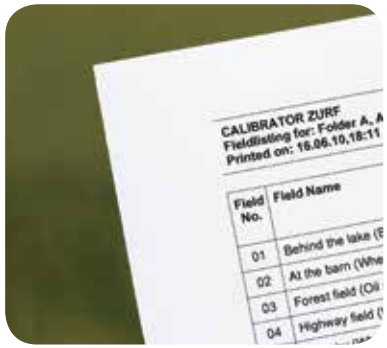
ZURFcom is the programme for planning and documentation of field work on an unlimited number of fields. The programme is available free from www.bogballe.com.

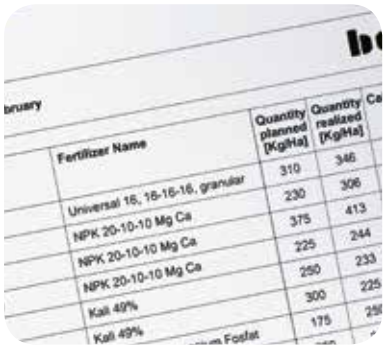
From ZURFcom there is access directly to our online fertiliser database. This makes it possible to download spread charts and import and save the correct settings for the types of fertiliser which are to be spread. Additionally the field name, quantity and area size for each field can be keyed in. In this way an overview of the fertiliser consumption for each field is provided.

The planned data can be directly transferred to CALIBRATOR ZURF via the USB stick.

18: PC planning of field data
19: Download of spread chart via ZURFcom – PC planning – Loading of planned field data in CALIBRATOR ZURF


Dowsby (Wheat)
Dowsby (Wheat)
Coombe Fields (Wheat)
Coombe Fields (Wheat)
Coombe Fields (Potato)
NPK 20-10-10 Mg Ca
NPK 20-10-10 Mg Ca





ZURFcom. Field Work Documentation.

The completed work can be documented by downloading data from CALIBRATOR ZURF to the USB stick. The data records information about fertiliser consumption and area spread.

The data is imported to the ZURFcom programme and from there it is possible to print information from each single field. Complete documentation on all details about spreader settings for each single field can be created by exporting all data from CALIBRATOR ZURF to Excel.

The ZURFcom programme also offers the opportunity for receiving service announcements directly from BOGBALLE about possible software updates.

20: Documentation
21: Print of field data

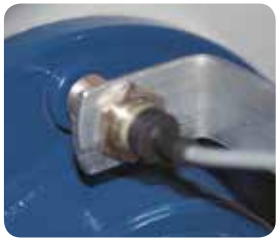

176 mm
CALIBRATOR ZURF
bogballe
3417 m
2665 kg
8,2 Ha
Field B-10
24,0 M
325 Kg/Ha
28,3 Ha
325 Kg/Ha
0 %
12,3 Km/h
540 rpm
22,50 kg
0,0 %
HELP
MENU
0/ESC
ENTER
INPUT
DIST
START / STOP
255 mm
46 mm


176 mm
CALIBRATOR ICON
bogballe
24,0 M
No. 37
9.198 Kg
325 Kg/Ha A
28,3 Ha
325 Kg/Ha
0 %
12,3 Km/h
540 /min.
MENU
ICON
FUNCTION
Calibration
Spread Width
KG / HA
Quantity
Field Information
Open for Cleaning
Headland Spreading
MENU
0/ESC
SETUP
ENTER
START / STOP
199 mm
46 mm

Options. Useful.


Electric shift system headland spreading


ISO 11786 sped plug


Supplementary speed sensor


Impulse sensor ring


Pto sensor


Tank alarm (non „W")


Remote start / stop


Serial update cable


USB / serial converter


USB key, ZURF


Extension cable


GPS speed sensor

Specifications

	CALIBRATOR ZURF	CALIBRATOR ICON
No. of fields which can be recorded	Unlimited	99
No. of information in display	14	8
No. of possible speed input	7	4
%-step setting of variable rate spreading	± 1-25%	± 5%
High/Low Output quantities ± 40%	□	–
Integrated help function	■	–
Fully Automatic Calibration with weighing technique	■	–
Fill in recording (when using big bags/spreaders without weight)	■	–
Alarm when the hopper contains less than 200 kg	■	–
Trip counter for distance	■	–
Illuminated display	■	■
Possibility for GPS (RS 232)	■	■
USB communication	■	–
Possibility for update with new software via internet	■	■
Download of field data to PC	■	■
PTO sensor (rpm shown in display, standard on "W" and electrical headland spreading)	□	□
Electrical remote headland spreading to border (standard on "W")	□	□
Electrical remote headland spreading from border	□	□
Electrical remote headland spreading to and from border	□	–

■ Standard equipment
□ Option
– Not available

All BOGBALLE products are subject to continuous development.

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0405-53-12-10 V4