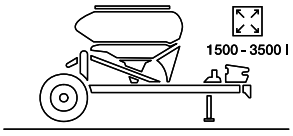


HOPPERS
FOR FERTILIZER

BEDNAR

FERTI-CART FC
FERTI-BOX FB, FB_F, FB_TN

When you want more…

JOY
OF FARMING

FERTI-CART FC

Why FERTI-CART?

FERTI-CART is a pressurised supply tank primarily designed for the application of fertiliser into soil horizons. FERTI-CART is designed to maximally comply with the work and manipulation with solid fertilisers. FERTI-CART is made from plastic and the outlet has a large gradient meaning it is also possible to apply lower quality fertilisers. The main use of the supply tank allows for the connection of other machines for soil cultivation, such as a TERRALAND, TERRASTRIP or FENIX.

“We have spent several years working on increasing the yield potential of the individual crops together with leading farms. The years of experience have repeatedly confirmed that the yield and the quality of final plant products can be increased by supplying the missing elements into soil based on soil analyses. The combination of direct soil nutrition with deep loosening brings excellent results.” Ladislav Bednář

FERTI-CART FC

Why FERTI-CART?

TECHNICAL BENEFITS

- Reduced number of fillings thanks to the large-capacity tank
- Stainless metering device with electric drives enabling changes in the batch size according to the agronomic needs
- The pressurised tank significantly increases the accuracy of the required batch
- Pneumatic material (fertiliser/seeds) delivery from the metering device to soil
- Strain-gauge balance system with a data transfer option
- Metering controlled by the ISOBUS system

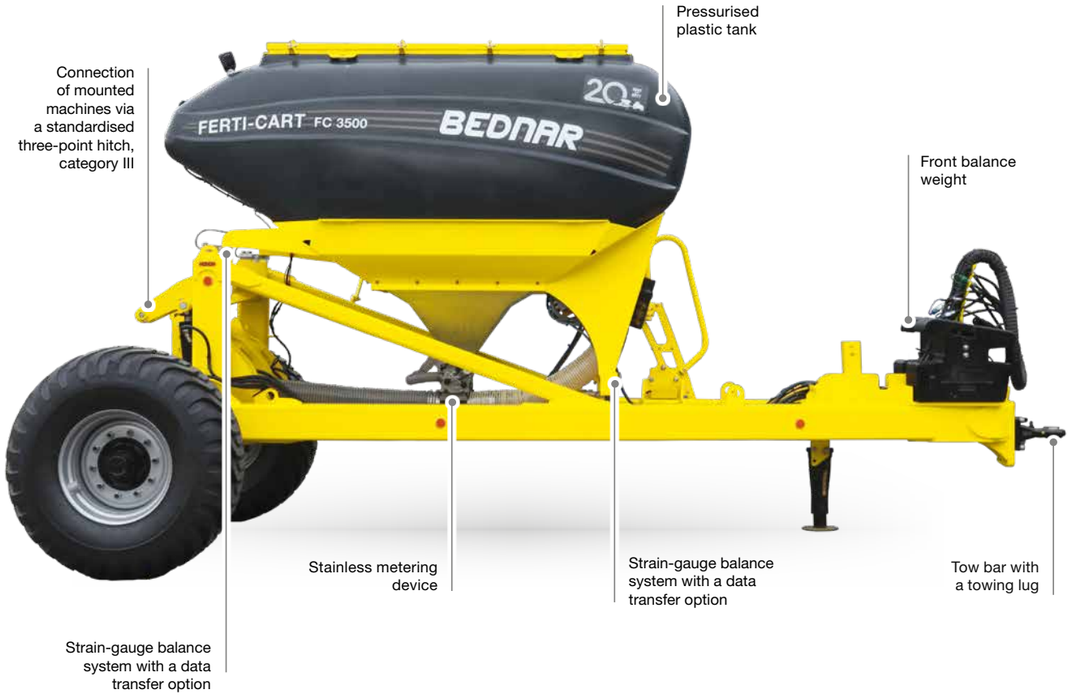
AGRONOMIC BENEFITS

- Increase in soil fertility by supplying the missing elements based on soil analyses
- Application of supply fertiliser into deeper soil profiles. Permanent nutrition during vegetation
- Application of starting fertiliser for starting up fast crop germination
- The possibility to comfortably and promptly select application depth according to agronomic needs
- Making nutrients accessible to root systems verifiably increases crop vitality
- Using tanks for establishing green fertiliser crops


OIL SEED RAPE

Important working parts

FERTI-CART



FERTI-CART

		FC 3500
Capacity	l	3,500
Number of metering devices	pcs	1
Dimension of feed opening	mm	2060 × 675
Filling height	cm	123
Hydraulic oil quantity	l/min	55
Total weight	kg	2,800

* Weight without load. Load of 600 kg or 1200 kg

FERTI-BOX FB_F

Why FERTI-BOX?

FERTI-BOX is a universal pressurised tank primarily designed for the application of fertilisers into soil horizons. The nutrients can be applied for supply; the root system is nourished during vegetation. Thanks to the permanent nutrition, plants significantly increase their overall vitality and better deal with stress effects, such as dry or very wet seasons. The combination of supply soil nutrition and deep loosening verifiably leads to a higher yield in majority crops. FERTI-BOX can also be used to apply starting batches of nutrition into the top soil profiles by connecting the tank to the SWIFTER seedbed cultivator, the short SWIFTERDISC cultivator, or directly during sowing after the coulters of the OMEGA seed drill.

Ferti-Box is also handy for fast and cheap establishment of green fertiliser. By connecting FERTI-BOX with the SWIFTERDISC cultivator, for example, it is possible to quickly establish intercrop vegetation, such as mustard, on the whole area.

FERTI-BOX

Why FERTI-BOX?

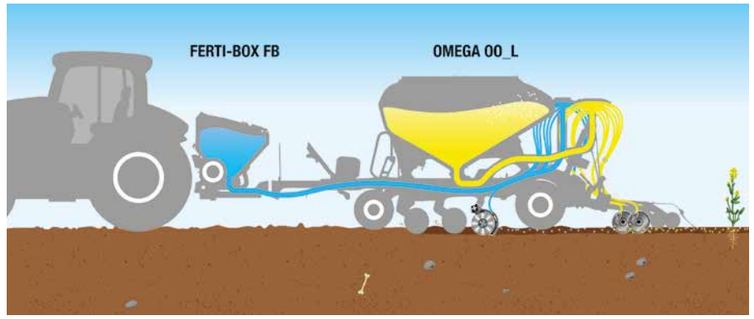
TECHNICAL BENEFITS

- Low number of fillings thanks to the large-capacity tank
- Stainless metering device with electric drives enabling changes in the batch size according to agronomic needs
- The pressurised tank significantly increases the accuracy of the required batch
- Pneumatic material (fertiliser/seeds) delivery from the metering device to soil
- Possibility to apply two types of fertiliser thanks to two metering devices (model FB 3000)
- Metering controlled by the ISOBUS system

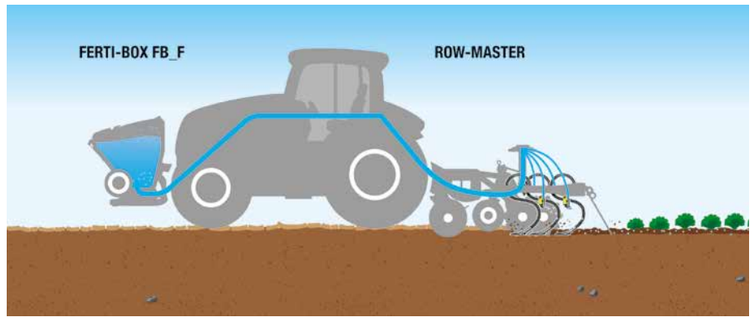
AGRONOMIC BENEFITS

- Increase in soil fertility by supplying the missing elements based on soil analyses
- Application of supply fertiliser into deeper soil profiles. Permanent nutrition during vegetation
- Application of starting fertiliser for starting up fast crop germination
- The possibility to comfortably and promptly select application depth according to agronomic needs
- Making nutrients accessible to root systems verifiably increases crop vitality
- Using the tank for establishing green fertiliser crops

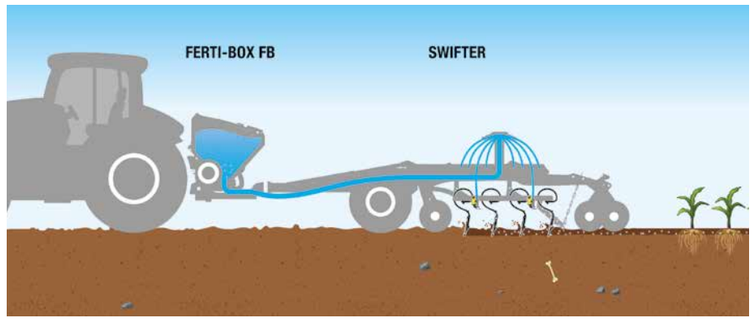
Ferti – Application



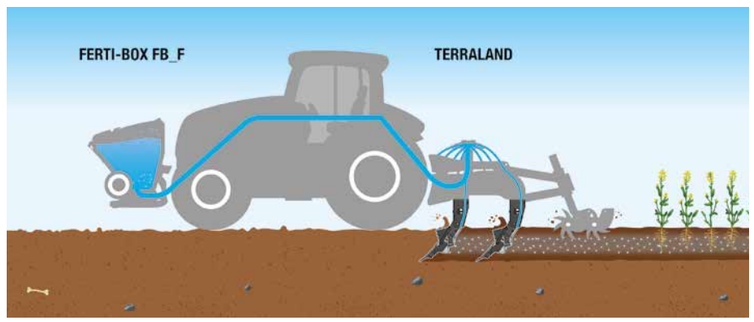
1. Possibility to connect rear or front FERTI-BOX with the OMEGA seed drill



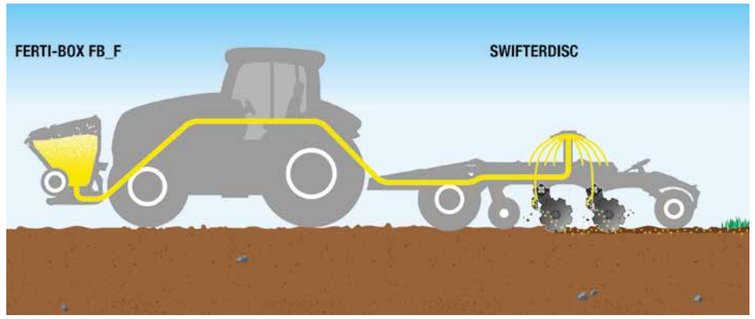
2. Possibility to connect front FERTI-BOX with the ROW-MASTER inter-row cultivators



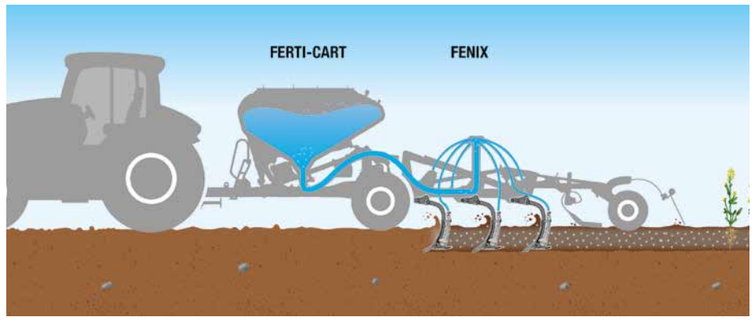
3. Possibility to connect rear FERTI-BOX with the SWIFTER seedbed cultivators



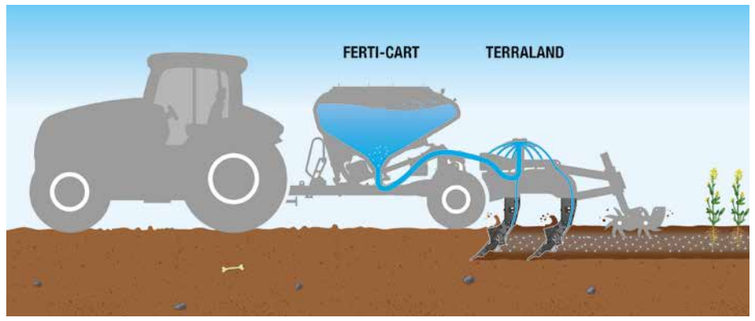
4. Possibility to connect front or rear FERTI-BOX with the TERRALAND or TERRASTRIP chisel cultivators



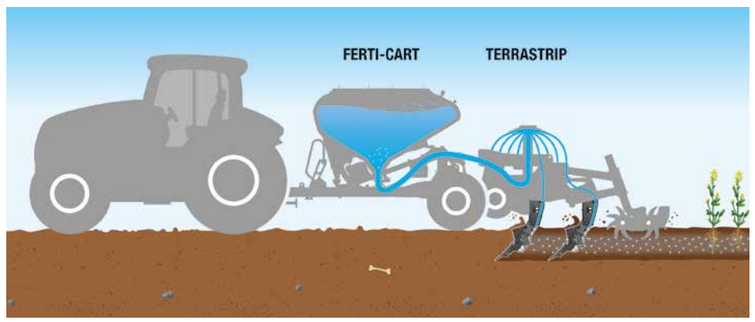
5. Possibility to connect front or rear FERTI-BOX with the SWIFTERDISC cultivators



6. Possibility to connect FERTI-CART with the universal FENIX cultivators



7. Possibility to connect FERTI-CART with the TERRALAND chisel ploughs



8. Possibility to connect FERTI-CART with the TERRASTRIP chisel ploughs

FERTI-BOX – Functional Technology

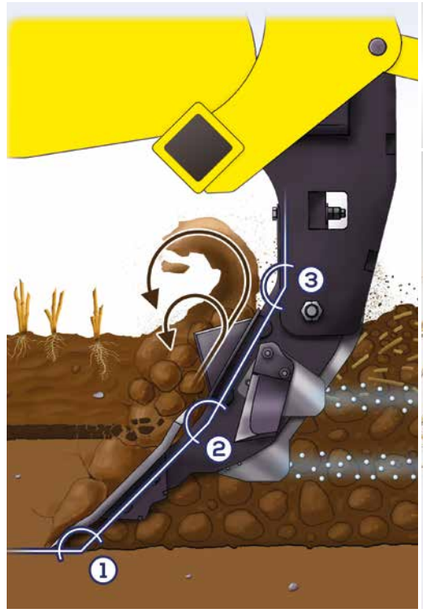
BENEFITS THAT MEAN SAVINGS:

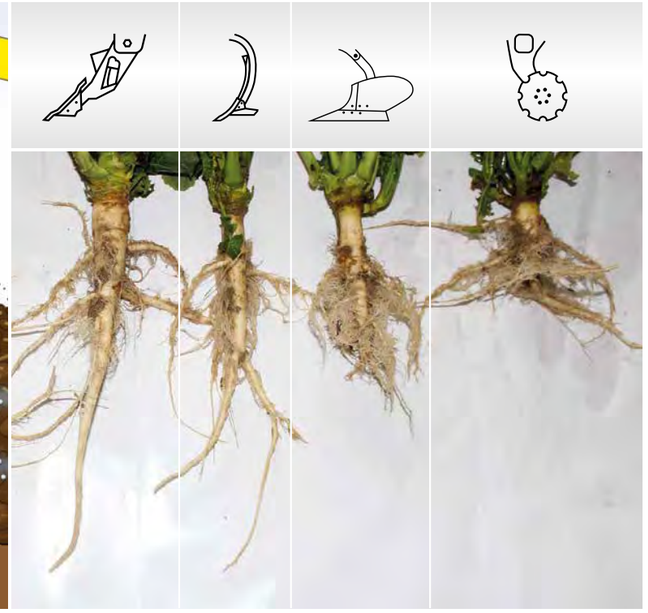
- Combining fertilisation and soil cultivation into a single operation
- Supplementing the deficit of nutrients and their balance in soil
- Improving access of crop roots to nutrients
- Placing nutrients into soil has a positive effect on the architecture of the root system
- Fertilisers applied into soil are better adopted by many crops and thus better utilised
- Fertiliser promotes deep rooting of crops that provides access to moisture, which helps crops survive periods with insufficient precipitation

YOU CAN USE FERTI-BOX FOR:

- Fertilising soil horizons and even deeper layers, i.e. supply fertilisation
- Fertilising the top soil layer, i.e. starting fertilisation
- Establishing green fertiliser crops
- Overall improvement of the soil environment in your fields

And many more applications…





DEEP LOOSENING WITH NUTRIENT APPLICATION INTO THE SOIL PROFILE BRINGS EXCELLENT RESULTS

The TERRALAND chisel ploughs disrupt compacted layers, enrich soil with air and promote the moisture regime. Using FERTI-BOX, fertiliser (N, P, K, Mg, S) applied directly behind the TERRALAND shares at the pre-set depth of the soil profile.

The combination of deep loosening and basic soil fertilisation creates a favourable soil environment for the growth of a corresponding rich root system which can intensely and effectively nourish the aboveground part of the crop.

Compacted and blocked soil is like concrete, i.e. it has zero or reduced ability to absorb water in cases of flash precipitation. On the other hand, it will not let the root system access underground water in the dry season.

Deeply loosened soil without a compacted layer works like a fungus. Such soil is capable of absorbing a large quantity of water. In the dry season, the maize roots can accept underground water.

“Bednar products are suitable for our soil cultivation technology. Our company owns 11,000 hectares within an area of 50 km. For that purpose, we need very good machinery. This year, we are starting with deep fertilisation using a FERTI-BOX FB 3000, TERRALAND TO 6000 and PT 6000.”

Ing. Robert Zhorela,
Chief Mechanisation Engineer

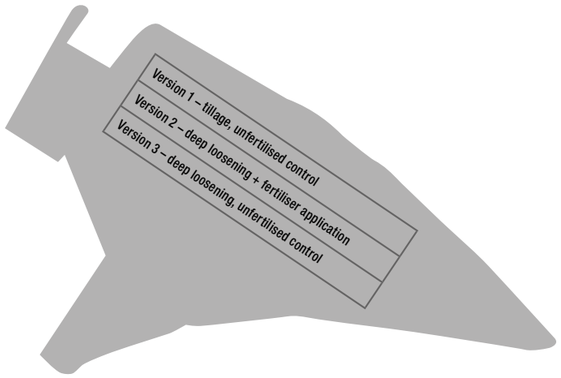
Donau Farm
Kalná nad Hronom (District of Levice)
11,000 ha
FERTI-BOX FB 3000

Ferti-Box – Winter Oil Seed Rape Results

METHODOLOGY

The semi-operating trial of monitoring the effect of different soil cultivation methods on the dynamics of the growth and nutrition of winter oil seed rape was located in the foothills of the Orlické Mountains. The compared methods were: conventional technology of soil cultivation, technology of deep loosening and technology of deep loosening with fertiliser application into the soil profile.

MAP OF THE TRIAL PLOTS



Altitude of 373 metres above sea level
Soil conditions: medium-heavy soils – clay
Average annual precipitation 600–700 mm

AGRICULTURAL TECHNOLOGY

31/7/2014 – harvesting first crop (spring barley)

6/8/2014 – application of digestate (20t/ha)

7/8/2014 – tillage (depth of 25cm)

9/8/2014 – deep loosening (depth of 40 cm) with application of fertiliser 50 kg P_2O_5 + 100 kg K_2P (depth of 25 cm) TERRALAND + FERTI-BOX

9/8/2014 – seeding (seeding amount 2.8 kg/ha)

The crops on the plot processed with a TERRALAND and fertiliser applied into the soil profile with a strong globular root collar reaching to a depth of approx. 30 cm (on the left). The root system of the crops from the plot processed with tillage showed a weaker root collar and the root system architecture was shallow with weaker lateral root hair (on the right). Samples collected on 28/11/2014

After chisel cultivation, more vigorous growth of crops thanks to the increased mobilisation of nutrients and improvement in the moisture systems in the soil. Agro-biological trial check on 28/11/2014

CONCLUSION

Liming and P+K fertilisation increased pH and the content of acceptable P and K in the arable soil. The content of mineral N and water-soluble S was the highest in the plot that was loosened, limed and fertilised with P and K, also, the content of N in the subsoil layer was also the highest.

The nutrition condition of crops N, Ca, Mg and S was the highest **in the plot that was loosened, limed and fertilised with P and K**.

The loosened plot when compared with the tilled plot, regardless of fertilisation, showed higher Mg nutrition and lower S nutrition during entire vegetation.

As for the structure of the crop, the best results were achieved in the loosened, limed and P and K fertilised plot when compared with tillage:

- Seed yield **+ 17 %**
- Straw yield **+ 49 %**
- HTS **+ 2 %**
- Number of seeds from the area **+ 13 %**
- Number of plants **+ 14 %**

Ferti-Box – Maize Results

METHODOLOGY

The increasing number of biogas stations in recent years has brought a high demand for energy maize. The aim of the biogas station operators is thus to grow maize with the highest possible yield of dry matter with a high yield of methane. Therefore, BEDNAR tests fertiliser application technology in cooperation with biogas stations. On the premises of one such station, in an area of Svitavská pahorkatina, a semi-operating trial of monitoring the effect of different soil cultivation methods on the dynamics of the growth and nutrition of maize for silage was performed. The compared methods were: conventional technology of soil cultivation and technology of soil loosening with fertiliser application into the soil profile.

MAP OF THE TRIAL PLOTS

Altitude of 454 metres above sea level
Soil conditions: medium-heavy soils – sandy-loamy
Average annual precipitation 600–700mm

AGRICULTURAL TECHNOLOGY

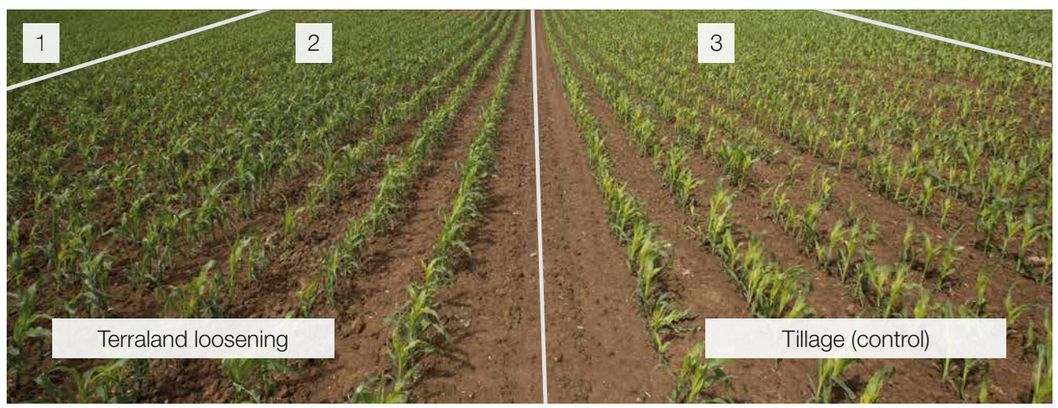
16/8/2014 – stubble cultivation (spring barley)

4/11/2014 – tillage of the control version (depth of 25 cm)

22/4/2015 – deep cultivation (depth of 38 cm) with the application of polidap fertiliser (18-46-5S) 180 kg/ha (depth of 20 cm), TERRALAND + FERTIBOX

23/4/2015 – seeding (seeding amount 95,000 specimen)

The condition of maize growth on the versions and check 45 days after sowing (50 days after TERRALAND loosening) on 8/6/2015



Both plots processed by a TERRALAND chisel plough had crops with a rich root system in a corresponding vertical architecture with rich lateral hair. In Version 1, there was an obvious purposeful growth of roots into deeper layers (on the left)

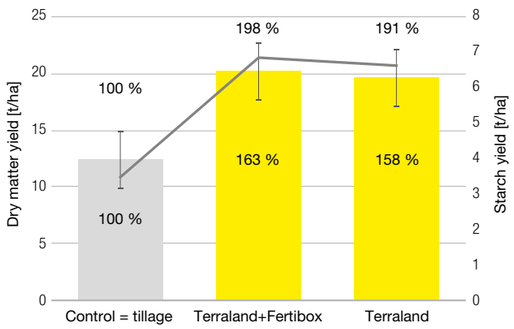
The root system of the crops from the plot processed by standard tillage was shallow with a simple architecture of the root system when compared with the versions processed by a TERRALAND chisel plough.

CONCLUSION

The deep chisel loosening allowed for the application of fertilisers (N–P) that promoted the growth of the maize roots vertically, “in depth”, improved the P nutrition (N slightly) and promoted the use of moisture from deeper layers of the soil profile.

After deep loosening with and without the application of the N-P fertiliser, the dry fodder yield when compared with the tillage control increased by **63 %**, or **58 %**.

After deep loosening at the time of harvest, **the yield of starch was also verifiably higher**, i.e. by **98 %**, or **91 %**.



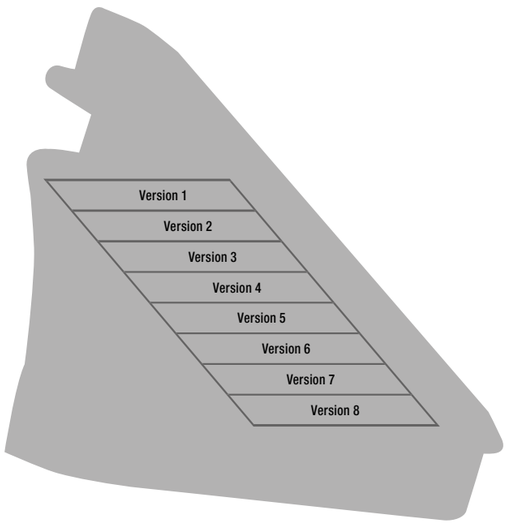
Operating yield of fodder and starch (advanced harvest maturity, content of dry matter 41–44 % and starch 28–34 %, 6/10/2015)

Ferti-Box – Sugar Beet Results

METHODOLOGY

The aim of the semi-operating trial performed on the premises of a prominent Czech sugar beet cultivator – ZS Sloveč, a.s. was to determine an appropriate depth for fertiliser placement when processing soil. The compared versions were: surface placement of fertiliser, fertiliser placement at 10, 20 and 30 cm.

MAP OF THE TRIAL PLOTS



DESCRIPTION OF THE TRAIL PLOTS

1 – deep loosening, unfertilised control
2 – deep loosening + applied fertiliser to a depth of 10cm and 30cm
3 – deep loosening + surface application of fertiliser (Amofos)
4 – deep loosening + applied fertiliser to a depth of 10cm (Amofos)
5 – deep loosening + applied fertiliser to a depth of 20cm (Amofos)
6 – deep loosening + applied fertiliser to a depth of 30cm (Amofos)
7 – deep loosening + applied fertiliser to a depth of 20cm (Lovostart NP 6-28+7S)
8 – deep loosening + applied fertiliser to a depth of 30cm (Lovostart NP 6-28+7S)

Altitude of 238 metres above sea level
Soil conditions: heavy soils
Average annual precipitation 500–600mm

AGRICULTURAL TECHNOLOGY

24/8/2014 – deep loosening TERRALAND + FERTIBOX

29/3/2015 – seeding

12/10/2015 – harvest

CONCLUSION

VERSION	YIELD (h/ha)	SUGAR CONTENT (%)	YIELD CAPACITY (%)
1 – deep loosening, unfertilised control	**82.0**	**19.8**	**17.2**
2 – deep loosening + applied fertiliser to depths of 10 cm and 30 cm	**78.9**	**20.8**	**17.8**
3 – deep loosening + surface application of fertiliser (Amofos)	**89.4**	**19.7**	**16.9**
4 – deep loosening + applied fertiliser to a depth of 10 cm (Amofos)	**92.2**	**19.8**	**17.5**
5 – deep loosening + applied fertiliser to a depth of 20 cm (Amofos)	**93.9**	**20.7**	**18.4**
6 – deep loosening + applied fertiliser to a depth of 30 cm (Amofos)	**87.3**	**19.0**	**16.4**
7 – deep loosening + applied fertiliser to a depth of 20 cm (Lovostart NP 6-28+7S)	**94.7**	**19.9**	**17.2**
8 – deep loosening + applied fertiliser to a depth of 30 cm (Lovostart NP 6-28+7S)	**87.3**	**19.9**	**17.1**

RECOMMENDATION

» Regular fertilisation with phosphorus and kalium, not only under sugar beet, has a positive effect on the yield.
» Incorporation of NP fertiliser to a depth of 20cm increased the yield on the monitored plots and in some cases even the sugar content of the beets.

Note: The field trials were implemented in cooperation with Agroeko Žamberk, s.r.o. and the Faculty of Agrobiology, Food and Natural Resources of the Czech University of Life Sciences in Prague.

Služby pro zemědělství a ekologii
AGROEKO Žamberk
ČZU ČESKÁ ZEMĚDĚLSKÁ UNIVERZITA V PRAZE

Basic descriptions of the machines

FERTI-BOX FB_F

FERTI-BOX FB_F is a mounted, front, single-chamber tank primarily designed for targeted fertilisation directly into the soil profile.
FERTI-BOX FB_F is aggregated with a tractor into the front hydraulics of category II/III. The material (fertiliser/seeds) is delivered pneumatically behind the tractor to another machine (TERRALAND TN, SWIFTER, ROW-MASTER, SWIFTERDISC, OMEGA etc.). The FERTI-BOX FB_F tank is pressurised! This solution increases batch accuracy, particularly of fertilisers that are more demanding on distribution. The benefit of the FERTI-BOX FB_F tank is a very good view of the crop and the road from the tractor cabin.

FERTI-BOX FB_F

		FB 2000 F	FB 2000 F Dual**
Capacity	l	1,900	2,200
Number of metering devices	pcs	1	2
Dimension of feed opening	mm	700×700/700×1600	700×460/700×1260
Filling height	cm	136	136
Hydraulic oil quantity	l/min	55	90
Total weight*	kg	600–1,300	730–1,400

* acc. to the equipment ** chamber ratio 70/30

FERTI-BOX FB

FERTI-BOX FB is a rear double-chamber tank primarily designed for targeted fertilisation directly into the soil profile. FERTI-BOX is aggregated with a tractor into the three-point hitch of category III/IV. The tank is equipped with a separate frame to which one of the soil cultivating machines is connected (TERRALAND TO, TERRALAND DO, FENIX FO). The fertiliser (seeds) is delivered from the tank pneumatically to the application end pieces of the soil cultivating machine. The end pieces can change the application depth according to the agronomic need for the fertiliser placement.

FERTI-BOX FB

		FB 3000
Capacity	l	3,000
Number of metering devices	pcs	2
Dimension of feed opening	mm	900×1040/620×1040
Filling height	cm	82
Hydraulic oil quantity	l/min	55,90
Total weight *	kg	1,090–1,260

* according to optional equipment

Basic descriptions of the machines

FERTI-BOX FB_TN

FERTI-BOX FB 1500 TN is designed for current or future users of the TERRALAND TN chisel ploughs. The tank with a capacity of 1,500 litres is integrated directly onto the frame of the chisel plough. Fertiliser is delivered to the metering device using a hydraulically driven screw conveyor and from there it travels pneumatically to the application end pieces of the chisel plough.

FERTI-BOX FB 1500 TN is pressurised! This solution increases the accuracy of the batch, particularly in fertilisers that are more demanding for distribution. The benefit of a FERTI-BOX FB 1500 TN in combination with a TERRALAND TN chisel plough lies in the possibility of soil profile fertilisation, even for small farmers.

FERTI-BOX FB_TN

		FB 1500 TN
Capacity	l	1,500
Number of metering devices	pcs	1
Dimension of feed opening	mm	480 × 1780
Filling height	cm	107
Hydraulic oil quantity	l/min	24
Total weight *	kg	450

* according to optional equipment

FERTI-BOX – Pressurised Tanks

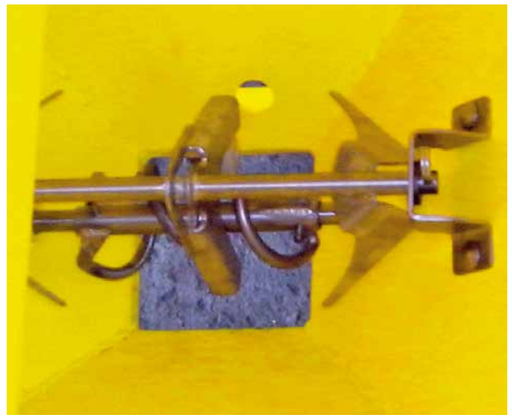
The FERTI-BOX pressurised tanks provide precise batches and the possibility to meter larger quantities

FERTI-BOX tanks are designed to create overpressure inside the tank. This structural design has the following benefits as against non-pressurised tanks:

- Significantly higher accuracy of set batches
- Possibility to apply larger quantities of fertiliser
- Possibility to apply lower quality fertilisers

The created overpressure pushes the fertiliser to the metering device

LOOSENER INSIDE THE TANK



The tanks are equipped with looseners that continuously loosen the fertiliser so that it is well loosened when it gets to the metering device and thus easily transported to the soil profile.

FERTI-BOX FB_TN

Machine control and settings

ISOBUS CONTROL

ME BASIC TERMINAL

- An economical version for controlling seed drills, FERTI-BOX or FERTI-CART.
- Easy and fast installation of the terminal in the tractor cabin.
- The functions are controlled by buttons on both sides of the display.
- The terminal is equipped with a 5.7" coloured display that provides all the information in a well-arranged manner.
- It is equipped with Tractor-ECU, enabling getting data directly from the tractor.
- The Basic Terminal supports several functions for precise agriculture, such as SECTION-CONTROL, TRACK-Leader and other.*
- To make it easier for the operator, the BASIC terminal can be extended with a series of accessories, such as cameras etc.*

ME TOUCH 800 TERMINAL

- A terminal with state-of-the-art touch technology.
- The terminal is equipped with a dual 8" TFT touch display.
- The touch film is placed behind protective glass, which makes this terminal perfect for the rough agricultural environment.
- This alternative allows displaying the “main screen” and the “header screen” at the same time thanks to the high resolution.
- The TOUCH 800 terminal supports the functions of precise farming, such as SECTION-CONTROL, TRACK-Leader, FieldNAv (easy machine navigation in the field)*.
- To make it easier for the operator, the TOUCH 800 terminal can be extended with a series of accessories, such as cameras etc.*

ME TOUCH 1200 TERMINAL

- It can be used edgewise or breadthways as required by the customer.
- A terminal with state-of-the-art touch technology, with a 12.1" display.
- Up to five concurrent applications (no other terminal provides this function).
- The touch film is placed behind protective glass, which makes this terminal perfect for everyday use in the rough agricultural environment.
- It is equipped with Tractor-ECU, enabling getting data directly from the tractor.
- The TOUCH 1200 terminal supports the functions of precise farming, such as SECTION-CONTROL, TRACK-Leader, TRACK-Leader AUTO*.
- To make it easier for the operator, the TOUCH 1200 terminal can be extended with a series of accessories, such as cameras etc.*

* Some functions are available for an additional charge and may require additional accessories. If interested, contact your dealer.

EFFICIENT AND PRECISE METERING DEVICE

The metering device of FERTI-BOX seed drills is made from stainless steel and is driven by an electric motor, equipped with a radar sensor or ISOBUS signal directly from the tractor. The metering system is able to meter fertiliser/seeds with high precision within the range of 0.6 to 350kg/ha. The system is equipped with a discharging closing slide for perfect emptying of the tank.

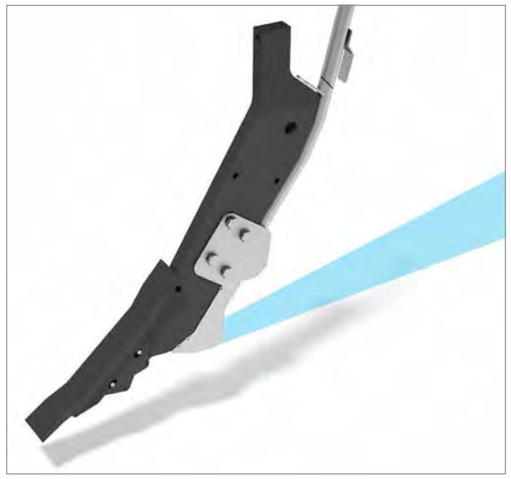
Machine control and settings

FERTI-BOX CALIBRATION

The required depth is set easily and promptly directly under the metering device. The required value is set after a test in the terminal controlling FERTI-BOX.

DISTRIBUTION HEADS

The distribution heads are usually located on the machine from where the fertiliser/seeds get into the soil profile after the working parts of the soil cultivating machine.



TERRALAND DISTRIBUTION END PIECES

The end pieces are adjustable. They can change the depth of fertiliser placement. In case of the double-chamber FERTI-BOX FB 3000 tank, it is possible to place two types of fertiliser at two different depths.

FENIX DISTRIBUTION END PIECES

They are end pieces that are able to fertilise the entire soil profile thanks to the maximum overlapping of the shares. The end pieces are covered with the chisel wings of the FENIX cultivator.

I did maximum for more yield this year

soil cultivation

STRIEGEL-PRO
Harrows

SWIFTERDISC
Disc Cultivators

ATLAS
Disc Cultivators

SWIFTER
Seedbed Cultivators

FENIX
Versatile Cultivators

TERRALAND
Chisel Ploughs

CUTTERPACK
Trailed Packers

PRESSPACK
Trailed Packers

TERRALAND DO
Combined Chisel Plough

seeding and fertilizing

OMEGA
Seed Drills

FERTI-BOX
Hopper for Fertilizer

ALFA DRILL
Seed Hopper

inter-row cultivation
mulching

ROW-MASTER
Inter-row Cultivator

MULCHER
Rotary Cutters

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