

STRIP-TILL SOIL
CULTIVATION

BEDNAR

STRIP-MASTER EN, TERRASTRIP ZN

Protecting soils from water and
wind erosion, increasing yields.



JOY
OF FARMING



STRIP-MASTER EN

Why STRIP-TILL CULTIVATION?



„Changes in agricultural technology and seeding procedures, the pressure from legislative authorities and, above all, the gradual climate change have put new demands on farmers regarding the sustainability of their business. The strip-till cultivation technology is one of the options to maintain sustainability; it is one of the soil-protecting methods. Strip-till cultivation involves a cultivation of strips of land for the establishment of wide-row crops. The inter-rows created between the individual strips have a positive effect on the soil condition. And it is the inter-row that protects soil from water and air erosion. The strip-till technology also brings economical, ecological and agronomic advantages.“

Jan Bednář

BEDNAR offers a comprehensive portfolio of machines for the strip-till cultivation technology. The portfolio includes the STRIP-MASTER EN machines that cultivate soil to a depth of 35 centimetres and the specially designed TERRASTRIP ZN chisel ploughs for strip-till soil cultivation do a depth of 55 centimetres.

All the machines can be combined with the COMBO SYSTEM CS, FERTI-CART FC and FERTI-TANK FT storage tanpcs or the mounted SEED BOX SB and FERTI-BOX FB_F hoppers. That allows you to place selected fertiliser into the soil profile while tilling soil in strips. Moreover, the STRIP-MASTER EN cultivator can also be equipped with a liquid fertiliser application set (slurry, digestate or liquid manure).



TERRASTRIP ZN + FERTI-CART FC

Why STRIP-TILL CULTIVATION?

TECHNICAL ADVANTAGES

STRIP-MASTER EN

- The clever design and the wide range of optional equipment offer an ideal adaptation of the machine to any conditions.
- The hydraulic protection of the cultivation knife increases the durability of the machine and provides for easy operation.
- Each cultivation unit includes a parallelogram that ensures perfect terrain tracing and maintaining the set working depth.
- The offset placement of cultivation units when the machine is equipped with 10/12 units prevents clogging with biomass or soil.
- Liquid manure can be placed at two different depth levels in one pass.

TERRASTRIP ZN

- The robust frame made of high-strength ALFORM steel guarantees high machine durability when working at the maximum depth of 55 cm.
- Tine options: ACTIVE-MIX tines for deep loosening with mixing or ZERO-MIX for subsoiling.
- Fertiliser can be placed into the soil profile in one pass.

AGRONOMIC ADVANTAGES

- Elimination of water and air soil erosion – non-tilled strips with crop residue prevent erosion, soil is not carried away by wind or precipitation when compared with all-area tillage.
- Limitation of the risk of soil moisture evaporation – organic matter and crop residue in the inter-rows create a soil cover that prevents excessive evaporation.
- Direct fertiliser application and plant treatment – attractive fertiliser can be placed precisely where needed, which is most often in the root zone. Moreover, modern sprayers enable strip or point application of chemical substances.
- Reduced fuel consumption – strip-till processing is a reduced soil cultivation when the field is cultivated in strips and crop is established in the prepared strips.
- Ideal conditions for seeds – enough water and air around the planted seeds. The cultivated strips warm up faster and water gets absorbed in to the soil structure better.

Comparison of the traditional and strip-till technologies



TRADITIONAL SOIL CULTIVATION:

- The perfect soil structure creates an ideal bed for the growth and emergence of weeds.
- A field without any crop residue on the top of soil and organic matter is prone to a high risk of soil moisture evaporation.
- All-area soil cultivation creates ideal conditions for water and air erosion (arable topsoil is washed away during persistent rains).
- Higher costs of soil cultivation and crop establishment are caused by a higher number of passes needed to create the proper conditions for seeds.

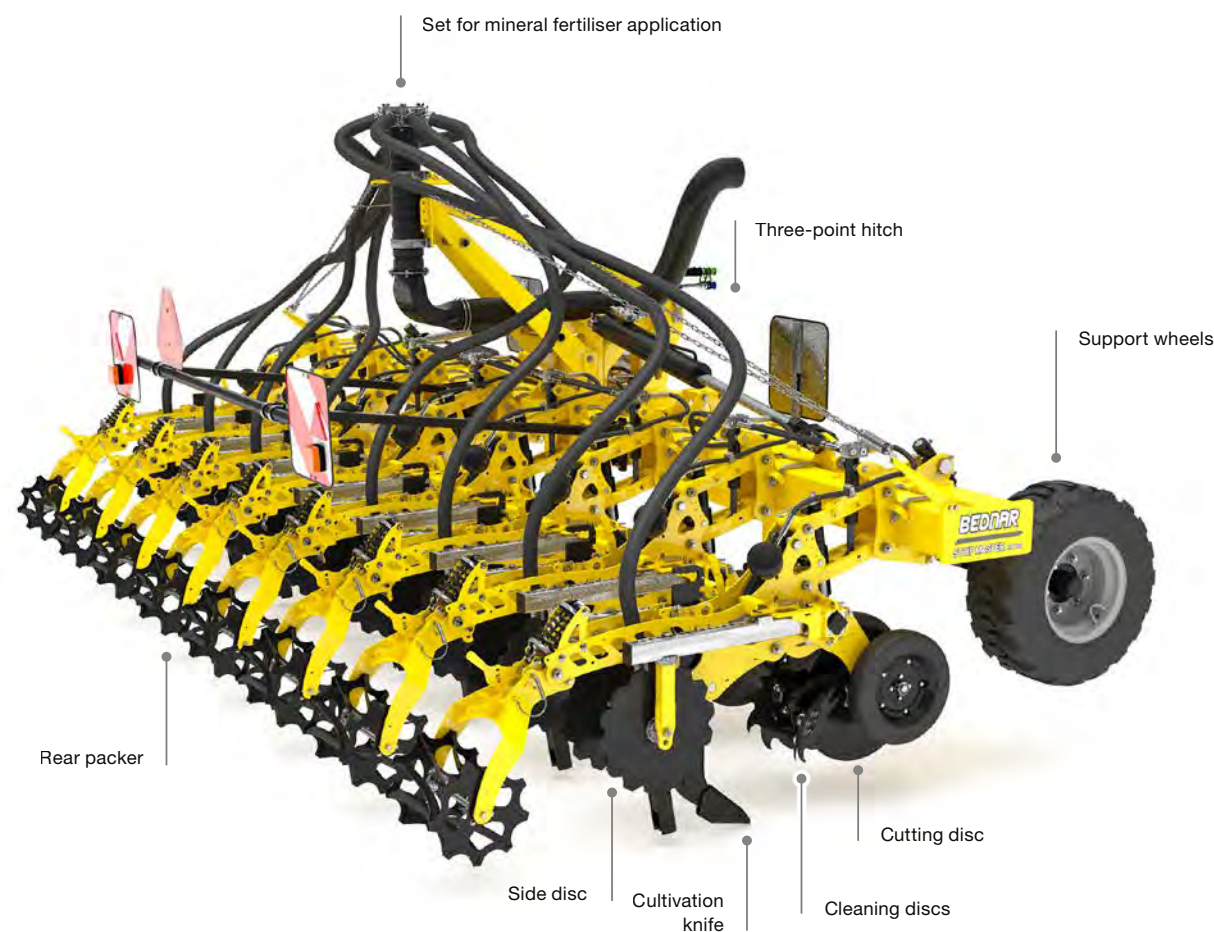


STRIP-TILL SOIL CULTIVATION:

- + Organic matter in the inter-row creates a competitive environment for the weeds that are not able to grow fast.
- + Weed seeds are not brought up to the surface in the strips that are not cultivated.
- + Strip-till soil cultivation considerably reduces the risk of erosion – only 30% of the field is cultivated when the inter-row spacing is 75 cm; the mulch protects soil from erosion.
- + The organic matter in the inter-row helps retain water in the field.
- + Demonstrably lower costs, time saving and fewer passes when compared with conventional soil cultivation technology.



STRIP-MASTER EN



The universal STRIP-MASTER EN cultivator is designed for strip-till soil cultivation up to a depth of 35 centimetres. STRIP-MASTER EN has a universal frame that allows setting the required spacing for the preparation of strips for a specific crop: the inter-row distance of the cultivating units can be set at 45/70/75 and 80 centimetres.

The inter-row cultivator can thus be easily used for strip cultivation for all wide-row crops (corn, soya, sunflower, sugar beet or winter rapeseed). The machine excels in perfect row cultivation and elimination of crop residue from the rows for subsequent seeding.

STRIP-MASTER EN folds into a transport position for travelling on roads without exceeding the permitted transport width.



EASY SETTINGS WITHOUT THE NEED FOR SPECIAL TOOLS

The individual working parts can be adjusted very easily (working depth, width) without the need for any special tools.

The setting is done using pins or by pre-setting the required value on the handle.



HYDRAULIC PROTECTION OF THE CULTIVATION KNIFE

The cultivation knife has a hydraulic protection with a release force of 750 kilograms.

In case of impact with an obstacle, the cultivation knife can deflect by 26 cm upwards to overcome the obstacle without any work restrictions.



STRIP-MASTER

		EN 4500	EN 6000
Working width	m	4.8	6
Transport width	m	3	3
Working depth*	cm	5–35	5–35
Number of shares	pcs	6–10	8–12
Tine spacing	cm	80/75/70/45	80/75/70/45
Frame type		folding	folding
Total weight**	kg	2,450–3,900	3,080–5,260
Recommended output*	HP	180–240/300–400	240–320/360–480

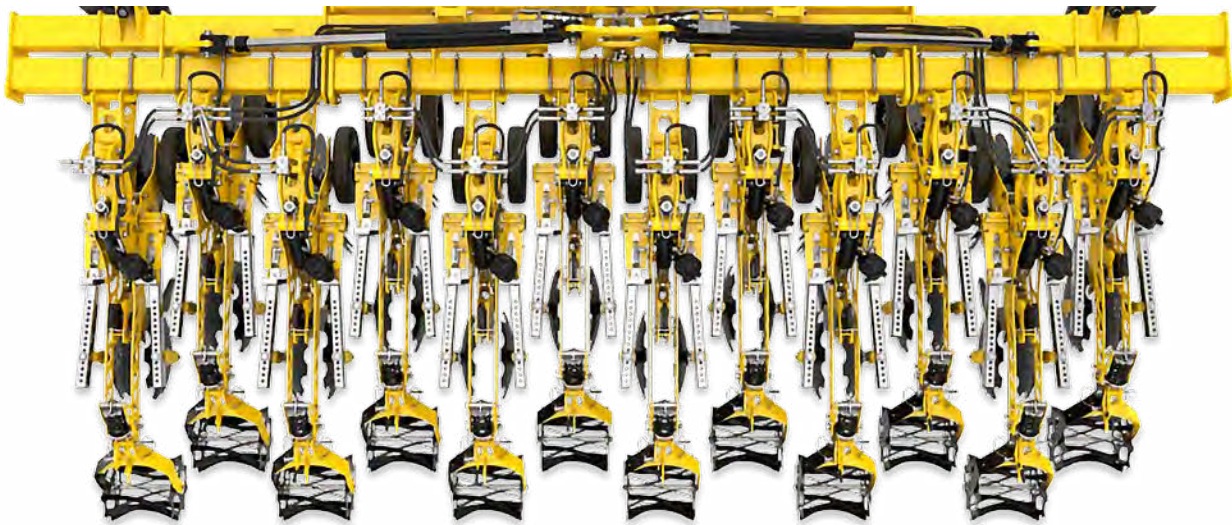
*depends on soil conditions ** depends on the equipment

Main advantages of the STRIP-MASTER EN cultivator

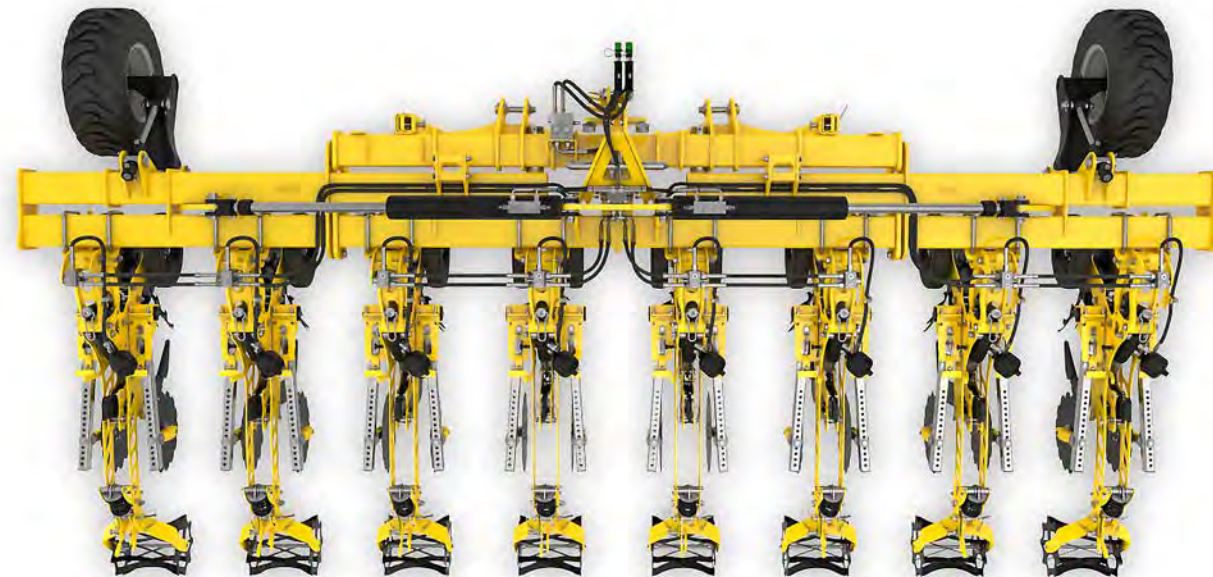
OFFSET LAYOUT OF CULTIVATION UNITS

Material often gets clogged between the individual cultivation units when strip-tilling fields with large quantities of crop residue (catch crop or crop residue) at the inter-row distance of 45/50 centimetres. Based on these findings from the field, we designed a special, offset layout of the units when developing the STRIP-MASTER EN machine.

When the machine is equipped with 12 cultivation units, the individual units are offset to avoid any potential clogging. One unit is mounted on a short arm, the other on a long arm.



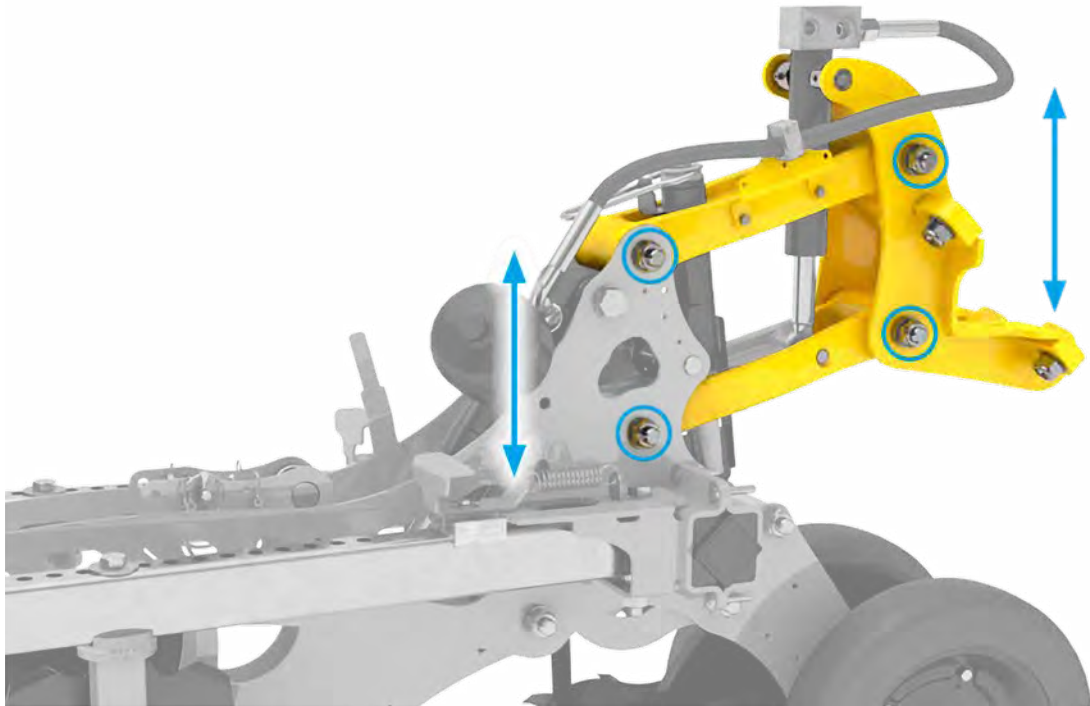
STRIP-MASTER EN with 12 units – inter-row distance of 45 cm



STRIP-MASTER EN with 8 units – inter-row distance of 70/75/80 cm

CULTIVATION UNIT PARALLELOGRAM

In its machines, BEDNAR uses the best-practice design for maintaining the set working depth: a parallelogram. The same applies to the STRIP-MASTER EN cultivator. Each cultivation unit is mounted to the frame with a clip. The cultivation unit includes a parallelogram that ensures perfect terrain tracing and maintaining the set working depth.



FRAME AND CULTIVATION UNIT SUPPORT WHEELS

Each basic version of the strip-till cultivator includes wide tyres of 10/75–15.3 on both sides of the main, load-bearing frame. The tyres guarantee a smooth tracing of the terrain and unevenness.

Moreover, each cultivation unit has its own pair of support wheels that help maintain the set depth. You can rest assured that the field is always cultivated at the required working depth when using STRIP-MASTER EN.



Frame support wheels



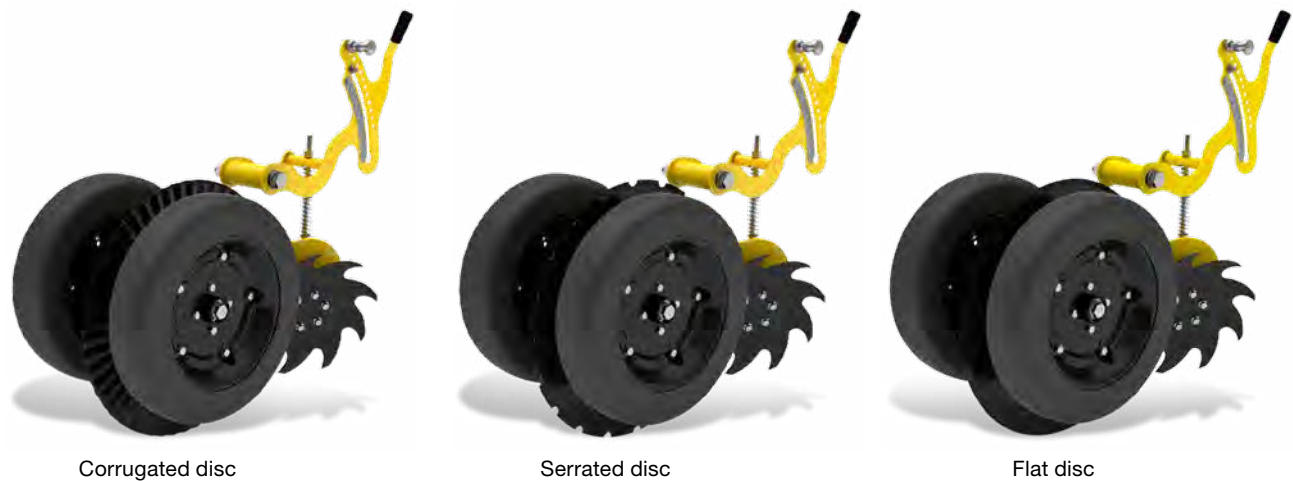
Unit support wheels

Working parts for maximum work quality

Based on the soil type or the anticipated use, the STRIP-MASTER EN cultivator can be equipped with individual working parts (chisels, cutting discs etc.) in various configurations.

CUTTING DISC

The cutting disc disrupts the soil surface in the precise line of the cultivation knife. This guarantees easy penetration of the cultivation knife into the soil. Furthermore, the cutting disc cuts crop residue on the soil surface. The cutting disc is followed with a cleaning disc that removes crop residue and other matter from the cultivated strip to prevent clogging of the seeding unit.



CULTIVATING CHISELS

The cultivating chisel is mounted on a tine protected with carbide plates for higher durability. The cultivating chisel disrupts hardened soil layers and crumbles soil.



LD-PO CHISEL

Suitable for use in light sandy soils.

LD-PO CHISEL LONG LIFE

Suitable for use in light sandy soils. The point is fitted with carbide plates in the abrasion areas, it provides a considerably longer service life and lower wear, especially in abrasive soils.

ST-PO CHISEL

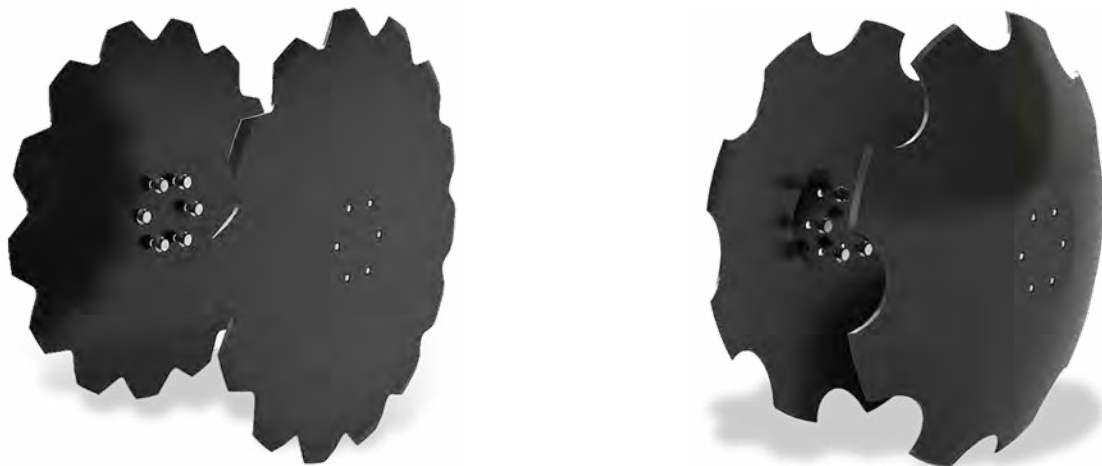
It provides better soil mixing thanks to its widened tip.

ST-PO LONG LIFE CHISEL

The ST-PO LONG LIFE point is used for better soil mixing thanks to the wider area on its end. The point is fitted with carbide plates in abrasion areas, it provides a considerably longer service life and lower wear, especially in abrasive soils.

SIDE DISCS

The side discs are mounted on both sides of the cultivation knife and their job is to keep soil within the cultivated strip.



Flat side discs

Convex side discs

REAR PACKERS

The packers are used for creating a fine seedbed structure. At the same time, they consolidate the soil to avoid evaporation of the soil moisture.



Chain roller (width 200/350 mm)



Ring roller (width 350 mm)



Flat bar roller (width 200/350 mm)



Rubber-tyred roller (width 340 mm)

Do more for less; supply soil with the needed nutrients

The main priorities of contemporary plant production include preventing the loss of moisture and humus in soil, preventing soil erosion and increasing the usability of fertiliser nutrients with a deeper and precise localization in the soil profile. That can be resolved by using new soil cultivation methods focusing on strip-till cultivation of fields for wide-row crops.

This method helps farmers establish crops in an economical way while maximizing the harvest yield potential:

- Direct application of mineral fertiliser / liquid fertiliser (slurry, digestate, liquid manure) into the prepared strip.
- A better use of mineral or organic fertiliser by the root system, cost savings.
- Lower losses of fertiliser and nutrients and faster growth of the root system.

STRIP-MASTER EN can be equipped with the set for the application of liquid or mineral fertiliser on request when in production. The set includes a distribution head with a holder and lines leading from the head to the individual cultivation units.



Application set for granulated fertiliser



Application set for liquid fertiliser

The mineral or liquid fertiliser application depth can be easily set on the application end piece. Mineral fertiliser is placed at the set depth level. In case of liquid fertiliser, the fertiliser is placed at two depth levels.

The STRIP-MASTER EN cultivator can be aggregated with BEDNAR trailed storage tanks and mounted hoppers.



STRIP-MASTER EN + COMBO SYSTEM CS



HOLMER + STRIP-MASTER EN



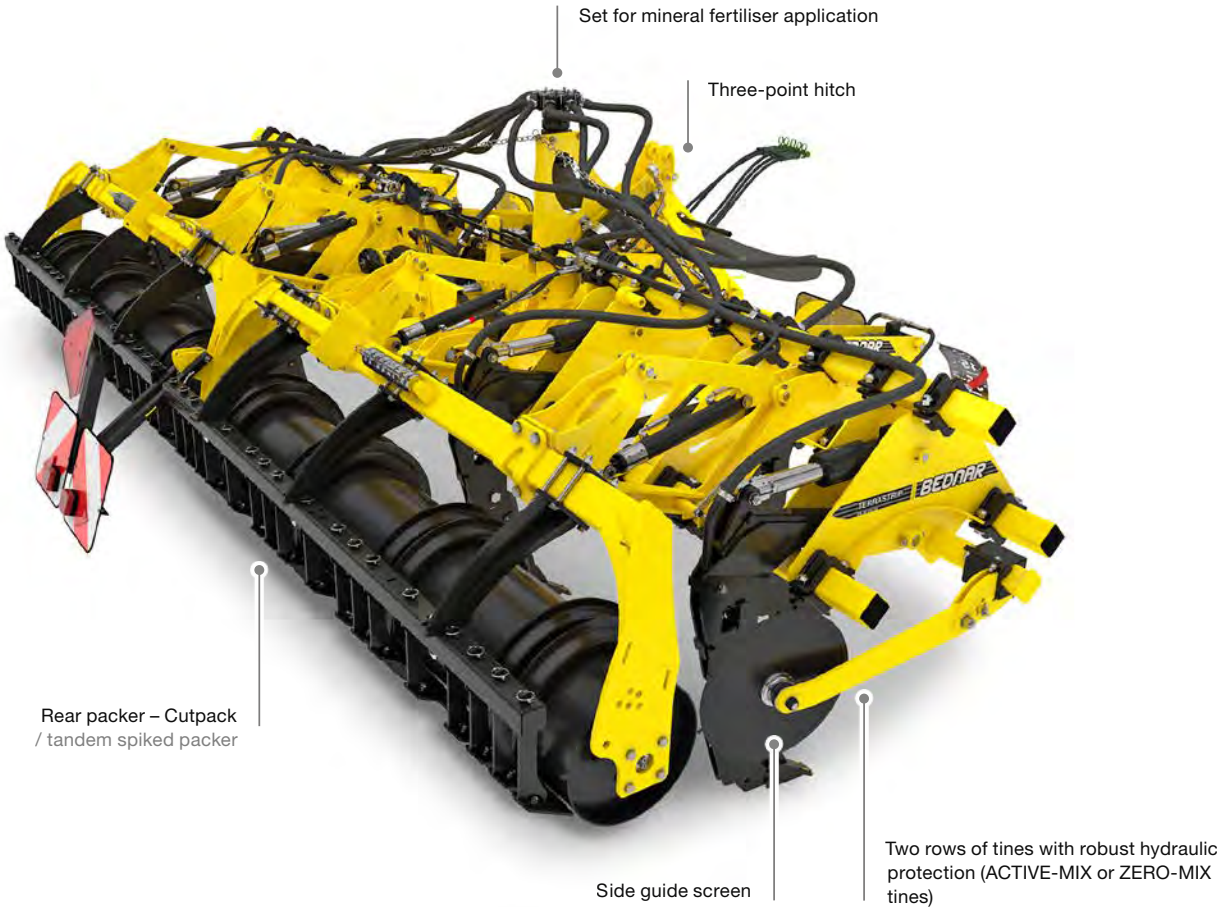
“The loosening of the strip around the seed is an advantage of the strip-till method. The seed has air and water and emergence is faster. Not all of the field is cultivated which saves moisture and as soon as the corn roots have grown, they draw winter moisture from the undisturbed profile. We’ve had the best experience with the strip-till method in spring, before seeding. The best is to do the strip-till cultivation and wait at least a day before establishing the crop.”

Ing. Luděk Novotný, Agronomist

ROSTĚNICE, a. s. | 10,000 ha

STRIP-MASTER EN

TERRASTRIP ZN



TERRASTRIP ZN is a specially designed chisel plough for strip-till soil cultivation, inspired by the TERRALAND chisel plough. The high robustness of the frame made of high-strength ALFORM steel allows strip-till cultivation up to a depth of 55 centimetres.

TERRASTRIP ZN is suitable for wide-row crops with an inter-row spacing of 70–75 centimetres.



TERRASTRIP ZN

ZN 8/70–75		
Working width	m	5.6
Transport width	m	3.0
Working depth	cm	20–55
Number of shares	pcs	8
Tine spacing	cm	70–75
Frame clearance	cm	80
Frame type		folding
Max. total weight	kg	4,290–4,890
Recommended output	HP	300–460

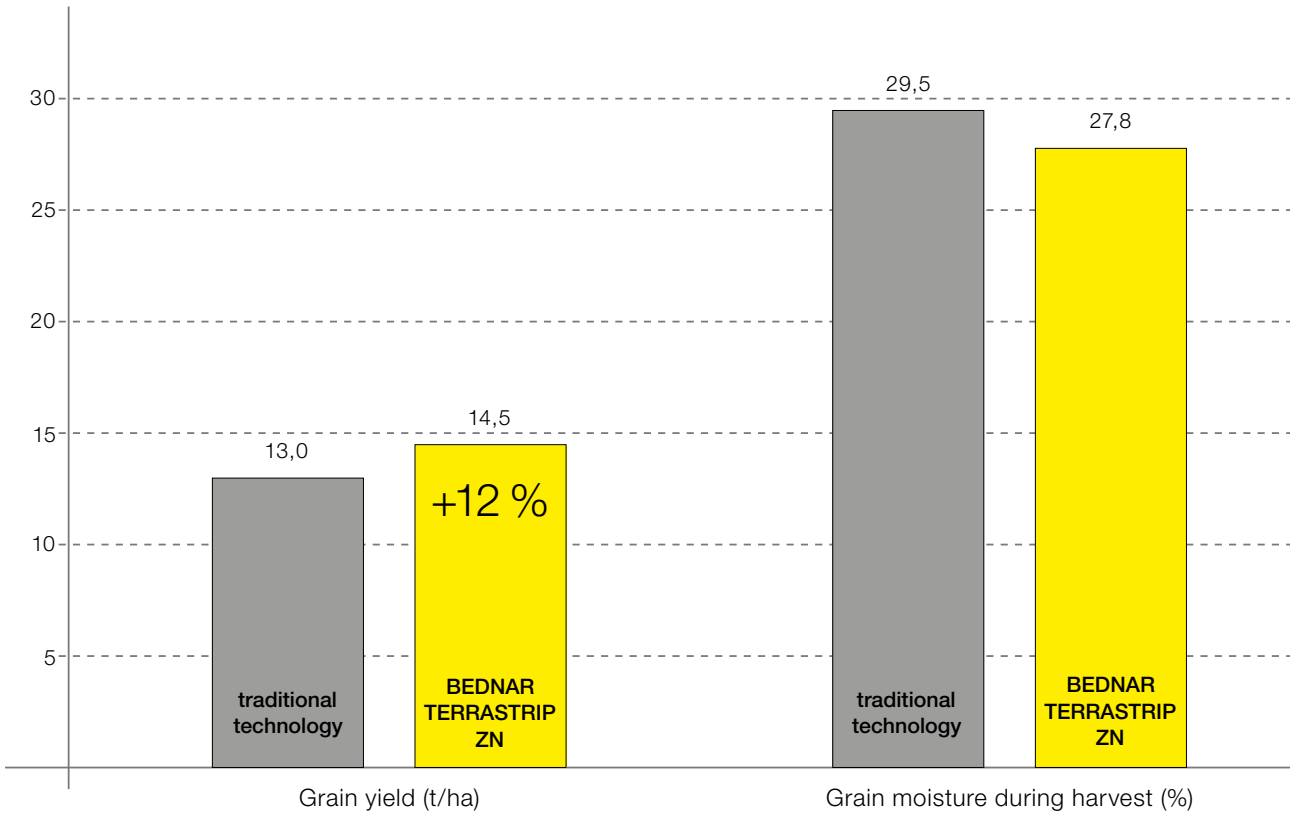
Technology BEDNAR TERRASTRIP

Working parts for maximum quality of work

We have been focusing on the system of deep soil cultivation in combination with profile fertilisation in our development and testing of new technological procedures for growing field crops for many years. This method has shown to help revive soil structure, achieve higher yield and starting the proper functional regime in soil environment.

The operational trials have confirmed that the BEDNAR TERRASTRIP technology brings farmers demonstrably higher yields. As you can see in the graph below, the BEDNAR TERRASTRIP technology achieved a grain yield higher by 12% when compared with the traditional, all-area soil cultivation method.

Comparison of the traditional technology with BEDNAR TERRASTRIP ZN



USE AND FERTILIZATION SYSTEM

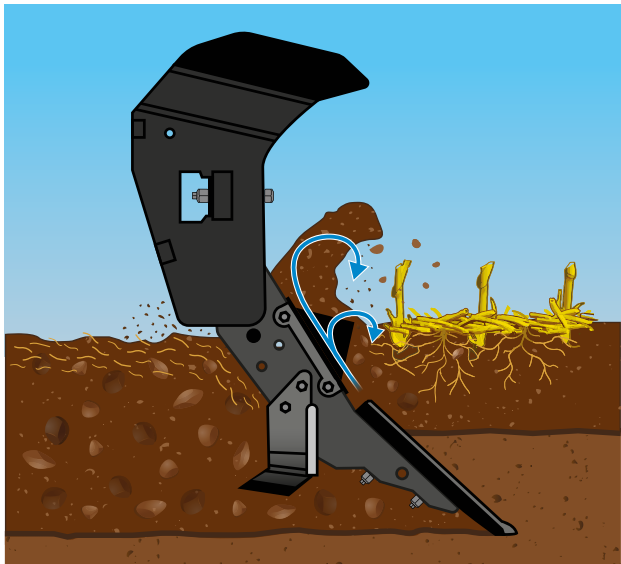
The strip-till cultivation at a depth of 35–40 cm was done with zone-based fertiliser placement at a depth of 20–22 cm using BEDNAR TERRASTRIP ZN. The Amofos fertiliser was placed into soil profile in a batch of 120 kg/ha. The TERRASTRIP technology was compared with the traditional, all-area soil cultivation at a medium depth. The field was cultivated in the autumn by two passes at a depth of 17 and 20 cm.

THE EFFECT ON GRAIN YIELD

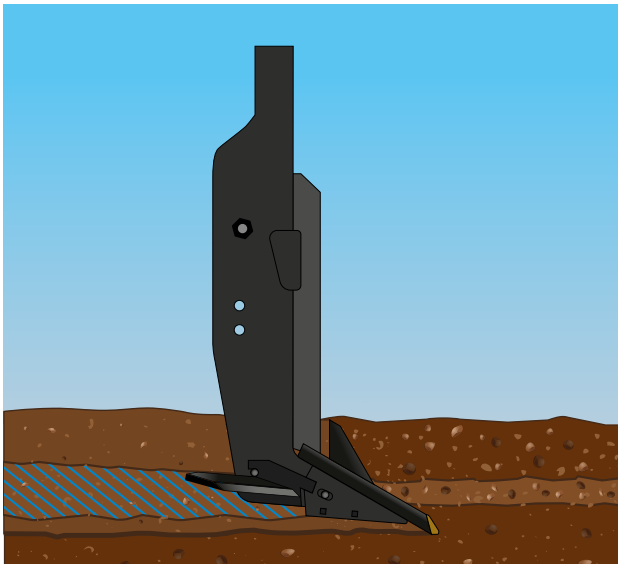
The corn crop established by the BEDNAR TERRASTRIP technology, including the placement of nitrogen-phosphorus fertiliser, produced a grain yield higher by 12 %. The yield increase of dry grain was 1.5 t/ha. Our experience confirmed the positive effect on the increase of yield and nutritional quality of the corn production by 5 % to 20 % in dry areas, or during short dry spells.

TINE SECTION

The TERRASTRIP ZN 8/70–75 model comes standard with ACTIVE-MIX tines and can be optionally equipped with ZERO-MIX tines.



ACTIVE-MIX tines with a chisel



ZERO-MIX tines with a chisel

IN-DEPTH CULTIVATION

Using the ACTIVE-MIX tines:

- Deep cultivation with active mixing of soil with crop residue up to a depth of 55 cm.
- Undercutting the soil profile thanks to the side wings of the tines.
- Mounted 40mm or 70mm chisels onto the ACTIVE-MIX tines for in-depth work.
- ACTIVE-MIX tines can be switched for ZERO-MIX tines.

SUBSOIL TILLAGE

Using the ZERO-MIX tines:

- Undercutting the soil profile without mixing. The tines have a negative angle.
- Disruption of hardened layers.
- Mounted 60mm chisels with flat wings and tips onto the ZERO-MIX tines.
- ZERO-MIX tines can be switched for ACTIVE-MIX tines.



LONG-LIFE chisel 40 mm



Chisel 70 mm



Chisel 60 mm

REAR PACKERS

The packers are used for creating a fine seedbed structure. At the same time, they consolidate the soil to avoid evaporation of the soil moisture.



CUTPACK

- A heavy steel packer consisting of sharp rings with a high cutting effect and excellent consolidation effect.
- The heavy CUTPACK consolidates the top soil layer and protects soil from drying.
- The CUTPACK has a system of scrapers that prevent clogging.

TANDEM SPIKED PACKER

- A double steel roller with a self-cleaning effect and excellent throughput, especially in wet soils.
- Two packers self-clean one another thanks to the spikes.



GRANULATED FERTILISER APPLICATION SET

TERRASTRIP ZN can be equipped with the set for the application of mineral fertiliser on request when in production. The set includes a distribution head with a holder and lines leading from the head to the individual tines.



TERRASTRIP ZN + COMBO SYSTEM CS



“We mostly used to till before. But since we started using the chisel plough for strip-till soil cultivation, BEDNAR TERRASTRIP ZN, the sunflower yield has increased considerably. The numbers may differ slightly but the yield is about half a tonne per hectare higher on average than before. We use TERRASTRIP ZN in combination with the COMBO SYSTEM CS storage tank for concurrent fertiliser application. We did not reduce the fertiliser amount in the first year. However, we can see the effect of its application into the root zone this year. Considering the current increase in the prices, we will reduce the quantity of fertiliser because the capability of its utilization has increased a lot. The strip-till soil cultivation allows for the proper development of the root system and provides enough moisture. Fertilization into the soil profile provides the sunflower with all the required nutrients, namely during the dry summer season.”

Oleksandr Onufryk, Head of Division

ТОВ «Трайгон Фармінг Харків» | Ukraine

I did my best, for maximum yield this year

Soil Cultivation



SWIFTERDISC
Disc Cultivators



ATLAS
Disc Cultivators



FENIX
Versatile Cultivators



VERSATILL
Versatile Cultivators



SWIFTER
Seedbed Cultivators



KATOR
Rotary Harrow



TERRALAND
Chisel Plough



ACTROS
Combined Cultivator



GALAXY
Rollers

Seeding and Fertilising



OMEGA
Seed Drills



MATADOR
Strip-till Seed Drill



DIRECTO
No-till Seed Drill



FERTI-BOX
Hopper for Fertiliser

Inter-row/Line Cultivation Mulching



ROW-MASTER
Inter-row Cultivator



STRIP-MASTER
Line cultivator



STRIEGEL-PRO
Harrows



MULCHER
Rotary Cutters

BEDNAR FMT, s. r. o.
Lohenicka 607
190 17 Praha-Vinor
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