

Soil cultivation

2017



A farmer saw an opportunity

The first product was created on the Stark family farm in the 1960s. That little 30-hectare holding required a better implement, so Rune Stark took matters into his own hands and designed and manufactured a steel harrow. The change of material was unique as previous harrows were made of wood and a new one had to be made every season. The neighbours asked if they could buy the new harrow and so Väderstad AB was born. With curiosity and a constant desire to make machines better and easier to use for farmers, the little company continued to grow into the international concern it is today.



Väderstad introduced its first harrow in 1967. It had a unique design for its time and it became very successful.



In 1976 they pushed the boundaries with SH-2, a 14.8 m wide harrow for very large farms.



The NZ harrow is probably the most successful series of harrows ever made. It is characterised by high capacity, great durability and fewer passes being required than previously.





Easier work and better results

Rune Stark's spirit lives on to the highest degree possible within the company. We continue to be curious and to look for technical solutions that simplify the everyday life of farmers. Our constant ambition is to develop machines that carry out several tasks, at a high work rate, in a single pass. The advantages of this are obvious. Fields are ready for drilling at the right time, giving the best conditions for maximum yield, while there are savings in terms of time, energy and money for the farmer.

We develop cultivation methods and produce seed drills, cultivators, harrows and rollers suitable for different climate zones, from the sands of Australia to the clays of Northern Europe. Different crops put different demands on seed placement and soil cultivation, a dimension that Väderstad machines are designed to cover. Much of the testing work on new machines is carried out in close collaboration with farmers around the world. This type of shared development work is important for us, since the feedback often leads to improvements and new ways of thinking.







A complete soil cultivation range



Carrier pages 32–57



Swift pages 58–67



Cultus pages 68–77



Opus pages 78–86



TopDown pages 88–97



NZ Aggressive pages 98–109



Rollex/Rexius pages 110–121



RexiusTwin pages 122–127



2
Year
Warranty

2-year warranty
on all machines
provides extra
security in invest-
ment.

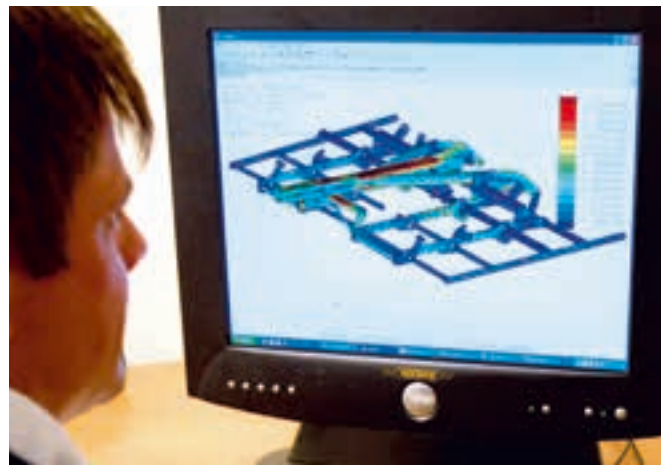


Quality provides security

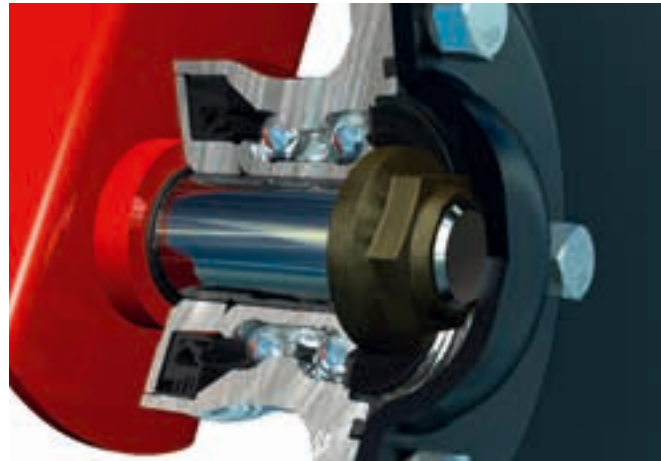
All the components of a Väderstad machine have a function to perform and that is why strength, shape and durability are of the utmost importance, irrespective of whether the component in question is a bolt or a machine frame. Our ambition is to create versatile machines that produce excellent results regardless of which cropping system is used on the farm.

“Make it to last” was an expression coined by Rune Stark. This is something Väderstad keeps in mind through extensive testing operations on machines and components. By conducting repeatable tests under controlled conditions, we can obtain test results in a short time. Tests that would take several years in the field can be simulated in the laboratory, where testing can be carried out round the clock. The finished machines are also driven multiple laps of a gravel pit and stone quarry to test stresses on frames and welds. In that environment, the machines experience more ruthless handling than they will ever encounter again.

This comprehensive testing and the high quality of components lead to long service life and good overall economics. We are so confident of our quality that we provide a two-year warranty on all our machines. This means our customers feel extra secure in their investment.



The main frame is built up around heavy duty square hollow sections made of high-quality Swedish steel. This is incredibly resistant to distortion and gives great stability to the structure. The frames are fully welded to avoid loose bolt connections and wear that can arise when working at high speed.



The discs have permanently lubricated bearings that save time on maintenance. The bearings have a special seal that completely protect them from moisture or pollutants.



Väderstad was the first on the European agricultural machinery market to use rubber suspension, which absorbs shocks. Our experience of the design and function of this type of rubber suspension is unparalleled.



Small details are also very important, for example the ingenious design that allows incredibly stable, gap-free mounting of tines, irrespective of wear.

Why cultivate?

The long-term aim of soil cultivation is to create a topsoil layer that has an optimal distribution of pores and solid material through which the crop roots can grow and obtain moisture and nutrients. To achieve this, it is necessary to thoroughly mix crop residue into the soil, break up any hardened layers and create a seed bed in which crop seeds can germinate.

It is important not to cultivate any deeper than absolutely necessary, since every extra centimetre involves moving more soil (1 cm = 100 m³ soil/ha) and therefore using more diesel. When deeper cultivation is necessary, it is important to reassess your choice of cultivation system and points.

Mix in crop residue

A quick, shallow cultivation immediately after harvesting when there is still moisture in the soil and the temperature is relatively high initiates rapid decomposition of crop residue. Mixing in crop residue is extremely important for speeding up all forms of decomposition and also for restricting the spread of disease in intensive crop rotations.

Improving field hygiene

Creating a false seed bed encourages weeds and volunteer seeds to germinate, which can then be controlled by further cultivation. Reducing the seed bank of volunteers from harvesting restricts opportunities for different pests to survive in the field. Shallow cultivation also restricts the opportunities for slugs to find food and sheltered holes where they can survive and reproduce.

There are increasing problems with herbicide resistance, and cultivation is an effective alternative for eliminating resistant weed species. Improved field hygiene means that the soil is kept in good condition and can continue to generate high yields.

Breaking pans and hardened layers

In cultivation systems that create pans, which restrict root establishment and soil drainage, the soil may need to be broken up so that maximum yield potential is achieved. Deep loosening requires narrower points so that the draught requirement is not unreasonably high. In addition, narrow points do not disturb the soil as much, which means that earthworms are protected.



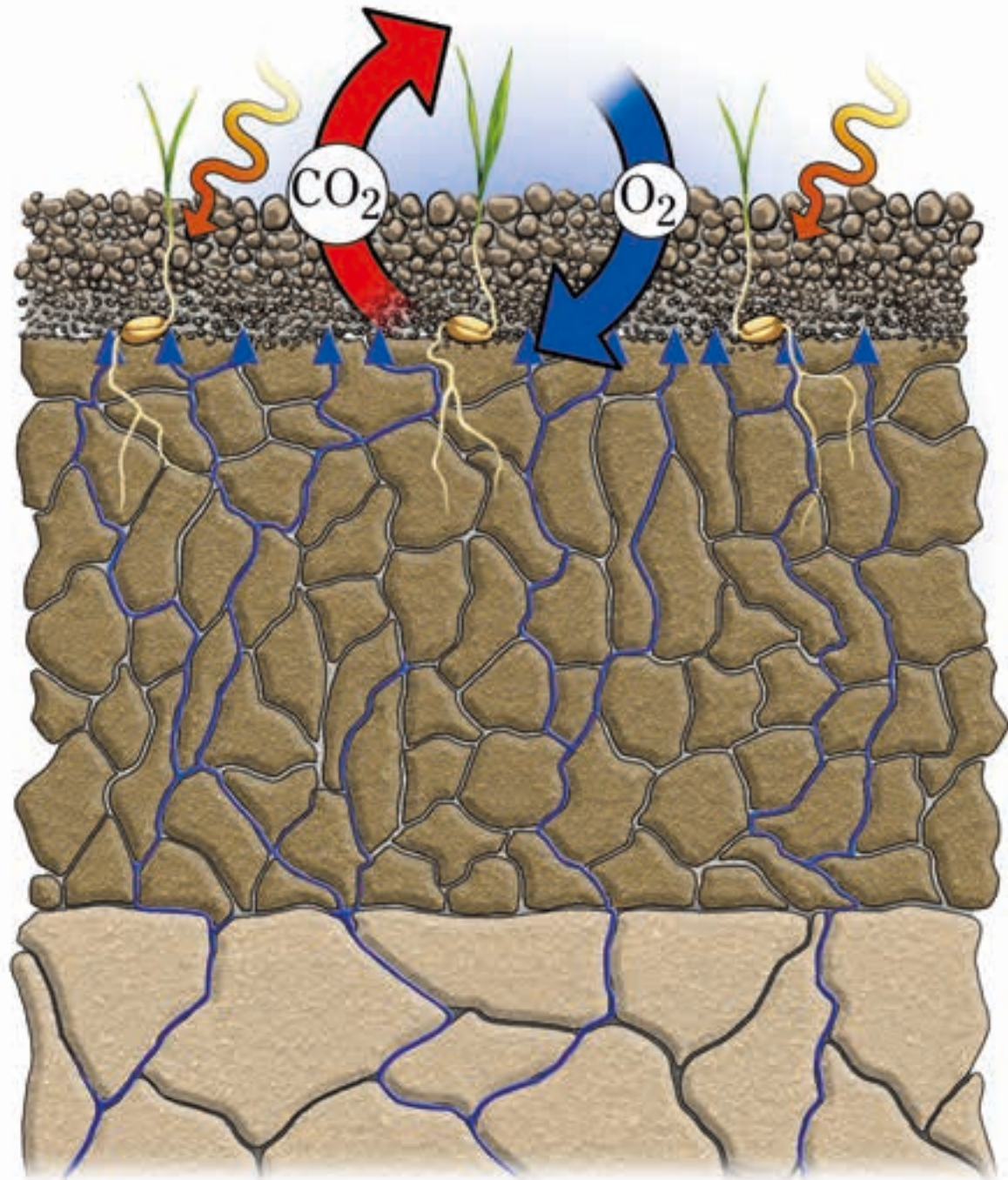
Small clods together with good reconsolidation are important for optimal germinability of volunteers and weeds.

Seed bed preparation

The last step in soil cultivation is to prepare for drilling by creating a seed bed, in other words the layer of soil into which the seed is placed. With lighter soils, there is often no need for specific seed bed preparation except soil reconsolidation before drilling, and the seed drill then places the seed at the intended depth.

In heavy, more clayey soils, seed bed preparation is somewhat more complicated. Here the surface layer is very sensitive to drying and therefore it is necessary to slice the seed down into moist soil to ensure high germination rates. In order to fully benefit from the good depth control of the seed drill, it is extremely important to have a level seed bed. There should be as much fine material as possible around the seed, and the seed itself should be placed at the base of the seed bed so that it has good contact with the soil. However, the uppermost layer can be left with a slightly coarser texture to prevent crusting and erosion.

Seed bed preparation also aims to break capillarity and prevent loss of water by evaporation. The fewer passes required before drilling, the more water remains in the soil profile for the crop.



The seed bed must be sufficiently loosened to allow the soil to warm up, permit gas exchange and provide the seed with access to capillary water.

Choice of cultivation system

There are no definite answers to choice of cultivation system. Most farmers who opt for reduced cultivation use a number of different systems depending on the prevailing conditions on their farm.

However, there are a number of situations in which a certain implement is preferable for achieving the desired cultivation effect.

Discs function best when:

- you want shallow cultivation
- crop residue needs to be sliced up
- you do not want clods that are too big, particularly in dry, heavy soils
- there are a lot of stones – the discs press down stones
- the draught requirement is important
- high cultivation speed is desired

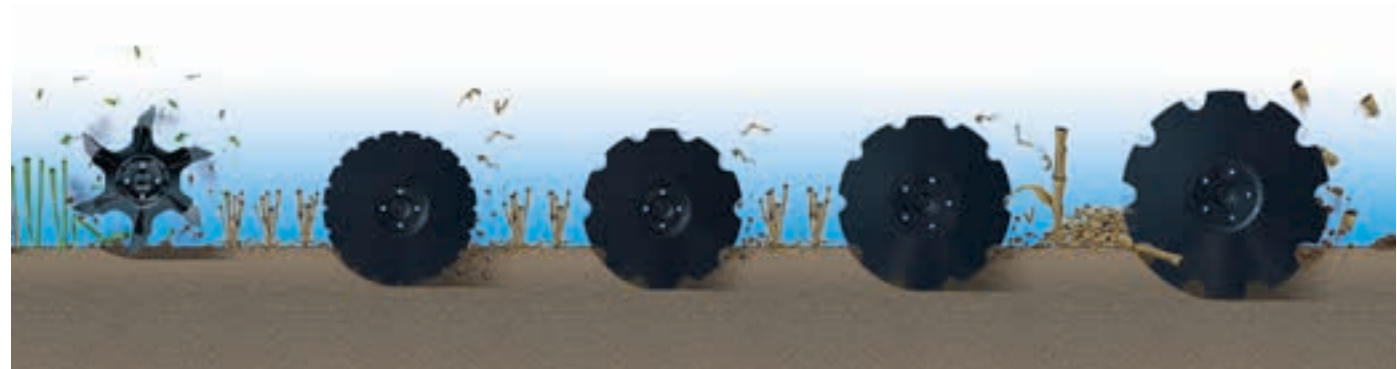
CrossCutter Disc

450 mm disc

470 mm disc

510 mm disc

610 mm disc



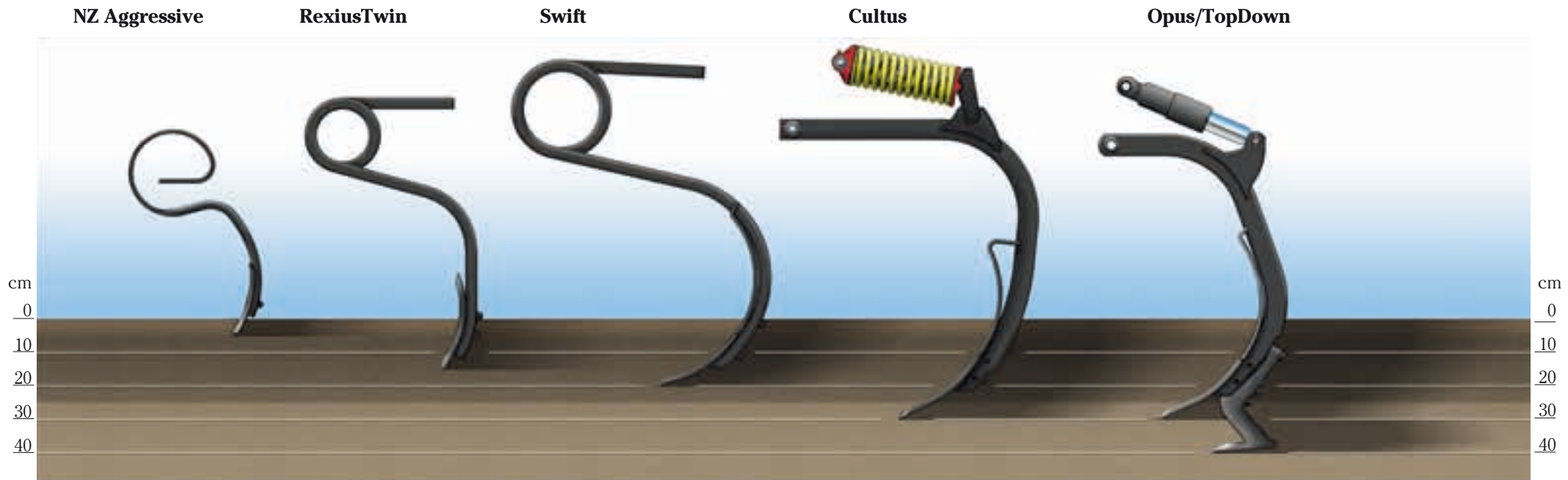
From ultra-shallow to cultivating with dense crop residue

Väderstad has long experience of innovative disc implements and was the first to market this technique with the widespread launch of the Carrier concept in 1999, a machine type that has sold very well all over the world. Today, Väderstad offers a wide range of Carrier tools with disc diameter 450, 470, 510 or 610 mm. A new step in innovation is CrossCutter Knife and CrossCutter Disc, which are intended for intensive cultivation at a depth of 0–3 cm.

Choice of disc type is rather simple, since it is mainly a question of what the previous crop was and how much crop residue is to be incorporated. The cross-running CrossCutter Disc is physically prevented by its large contact area from penetrating too deep and is designed for seeds which germinate at a

shallow depth, rape and weeds for example. The Carrier disc with diameter 450 mm reaches a high rotation speed that helps to mix crop residue efficiently into the soil. A smaller disc diameter also produces smaller clods and a larger fraction of fine soil in aggregated soils than a large disc diameter does. In the event of very large quantities of crop residue, TrueCut discs with the diameter 470, 510 or 610 mm should be used.

The TrueCut discs have larger notches to cope with large quantities of crop residue, while serrations on smaller discs work the soil completely, which is important for encouraging small seeds, such as rape seeds, to germinate.



Tines function best when:

- straw needs to be spread out and mixed in
- deep cultivation is required
- conditions are wet
- there is a risk of creating a pan
- harder layers have to be broken up and the soil lifted
- tracks and irregularities need to be eliminated

Tines for cultivators

Väderstad offers several different tine options. There are tines in which the spring is part of the tine shape. These have the advantage that they vibrate and have a lower draught requirement. The vibrating movement also means that material is broken up and graded effectively. Since this type of tine also has a natural stone release force that is limited by the spring, it is most suitable for slightly shallower cultivation up to a working depth of 20 cm.

For greater working depths, down to 30 cm, there are ridged tines with mechanical stone release in the form of a spring. The spring design makes it very reliable in operation and the release force ensures that the correct working depth is maintained.

For working depths down to 40 cm (Opus and Top-Down), the tines are equipped with hydraulic stone release. The advantage of hydraulic release is that it can be adjusted to suit different conditions and that

even at the highest release pressure it gives a natural dampening effect, therefore protecting the frame. Hydraulic release is also a useful solution since a spring solution with equivalent release force would pose a potential hazard in the event of breakdown.

The mechanical and hydraulic stone release are both mounted horizontally. This increases the ability of the tines to absorb heavy shocks without deforming, a great advantage when working with stony soils. It also has a positive effect on depth control, since the tines spring back more easily when they hit an obstacle.

All cultivators for deeper cultivation work have a relatively low working angle, which gives a better soil-seeking ability and lowers the draught requirement. The flat angle also means that more material is lifted up for mixing and that wear in the vertical plane on the tine points is not as great, so they can maintain the intended depth for longer.

Shallow reduced cultivation

The aim of shallow reduced cultivation is to mix crop residue into the surface layer for fast decomposition and in the same pass control weeds and volunteers. Shallow cultivation provides great time and cost advantages compared with deeper cultivation.

A major advantage of large quantities of organic material in the surface soil layer is the increasing bearing capacity and reduced tracking problems over time. The humus content of the uppermost topsoil also increases over time, as does the number of earthworms, which is important for oxygenation and drainage of the soil profile. A higher proportion of organic material in the soil surface layer also reduces crust formation and erosion problems.

Carrier for ultra-shallow to shallow cultivation

Carrier was designed for rational, cost-effective agriculture. The machine works to a depth of between 3 and 15 cm and was developed to cope with everything from creating a false seed bed and encouraging volunteer seeds to germinate through to slicing and efficiently mixing crop residue and manure into the soil.

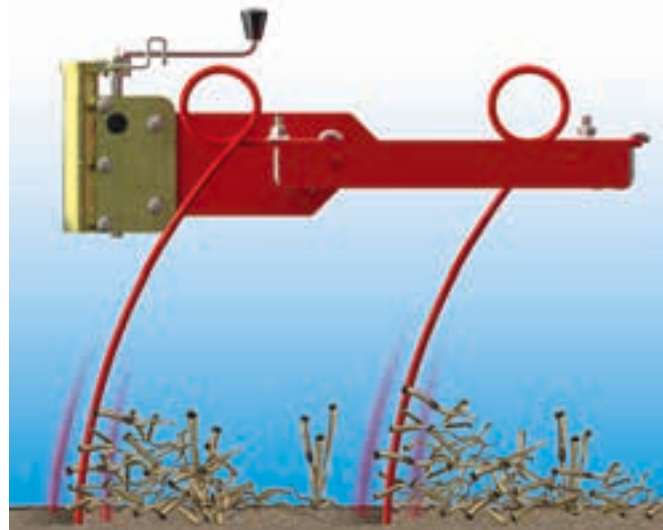
Straw management is of the utmost importance in shallow cultivation. With a straw harrow for Carrier, straw can be spread out evenly before being mixed into the soil.



It is in the upper 5 cm of the topsoil, where oxygen is present, that microorganisms are most active and rapidly break down crop residue.



Earthworms help improve soil structure, increasing the yield potential.



Carrier equipped with a straw harrow efficiently spreads straw across the field before breaking it up and mixing it into the surface soil layer.



Do you have good straw distribution after harvesting? Test this by raking up a 1 m strip across the entire width of the harvester.

Väderstad disc concept

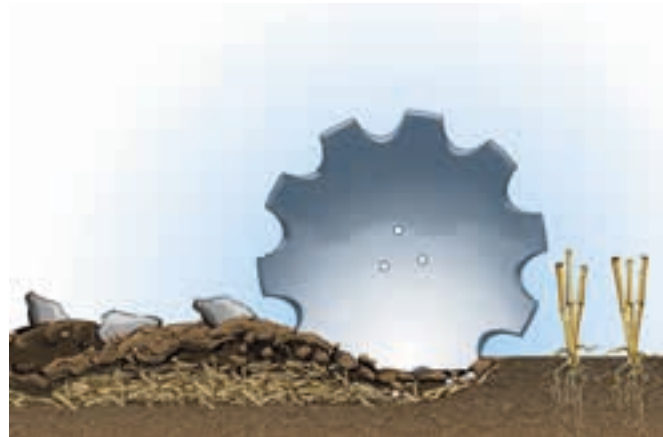
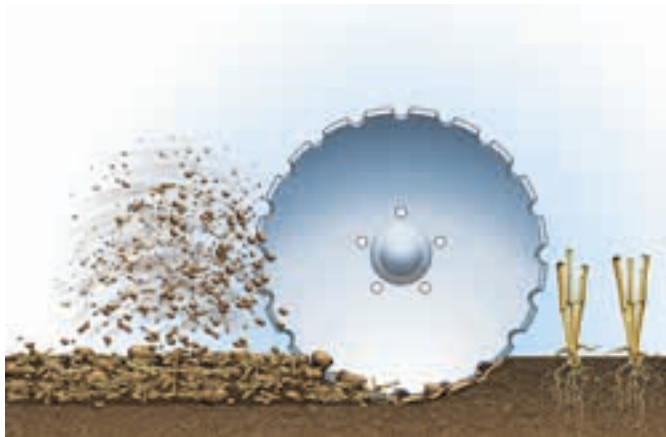
Disc cultivation has several advantages. For example, the draught requirement is relatively low and cultivation can be carried out at speeds of up to 15 km/h, which gives high capacity.

Carrier L (Ø 510 mm) has the same long disc arm as Carrier XL (Ø 610 mm). This increases the spaciousness of the machine and its ability to handle large quantities of crop residue. The Carrier L and XL discs have milled notches, TrueCut, which slice up crop residue more thoroughly whilst maintaining their shape throughout their entire service life. The MultiSet setting of the working angle means that the discs always work in an optimal way, regardless of working depth.

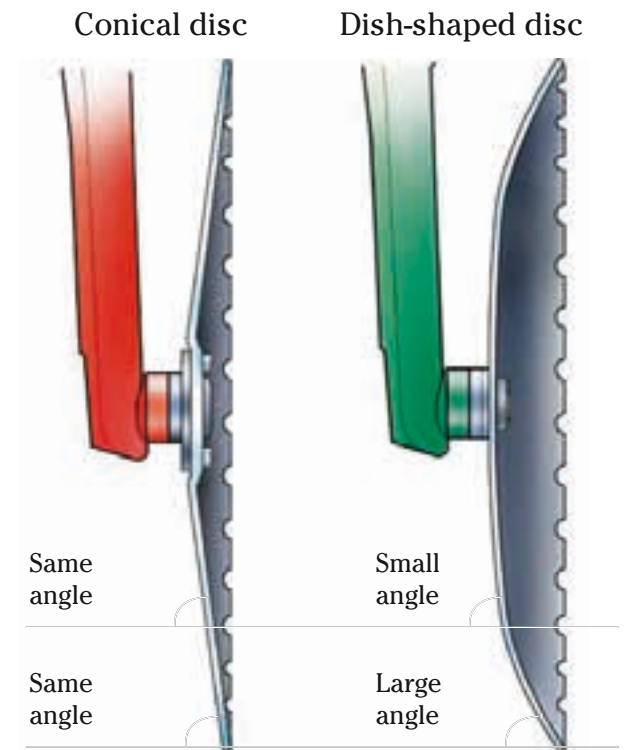
Väderstad works with conical discs. These always maintain the same working angle, irrespective of working depth or degree of wear. Conical discs also press stones down into the soil instead of drawing them up to the surface. Their shape requires slightly greater force to penetrate, but in return they give very good slicing of the soil. This is crucial for creating an effective false seed bed. The material is mixed evenly throughout the entire cultivated horizon. The soil does not turn black because crop residue is left at a shallow depth, which speeds up decomposition and protects the soil from erosion. This is better than a dish-shaped disc, which instead turns the soil over and pushes crop residue deeper.

Maintenance-free bearings save time

Bearings are always a sensitive point on any machine, particularly where a long service life is required in an extremely aggressive environment. Väderstad has positioned all bearings where they are best protected, on the rear side of the discs. This positioning also means that large quantities of crop residue can be handled without the risk of it becoming caught between disc arm and disc. All bearings are tested in extreme conditions in Väderstad's own laboratory to ensure that customers are provided with maintenance-free bearings with a very long service life.



The conical disc breaks soil loose and crumbles it better than a dish-shaped disc. It also presses stones down much more effectively.



A conical disc maintains the same working angle irrespective of wear and working depth.

Individual suspension increases precision

All discs have individual rubber suspension. When a disc hits a stone, only that disc is lifted. This gives the machine excellent depth control. The individual suspension is also important during primary cultivation with dense intercrops or a lot of weeds, since it ensures very good throughflow. Very good side stability is achieved by virtue of the suspension design. This is very important for ensuring an even cut-out of the soil surface.

Choice of disc type is rather simple, since it is mainly a question of what the previous crop was and how much crop residue is to be incorporated. In the event of very large quantities of crop residue, TrueCut discs with the diameter 470, 510 or 610 mm should be used.

If conditions permit, the 450 mm disc is preferable, since its smaller diameter gives better penetration. The higher rotational speed also means that optimum speed is reached quickly. This helps mix the material more efficiently and creates smaller clods. An advantage of the larger discs, in addition to their ability to handle large quantities of crop residue, is their longer service life, as there is more steel to wear through.



The discs are individually fitted to maintenance-free rubber suspension. This improves precision in the vertical and horizontal directions and gives good throughflow.

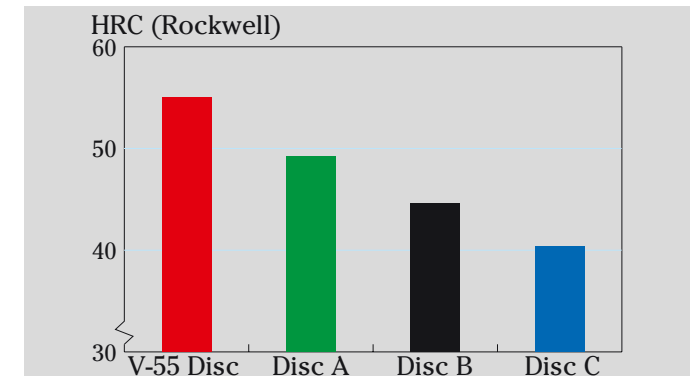


Having two discs per arm decreases throughflow and compromises precision.



X-shape prevents overlaps

The positioning of the discs in an X-shape results in lateral forces cancelling each other out and gives the machine neutral lateral force geometry. The result is that the machine runs dead straight behind the tractor, which is essential when using GPS and is a great advantage on sloping land. With the discs positioned in an X-shape, Carrier also maintains the same cultivation depth in both the front and rear row, without the machine moving from side to side.



V-55 – a guarantee of a long service life

All discs are made from Väderstad's own specially hardened Swedish V-55 steel. It is harder than the normal disc steel, giving a considerably longer service life. More time in the field and longer intervals between changes contribute to good cropping economics. The serrated edge of the discs ensures that they always achieve good grip. All disc manufacturing is fully automated and carried out in-house to ensure consistent quality.

Cultivator points for shallow cultivation

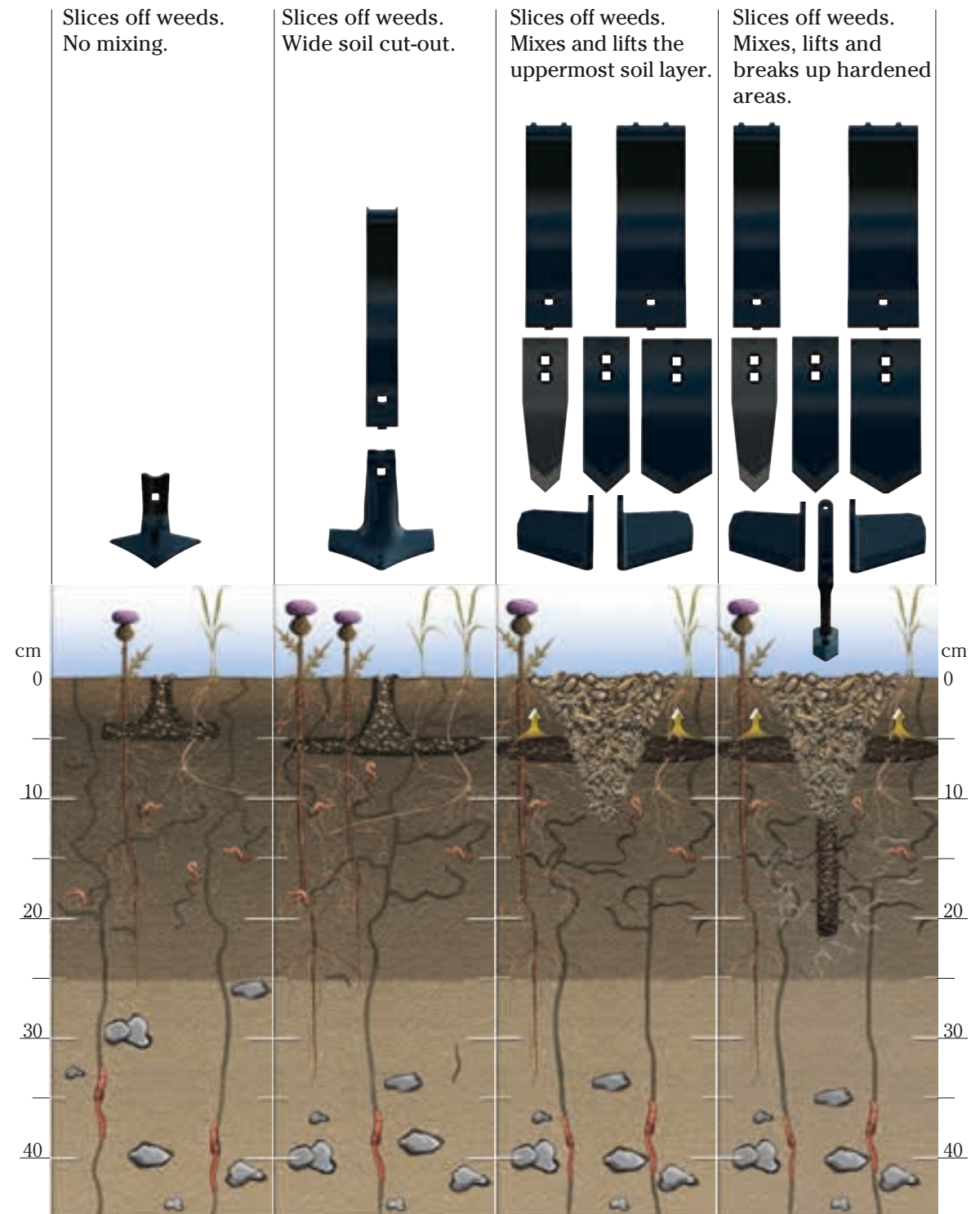
Väderstad have point solutions for all possible situations, including a range of point options for shallow cultivation. There is also a range of points for shallow cultivation adapted to everything from seed bed preparation to slicing up weed roots or mixing surface soil.

Root-slicing points

Väderstad has two different models of root-slicing points, goosefoot or wingshares. The difference is in the angle of the share and in the effect. The goosefoot cut is completely horizontal and is optimised for slicing only.

The rear part of the wingshare is angled slightly upwards so that it not only slices through the soil, but also lifts it at the same time. This gives a loosening action and abruptly cuts off the water supply to the plants. The wingshares are fitted to the existing points, retaining a soil-seeking effect, which makes them better for soils that are difficult to penetrate. Wingshares are not recommended for deeper cultivation. The reason for this is that in wet conditions, there is a risk of pan formation. The wingshare undergoes uniform wear so that the working width is maintained until the share is worn out.

For breaking up dense soil layers, wingshares can be combined with a DeepLoosening point.



Mixing points

Mixing points are the most commonly used cultivator points. For those planning to shallow cultivate, the broad points are designed for just this purpose. In general, narrower points are better for deep cultivation. By mixing the soil up with a cultivator, all types of pan formation are eliminated. The fracture planes leave fine cracks in the base of the cultivated layer. These cracks allow drainage of water and access by roots to deeper soil layers. The more crop residue there is, the deeper the cultivation required.

Slices and mixes the upper soil layer. Good for combatting mice.



210 mm

Mixes well during shallow cultivation.



120 mm

Cultivates all round.



80 mm

Complete mixing with reduced draught requirement.

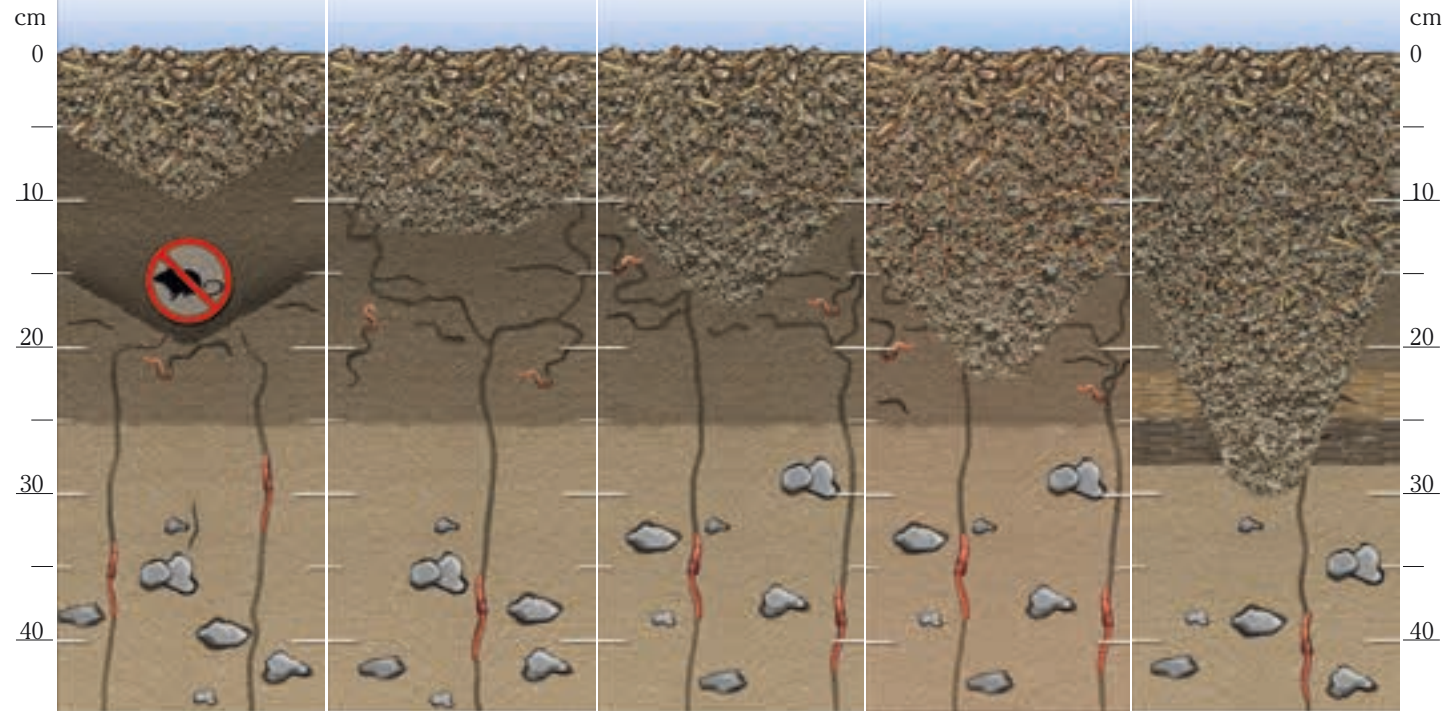


50/80 mm

Cultivates and mixes to depth.



50 mm



Deep reduced cultivation

The biggest advantage of deep cultivation without ploughing is the reduced time required and the overall lower fuel consumption per hectare. It also gives a higher proportion of organic material in the surface layer, which results in fewer problems with crusting, slaking and erosion. Deep reduced cultivation is particularly relevant to structurally weak soils that need regular loosening. It may also be of interest before specific crops that are sensitive to soil compaction, such as rape and peas.

In systems with deep cultivation without ploughing, different cultivators are often used to loosen the soil at a depth between 10 and 30 cm.

For greater working depths, more than 20 cm, a cultivator with rigid tines such as Cultus, Opus or TopDown is recommended. With these, the high release force for the tine keeps the point in position within the soil.

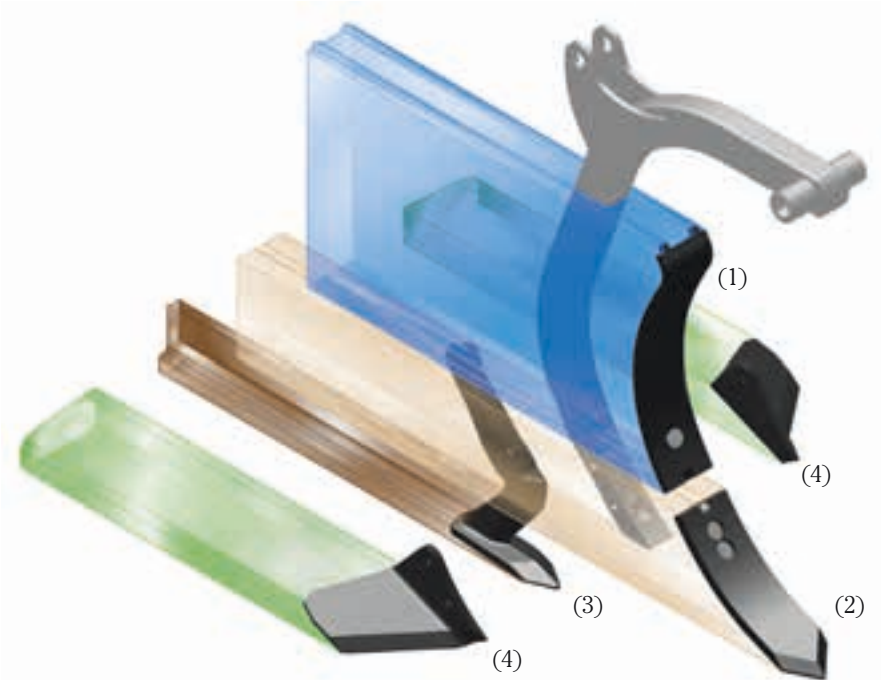


Modular points system increases flexibility

A modular points system with many possible combinations increases the flexibility of the cultivator and allows the work to be adapted to requirements in different fields and to the prevailing conditions in different seasons. Through the modular shin and point system, one and the same tine can perform work in different soil zones. Different widths of points and shin mean that uniform cultivation can be achieved at different working depths. The soil can be sliced as it is lifted by screwing

wingshares into position, and with extra deep penetrating points fitted it is possible to break up pans while also exerting a mixing or simply a breaking effect.

The shin wears less than the point. By separating shin and point, it is possible to replace one without the other, maintaining the mixing effect and achieving uniform cultivation over time. This is a more economical solution.



Shin (1) determines how the soil is mixed and point (2) determines the soil breaking pattern. DeepLoosening point (3) is designed only to break, not mix. Wingshare (4) slices off roots and lifts the soil at the same time.

Shins for all conditions

The shin is the part of the point that determines the mixing result. It is therefore just as important as the part that works in the soil. Väderstad offers two types of shin, MixIn and Twist, in three different widths, 50, 80 and 120 mm. Having a wider shin than point means that a larger proportion of the material is mixed and it also has a positive effect on the lateral distribution of the material.

The machines come from the factory with MixIn as standard, which is a very flexible shin that works the material forward. It is the best choice where straw is unevenly distributed or for heavy soils. As MixIn throws the material forward, the soil is mixed several times, while straw is distributed more efficiently. The material can be displaced by up to 9 m from its starting position. The soil flow efficiently crumbles clayey soils, decreasing the need for subsequent cultivation.

The Twist shin has a different agronomic function and moves the material straight up before letting it fall back into place. The advantage of this type of cultivation is that it incorporates more straw into the surface layer than the MixIn shin. This provides good protection against erosion and prevents surface crusting after heavy rain. An additional advantage is that the straw in the surface is broken down quickly. This means that the Twist shin is suitable for places where there is time for straw to be dealt with by microorganisms, for example in regions with a longer growing season.



Shin width determines the amount of soil mixed.



With the MixIn shin, the material in the entire cultivated horizon is crumbled finely and mixed.



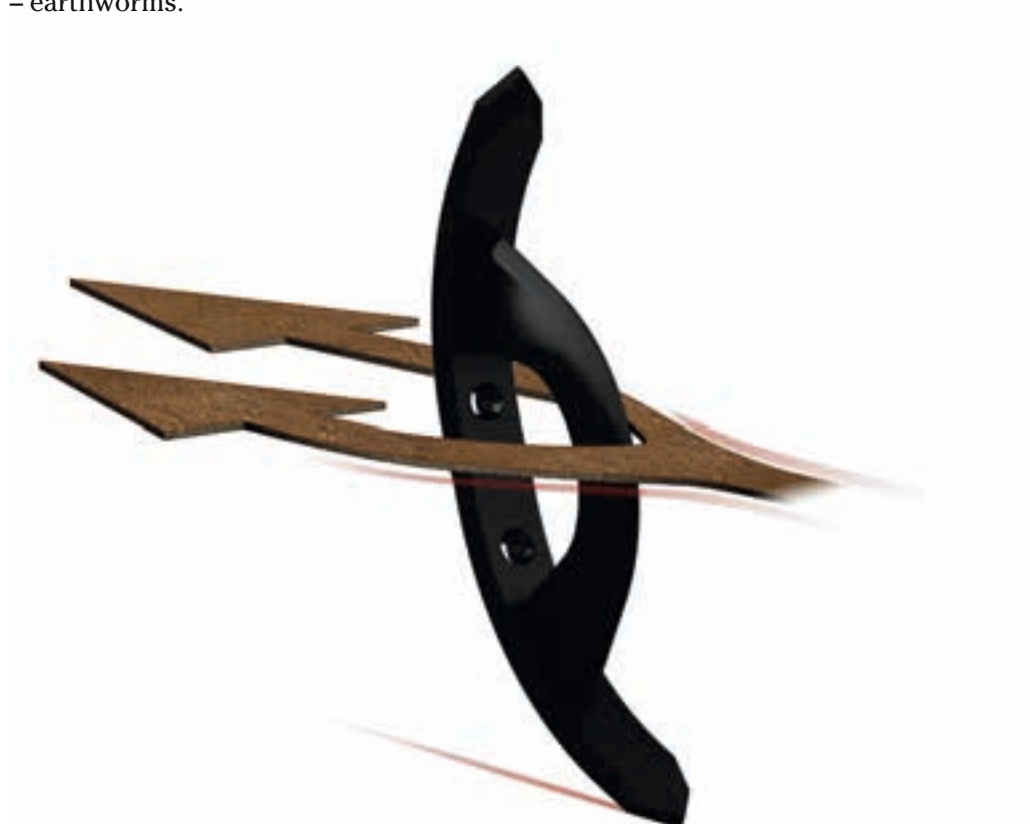
The Twist shin leaves a larger proportion of crop residue in the surface layer.

Breaking points

Repeated cultivation at the same depth and cultivation in unfavourable conditions leads to the formation of cultivation pans and hardened layers in the soil. This results in yield decreases, since the soil drains slower after rain and root access to water during dry periods is restricted. For a clayey soil in a region with warm summers and/or cold winters, nature can do part of the work of breaking up pans, but soils with a higher sand content tend to become naturally denser over time. For deep cultivation without increasing the draught requirement, the standard point can be replaced by a LowDisturbance point.

Combined mixing and breaking points

The idea behind combination points is to mix to a shallow depth and break to a greater depth without disturbing the soil more than is absolutely necessary. This protects nature's own and most important cultivation resource – earthworms.



The LowDisturbance point divides the soil flow, creates a drainage furrow and effectively prevents clod formation.

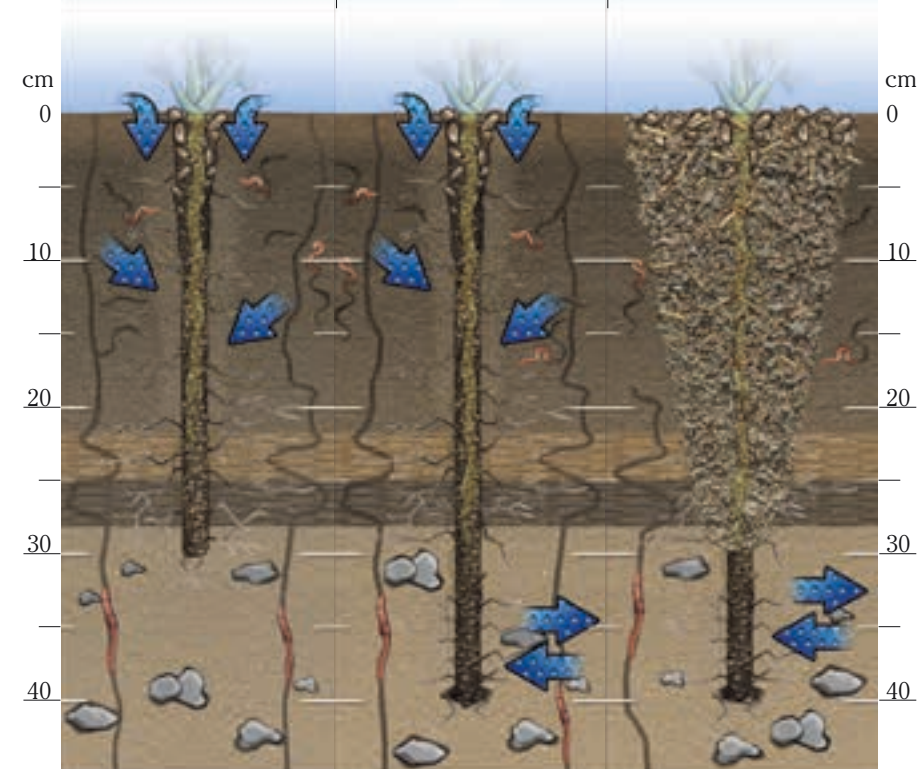
Breaks up dense soil layers.
Improves drainage.



Breaks up dense soil layers to a depth of 40 cm.



Breaks up dense soil layers to a depth of 40 cm and mixes to a depth of 30 cm.

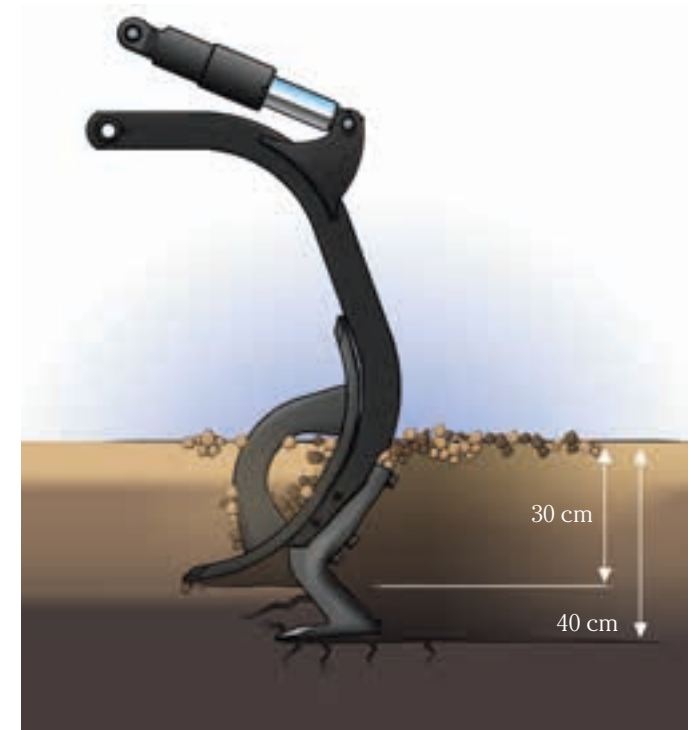
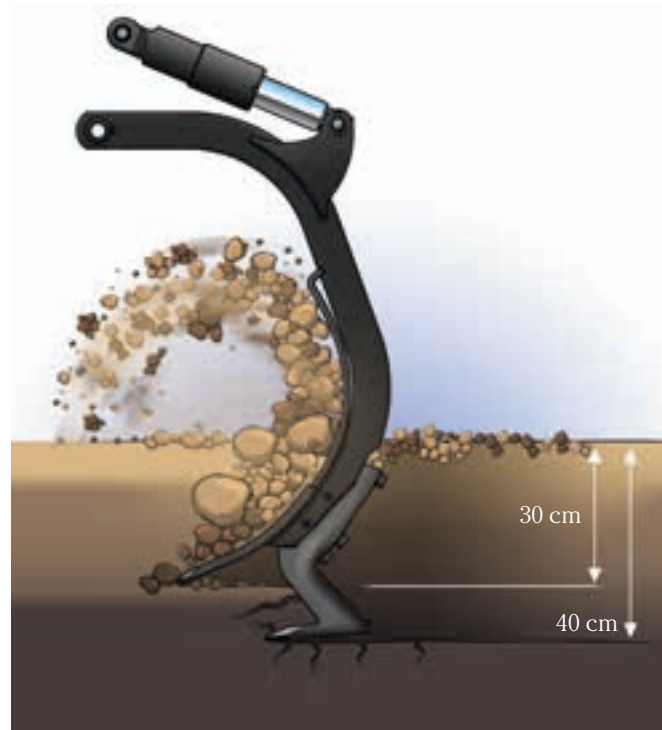


Deep loosening

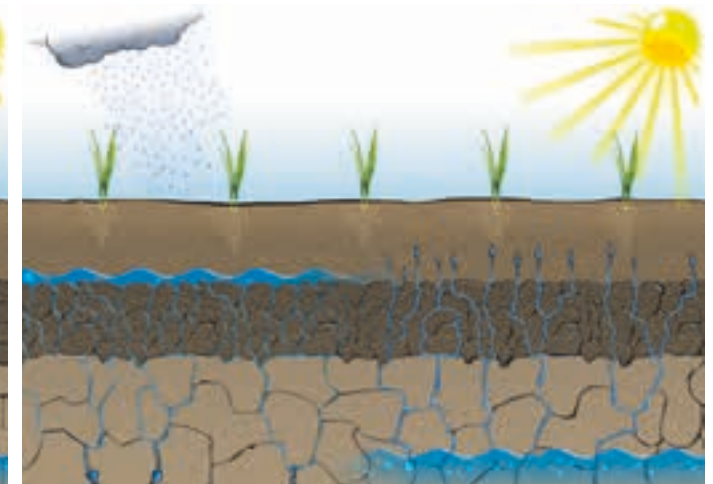
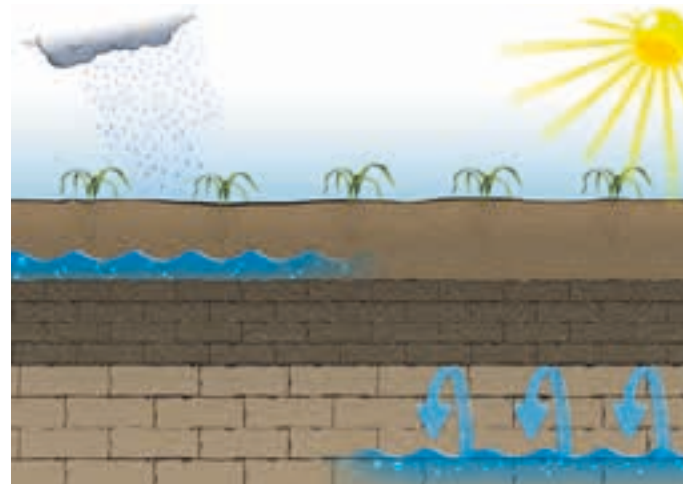
For deep loosening down to a depth of 40 cm, the DeepLoosening point is available. With this in place the soil is loosened in two steps, which prevents vertical hardening. Used together with a LowDisturbance point, there is no mixing action.

By combining DeepLoosening with a standard point, deeper mixing can be achieved and deep cultivation pans are ripped up. Performing two operations at once saves on passes.

DeepLoosening points are best fitted on the rear row of tines. This maintains the carrying capacity of the soil and minimises fuel consumption, while also achieving a sufficient drainage effect.



DeepLoosening can be combined with either a mixing or breaking point depending on the result required.



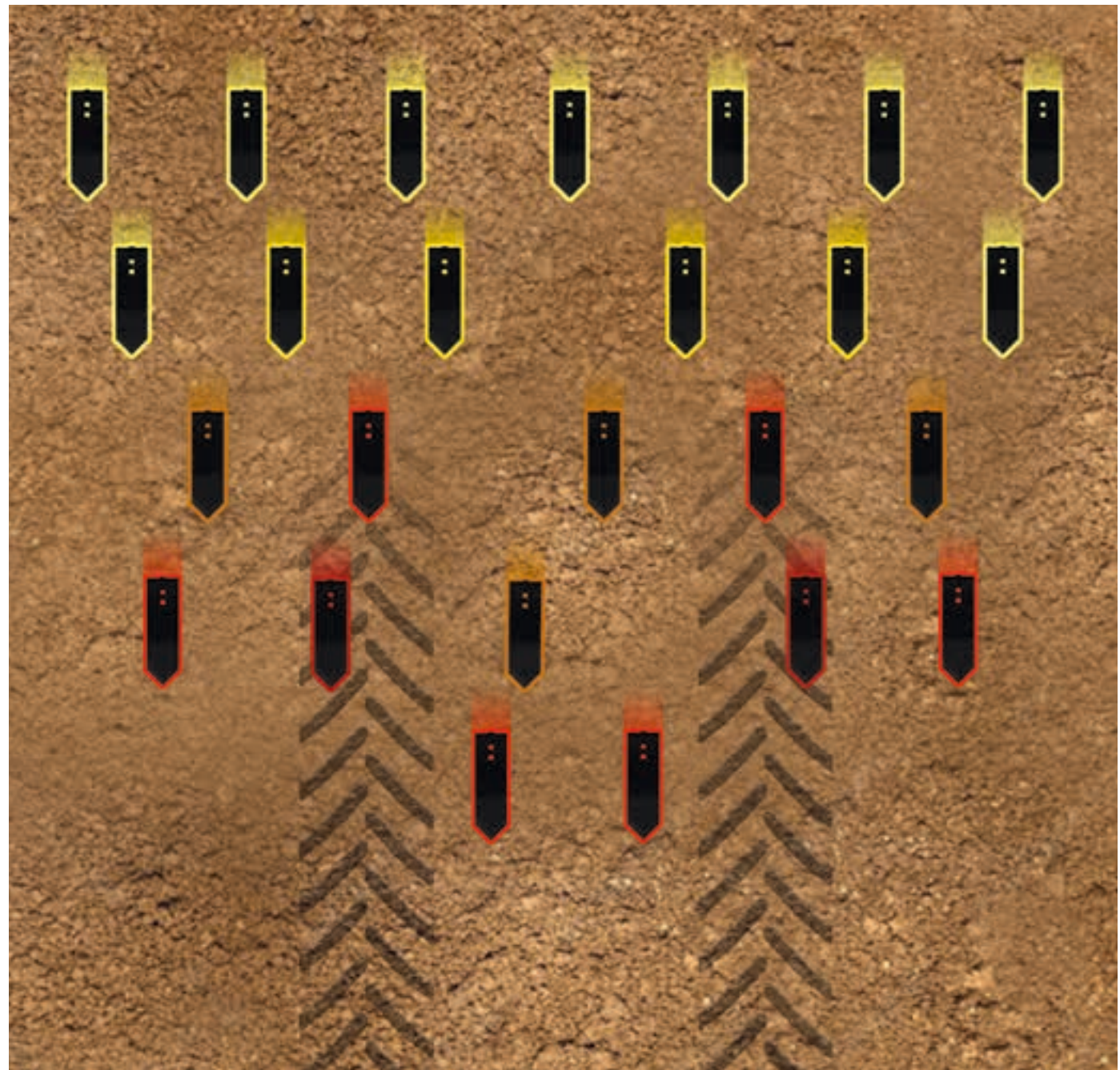
When a cultivation pan develops, it prevents water transport in both directions. Deep loosening restores the balance.

Precision cultivation with Marathon

Marathon points have a hard metal coating at the tip. This means that they can maintain their shape, working angle and therefore working depth for a very long time. The advantage is that for the duration of the point's service life, perfect depth control is achieved along the entire width of the cultivator. This helps to give every plant the same conditions. Marathon points also last much longer than standard points, which saves time as fewer changes are required during spring or autumn tillage, increasing productive time in the field. The points are designed with a smooth surface to create a uniform flow of soil and the best possible work outcome.



The hard metal surface is angled around the point, which means that the durability is retained in stony conditions.



Very heavy wear Heavy wear Moderate wear Low wear

There can be great differences in wear depending on where on the cultivator the points are positioned. Marathon points always maintain the same point length, which increases the cultivation precision.

The Väderstad concept – saves time and money

Ploughing

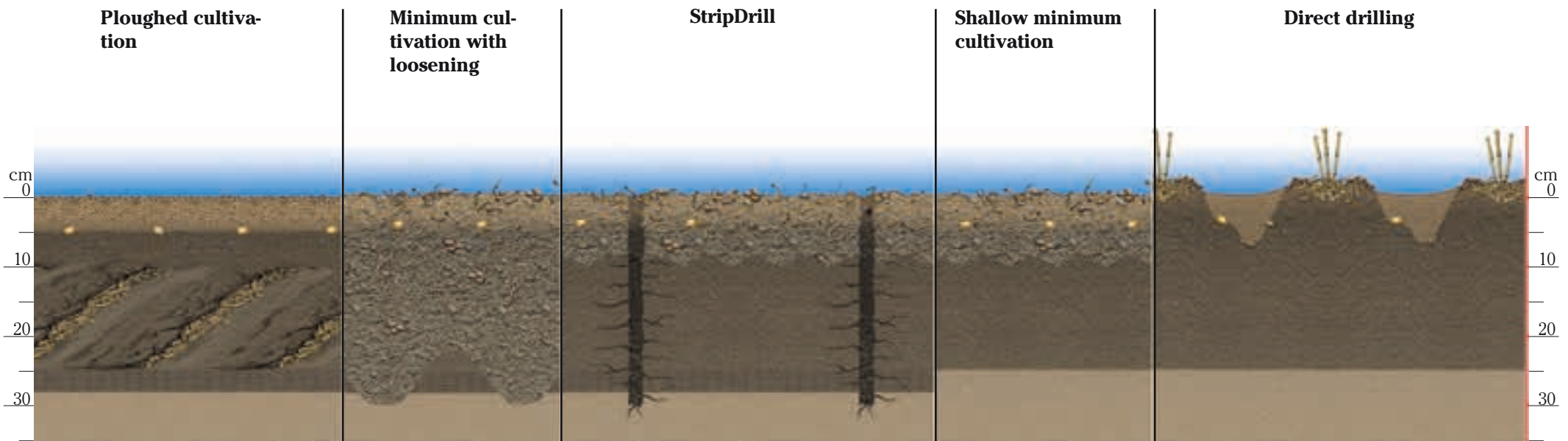
In crop rotations where grain is grown for several years in a row, in the worst case the same type of grain, ploughing is the most reliable and overall most profitable method. Ploughing in straw and weeds decreases the likelihood of disease in monotonous rotations. The savings that can be made with reduced cultivation are sometimes outweighed by the increased cost of spraying and lower crop security. In light soils, it is possible to create an acceptable seed bed in one or two passes after ploughing, so the system is relatively cheap. Lighter soils also benefit from the deep loosening provided by the plough. The greatest disadvantages of ploughing are an increased risk of erosion, loss of soil moisture, decreased earthworm activity, low capacity per hour and, in most cases, more passes in the field, which makes this type of cultivation expensive.

After deeper cultivation such as ploughing, there can be severe tracking in practically every pass, unlike with other types of cultivation.

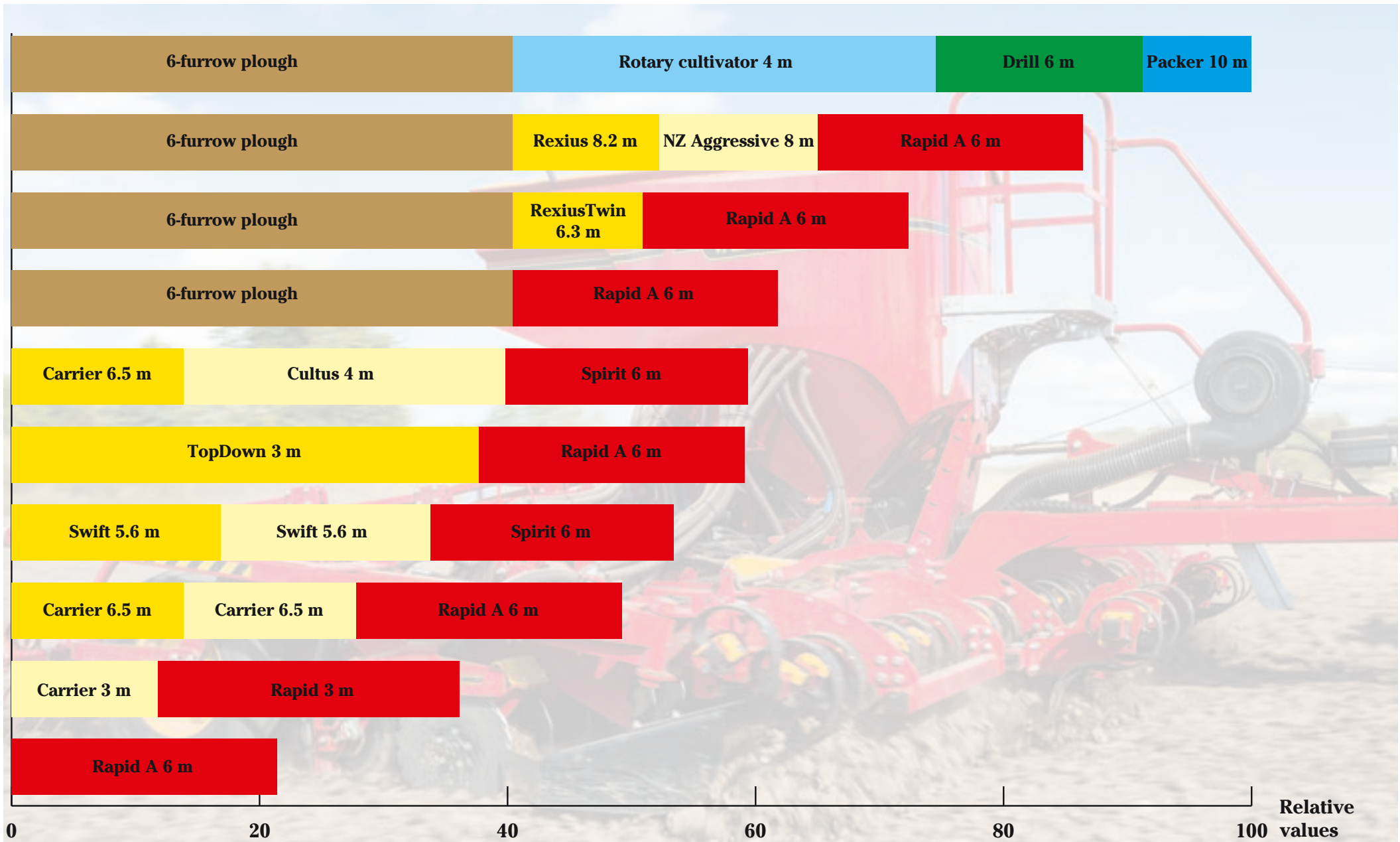
The happy medium

The best results are often achieved in practice by adapting cultivation to actual conditions in each individual case rather than sticking to a certain system. There is nothing to prevent farmers combining ploughing and shallow reduced cultivation, or even direct drilling, in the same field during a crop rotation.

The main disadvantage of combining different cultivation systems is the large number of machines required. If the area of a particular farm is not sufficient to justify buying different machines, contract machinery may be an option.



Choice of cultivation system involves differences in managing crop residue and capillary water, and every system has its advantages. An old saying goes: Cultivate as shallowly as you can and drill as deep as you have to.



Machinery costs are calculated using Swedish standard values. The concepts are then compared in relative terms. The Väderstad drilling concept is flexible and functions extremely well in all cultivation systems, from direct drilling to ploughing. This saves passes, time and fuel.

Reconsolidation creates optimal conditions

In an ideal case, the soil would consist of 50 per cent solid material and 50 per cent pores. Of the latter, half would be filled with air and the other half with water. For natural reasons and through the actions of farmers, these proportions vary. Reconsolidation is carried out to compress an overly loose soil and create an optimal environment with a good balance between air-filled pores and soil moisture. After harvesting and shallow cultivation, packers also play a cultivating role, since superficial plant residue is broken up and put in contact with surface soil, where the conditions are best for the microorganisms that are to break down the organic material.

Reconsolidation after shallow cultivation is also important for creating good contact between moist soil, volunteers and weed seeds so that these germinate rapidly and can then be controlled through subsequent cultivation.

After ploughing and other deeper cultivation, the soil can be too loose to allow seed to germinate quickly. In such a case, moderate reconsolidation may improve crop growth. Insufficient reconsolidation, i.e. with soil that is too loose around the seed, results in capillary water transport not functioning because the pores are too large. This means that the soil around the seed becomes too dry. In contrast, too much reconsolidation results in large pores being pressed together, making them less effective as regards draining away excess water and transporting oxygen and carbon dioxide to and from the seed. This can lead to oxygen deficiency in the roots. Light machines work best in lighter soils (sandy soils), while heavy clay soils require heavier machines to cultivate and reconsolidate the soil.



Solutions for varying degrees of reconsolidation

Väderstad provides a number of different packer options for different requirements. These can roughly be divided into shallow and deep reconsolidating packer types. Shallow reconsolidating packers are available with horizontally or vertically acting packers. The horizontal packers consist of so-called cage packers, while the vertical packers run forward like wheels. Deep reconsolidating packers are only available with vertically acting packers with either a flat or pointed ridge depending on the intensity required.

The packer axle for Väderstad packers has rubber suspension, which extends the service life of the packer, frame and axle.

Shallow vertical reconsolidation

The closer the packer elements are assembled, the greater the contact area, which gives a shallow reconsolidation effect. For shallow reconsolidation, Cambridge packers are also widely used. They improve seed-soil contact and also have soil-crushing properties, which helps eliminate cavities in which slugs can hide. Crosskill packers have an aggressive pattern and loose rings, giving a strong soil cultivating capacity and leaving a loose surface structure with a firm base. They can also handle slightly lighter soils than Cambridge packers without dragging the soil.

Shallow horizontal reconsolidation

The horizontal packers crumble and lift a lot of soil. The heavy soil falls back quickly, while the lighter crop residue is left on top. The shape of the units, the packer diameter and its rotation intensity also has an influence on the cultivation intensity. A larger diameter and more ribs increases the bearing capacity and depth control. Horizontal packers are best suited to dry conditions and soils with low clay content.

Shallow vertical reconsolidation



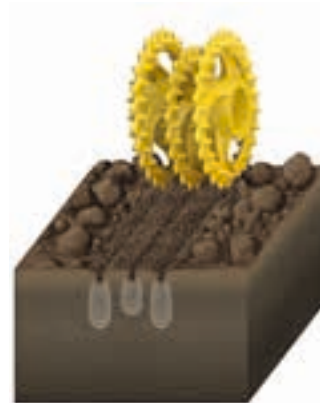
Rapid tyre



Cambridge



Cambridge HeavyDuty



Crosskill

Shallow horizontal reconsolidation



CageRunner

Deep reconsolidation

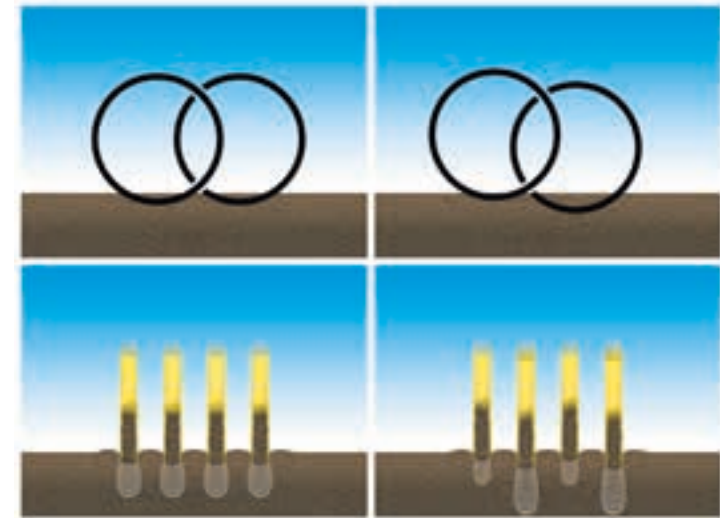
All packers for deeper reconsolidation are of the vertical type. Flat ridge and point ridge packers refer to the packer rings' contact area against the soil and their aggressiveness. They consolidate in rows, leaving a loose soil profile between the packer rings that has high pore volume. This permits higher gas exchange and increases the capacity to absorb rainfall. The packer rings also allow deeper reconsolidation. The greater the point pressure of the packer, the deeper the reconsolidation. The striped pattern left behind the packer means that the ridges dry up faster, which allows the next step in the cultivation chain to be carried out more quickly.

A larger packer diameter means a lower draught requirement, but the draught requirement for packers with smaller diameters can also be lowered if the packer has an overlapping design that increases the contact area.

Flat ridge packers

The flat ridge packers have a somewhat shallower cultivation effect. RubberRunner is at one end of the scale, a rubber packer with a relatively shallow profile that ensures that it does not sink into light soils. The rubber surface also means that soil does not adhere to the packer as easily. RubberRunner also has the advantage that it can serve as transport wheels, since the packer rings have springing air pockets.

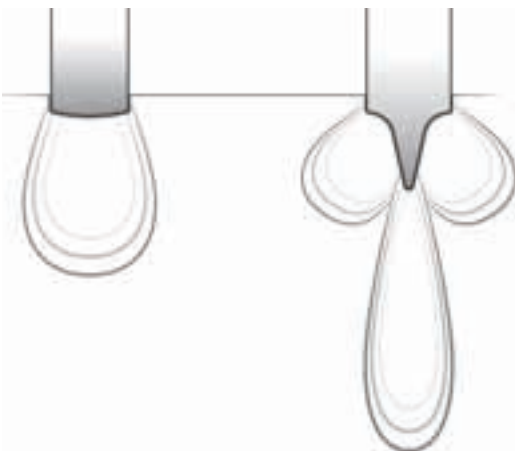
SoilRunner is a U-profile packer where soil works against soil. This leaves an "open" surface, which means that it can deal with heavy, wetter soils, although in such cases less soil is moved and graded. Since the soil that fills the U-profile adds weight, the packer effect is further enhanced. Another advantage is that wear on the steel is low since only the sides are loaded.



The double SoilRunner packer can be tilted to leave a weatherproof surface if required.

Flat ridge packer ring

Point ridge packer ring



RubberRunner

Flat ridge packers



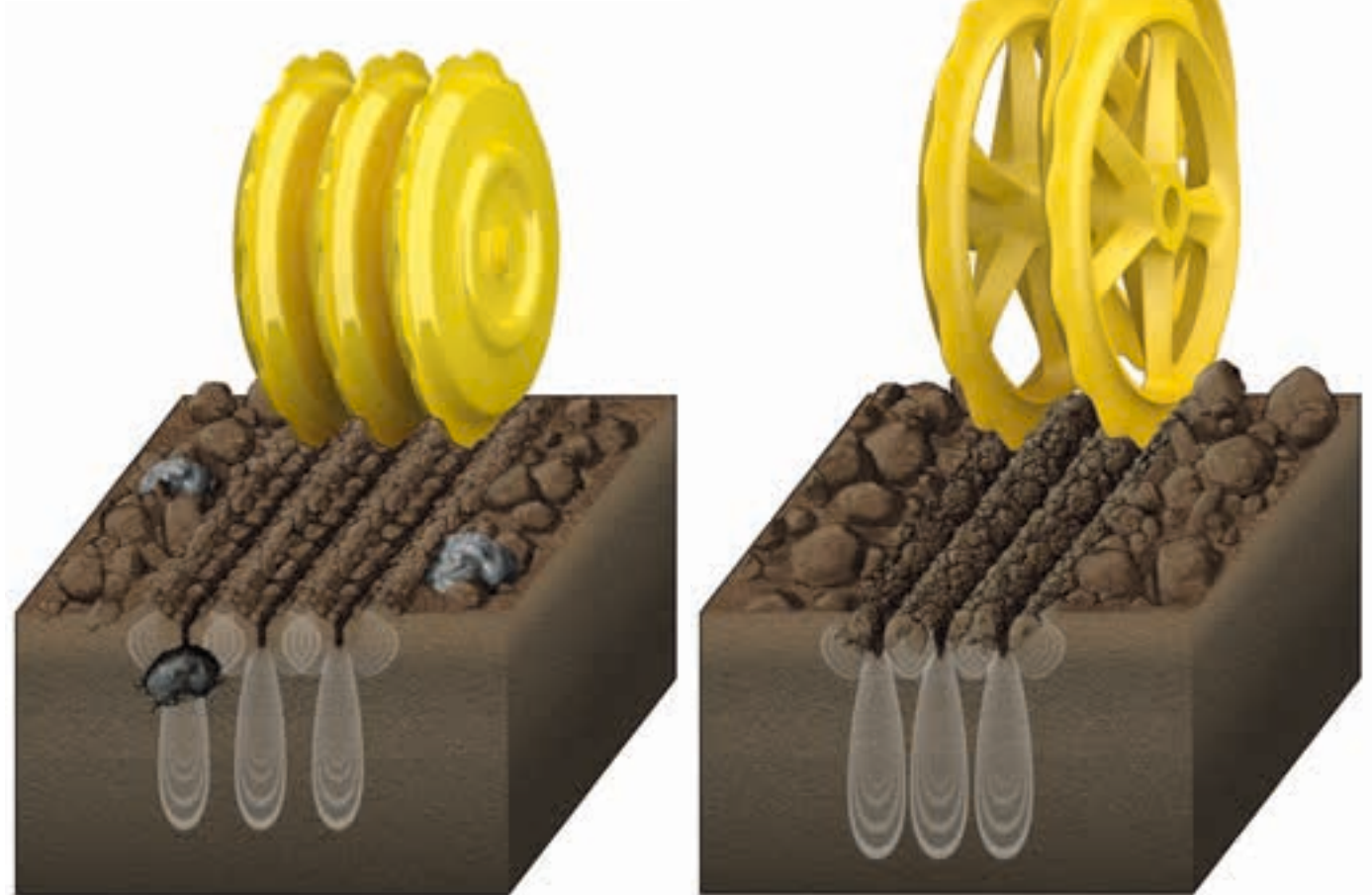
SoilRunner

Point ridge packers

For deeper and cultivating reconsolidation, the point ridge packers SteelRunner and RexiusTwin are available. With their distinct pointed ridges, both of these exert a clod crushing effect and efficiently eliminate air pockets even in heavy soils with full cultivation depth. SteelRunner is particularly suitable for stony soils since it presses down stones by virtue of its weight. Several of the more deep-acting packers are also present on more shallow-acting machines such as Carrier. The reason for this is that in stubble cultivation it is necessary to crush clods, break up root clumps and straw, and ensure good soil-seed contact. In such cases, the ridges on the packer rings leave a looser surface layer so that the evaporation barrier remains intact.



Point ridge packers



SteelRunner

RexiusTwin

CrossBoard improves the result

Today's CrossBoard was developed from the old levelling board in order to further optimise both the crushing and levelling effect of soil cultivating implements such as Carrier, NZ Aggressive, Rexius, Rollex and seed drills Rapid and Spirit. The secret lies in the continual vibrations which simultaneously throw soil clods forward and efficiently crush them against each other. Pressure-controlled rear valves keep CrossBoard at the pre-set working depth, giving better precision. CrossBoard is controlled hydraulically from the cab.

A range of different points are available depending on the work that CrossBoard is to perform. The angled points can also be reversed so that the flat side makes contact with the soil to give a better levelling effect for light soils.



Double-acting stabiliser bar

The double-acting stabiliser bar enables levelling in two directions, forwards and backwards. Instead of allowing the tines to work individually, Väderstad has linked them together with the double-acting stabiliser bar so that the entire row of tines acts as one unit. This radically increases the strength and the capacity to simultaneously crush clods and move fine soil to give a level field. Interlinked tines give considerable gains in levelling, since large clods cannot slip through and end furrows are not deepened, which can happen with separately mounted tines. The bar can be easily removed during cultivation in lighter soils. The stabiliser bar is made of specially hardened spring steel and is designed to withstand heavy work (fracture limit over 1100 N/mm²).

Knives for slicing action

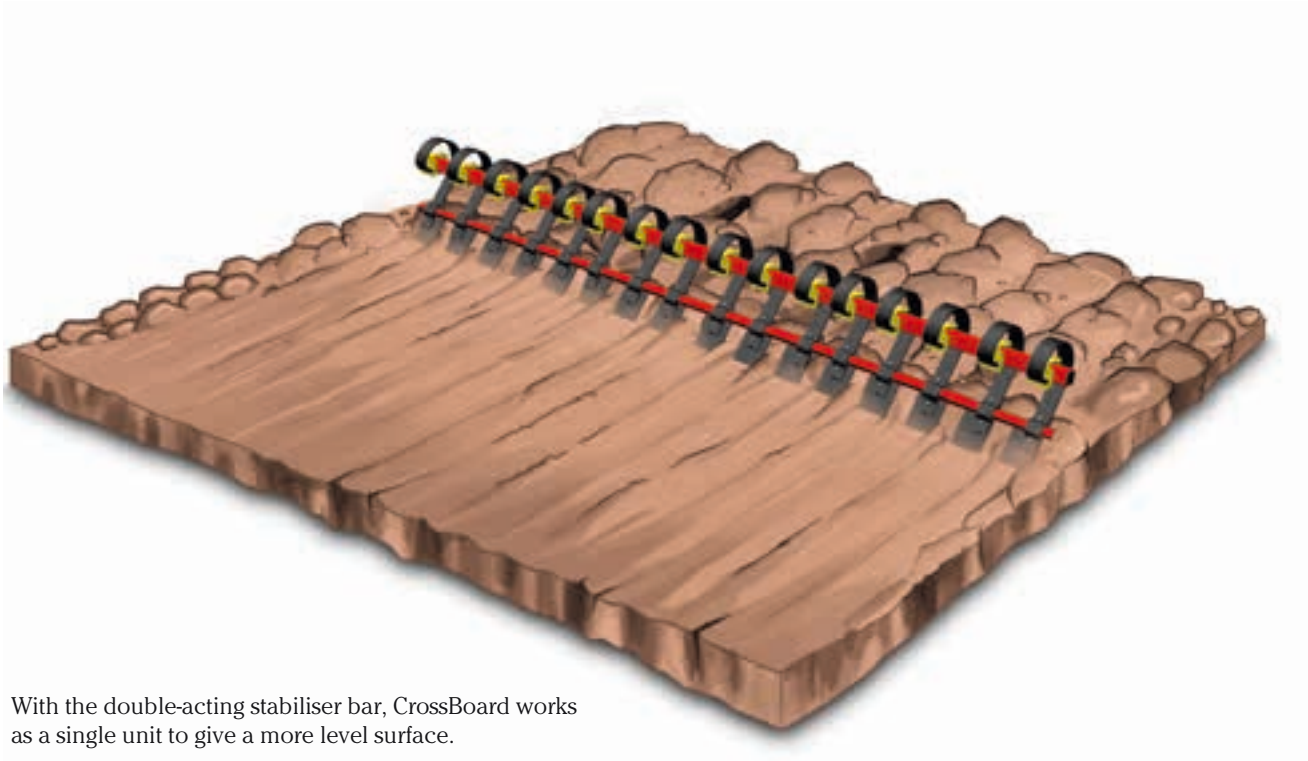
In difficult conditions and in tough soils, the cultivating and crushing action of CrossBoard can be further enhanced by equipping CrossBoard with hardened steel knives, so-called SingleKnife. SingleKnife greatly increases the slicing action, which is also a great advantage for those wishing to save on cultivation.

With the crust-breaking DoubleKnife tool, CrossBoard can break through the hard surface crust that can develop on silty soils after heavy rain.

These can be attached without the use of tools using the Väderstad QuickChange system, and the knives can easily be adjusted into different positions for the desired degree of cultivation.



SingleKnife



With the double-acting stabiliser bar, CrossBoard works as a single unit to give a more level surface.



DoubleKnife

Carrier

Carrier is a soil cultivation multi-tool for rational crop production. With Carrier, it is possible to do everything from creating an ultra-shallow false seed bed to efficiently incorporating large amounts of crop residue or manure. The following cultivating and consolidating packer ensures that crop residue makes good contact with the soil.





The rubber suspension on the packer absorbs shocks and extends the life of the frame and packer.

The disc arm leaves plenty of space for the neighbouring discs. This increases the ability to process plant residue and straw clumps, and permits very good throughflow. Individual disc suspension gives excellent precision during cultivation.

ZONE 4	ZONE 3	ZONE 2	ZONE 1
<p>Depending on model, Carrier can be equipped with a wide range of packers. SteelRunner, RubberRunner, CageRunner and the U-profile packer SoilRunner. SteelRunner and RubberRunner are equipped with suspended scrapers to keep them clean during work.</p>	<p>Conical discs (450, 470, 510 or 610 mm) work from ultra-shallow down to a depth of 15 cm for the larger discs. The 450 mm discs give a finely distributed result, while the larger discs efficiently mix large amounts of crop residue with soil. Carrier L and XL have discs with milled notches, TrueCut, which gives the same work result for the duration of the disc's service life. The adjustable working angle, MultiSet, ensures that the discs cut out the entire working width regardless of cultivation depth.</p>	<p>In most cases, Carrier can be equipped with various front tools:</p> <ul style="list-style-type: none"> - Straw harrow for distributing crop residue - CrossCutter Knife further slices up stubble and crop residue - CrossBoard crushes clods and levels the soil 	<p>The trailed models have a wide range of drawbar options.</p>

High capacity

Time is a limiting factor, but is also the key to successful crop production. With Carrier on the farm, there is great potential for rationalising crop production. Shallow cultivation, optimally between 12 and 15 km/hour, increases the capacity in soil cultivation several-fold compared with ploughing.

The Carrier family has been extended with a choice of four different sizes of discs. Carrier and Carrier X with 45 cm or 47 cm discs, Carrier L with 51 cm discs and Carrier XL with 61 cm discs. The best disc to use depends on the desired effect, soil type and the crop being culti-

vated. It may be advantageous to cultivate small-seed crops and crop residue from grain using the smaller discs, while larger amounts of crop residue from corn threshing, for example, is best done using the larger discs. For more information, see the disc table on page 12.



Powerful soil cultivation

Carrier is equipped with discs made from Swedish V-55 quality steel for maximum durability and service life. A pressure of up to 177 kg per disc keeps the discs at the pre-set depth and gives full slicing within the cultivation depth range 3–15 cm depending on choice of disc. The weight helps the machine to slice through thick layers of crop residue and forces the discs down into the soil even in hard and dry conditions. The cultivation depth is easy to set using clips or electric depth stops that limit the hydraulic cylinder's maximum depth. The depth can be adjusted on the move from the cab down to the pre-set maximum depth. Each disc is attached to an arm by bearings on the rear side of the disc, allowing high throughflow and uncompromising precision in cultivation.



The high durability of the V-55 steel helps reduce operating costs.

The X-shape prevents overlapping

The positioning of the discs in an X-shape results in lateral forces cancelling each other out and gives the machine neutral lateral force geometry. The result is a dead straight run behind the tractor, which is a major advantage when using GPS or working in fields on a slope. With the discs positioned in an X-shape, Carrier also maintains the same cultivation depth in both the front and rear row, without the machine moving from side to side.

The following packer works wider than the discs, ensuring that a level surface is created.



The X-shape gives the machine a soil-seeking mode of operation and keeps it running in an impressively straight line.

Full slicing with lateral adjustment

For efficient control of weeds, all roots must be sliced off efficiently during the first pass. To ensure optimum slicing and uniform cultivation, the front row of discs on all Carriers except Carrier X can easily be adjusted in the lateral direction using rigging screws.

The outer disc arms can be adjusted in the vertical direction for perfect levelling of the surface.

Robust design

A characteristic of all machines in the Carrier family is the robust frame made of high-quality Swedish steel. The frame is fully welded to avoid loose bolt connections and wear that can arise when working at high speed. The resistance to warp is impressive.

The disc arms are forged, giving excellent durability. The shape of the disc arm and the positioning of the disc bearings are designed to allow high throughflow of material.

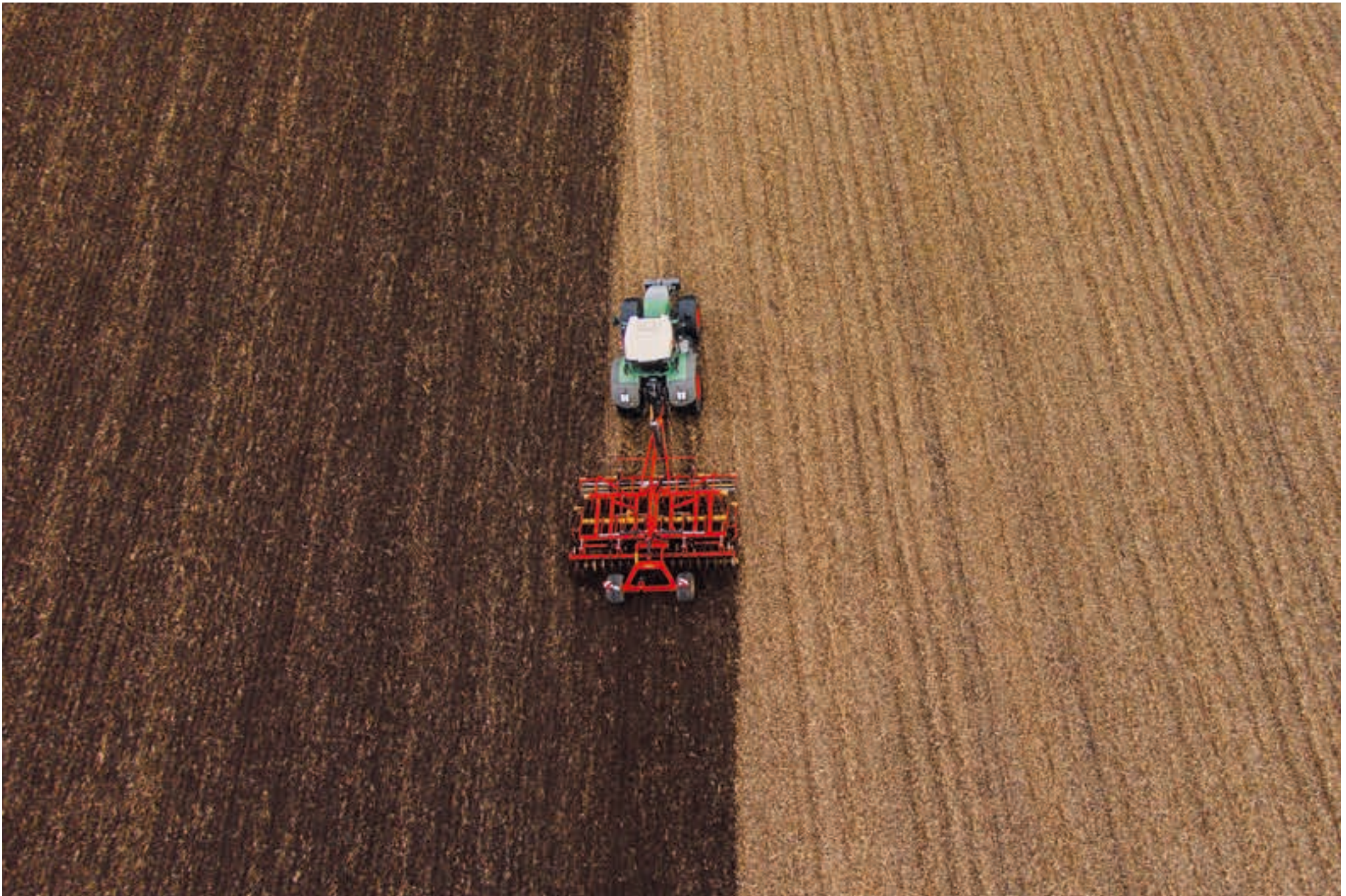
All components that make contact with the soil are rubber-mounted, extending the life of the components and the frame.



The axles are adjustable in the lateral direction for optimal work results.



The robust frame gives Carrier weight and keeps the discs at the pre-set depth.



The X-shaped design means that lateral forces cancel each other out, letting the machine run straight behind the tractor.

Multifunctional tool carrier

Straw harrow for uniform emergence

With today's increasingly wide harvesters, problems can arise in terms of the straw distribution behind the harvester. The wider the cutter head, the more uneven the distribution of straw. The result in the following crop is limited or uneven plant development in places that have more straw mixed with the soil. This is due to poor contact between seed and soil and lack of oxygen and nitrogen required during decomposition of the straw.

The straw harrow, which Väderstad developed for Carrier, ensures that the straw is distributed evenly across the entire field, ensuring that all plants have the same conditions. The combination has its place where large quantities of straw need to be distributed.



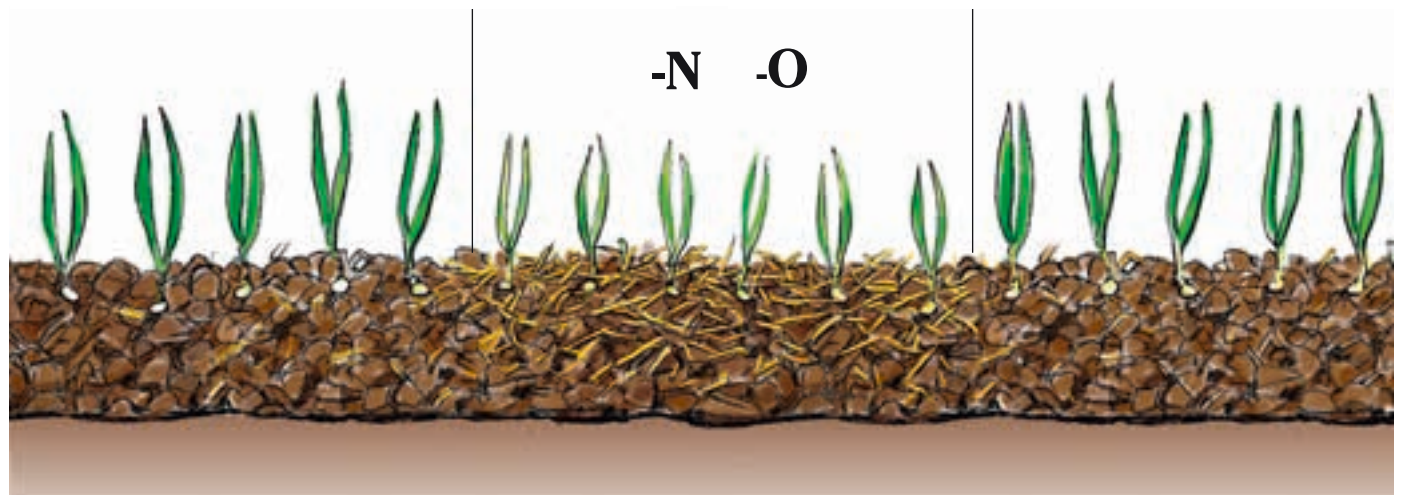
The straw harrow distributes straw evenly across the field.



Carrier with a straw harrow is driven diagonally to the harvesting direction.



The straw harrow is easy to attach and its height is adjustable.



Poor straw distribution leads to uneven crop stands and impaired root development.

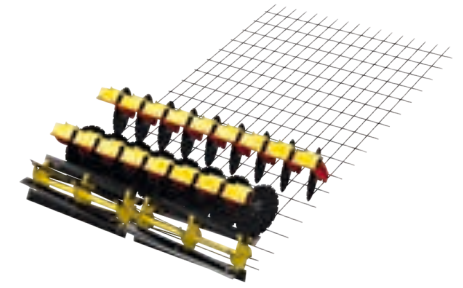
Ultra-shallow cultivation improves field hygiene

With CrossCutter Knife and CrossCutter Disc, Väderstad introduced the concept of ultra-shallow cultivation. This refers to full-coverage cultivation down to a depth of 3 cm. A major advantage is the high speed and low draught requirement, which together give very high capacity at low cost. Ultra-shallow cultivation radically improves field hygiene and ensures long-term yield.

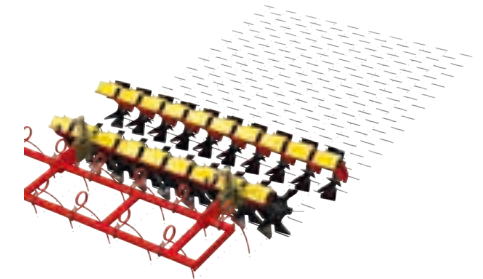
Through ultra-shallow cultivation, a false seed bed is created directly after harvest in which both volunteer rape and weeds are encouraged to germinate. These can then be controlled with further cultivation or chemically. Ultra-shallow cultivation also stimulates the decomposition of crop residue. The tools have relatively small diameters, which means that they can quickly get up to the right working speed after turning on headlands. Using a Väderstad implement for ultra-shallow cultivation, the soil can be cultivated at over 15 km/hour with high precision and low diesel consumption – 3 litres per hectare. This means that ultra-shallow cultivation is not only very effective, but also saves time and money. In order to allow ultra-shallow cultivation to be adjusted fully to the needs of the user, there are three different levels of intensity, all customised for different requirements.



Flexibility - CrossCutter Knife as a tool permits both shallow and deep work.



Responsiveness – CrossCutter Disc with individual suspension has excellent contouring abilities.



Max intensity – CrossCutter Knife and CrossCutter Disc in combination give extremely aggressive surface cultivation.



CrossCutter Knife – gives better slicing

To meet modern agriculture's requirements for cost-effective machinery, Väderstad has developed CrossCutter Knife, an efficient front tool for Carrier. By equipping Carrier with CrossCutter Knife, the plant material can be cut in two directions, while at the same time the machine retains full flexibility as regards cultivation depth. This results in more effective slicing of the plant material combined with this being cultivated into the surface soil layer.

Takes care of catch crops and stubble

When the option of CrossCutter Knife is fitted, the machine's already wide area of application is extended further. CrossCutter Knife efficiently breaks the stems of catch crops, which ensures that the crop is killed and prevents it from becoming a problem in the following crop. Discs and packer then mix the green mass into the soil, where it is rapidly broken down. Even difficult stubble from sunflower seeds and corn is broken up effectively. The efficient knives also mean that higher stubble can be left during threshing. Having higher stubble during threshing results in higher capacity and better straw distribution.

Well-reasoned design

The knife blades are short so they optimally follow the contours of the soil. They have Väderstad Tri-Force rubber suspension, which due to its rebound capacity maintains working depth perfectly, even in very uneven fields. The knife blades are reversible to keep the costs down and are made from Väderstad's specially hardened Swedish V-55 steel, ensuring a long service life.



Short knife blades and small base roller diameter guarantee good responsiveness and high rotation speed during the work.



CrossCutter Knife cultivates intercrops efficiently and at low cost.

CrossCutter Disc – Specialises in false seed beds

CrossCutter Disc is a specialist disc where the slicing edge is positioned diagonally to the driving direction. Each disc is individually cushioned, giving very good contouring ability. CrossCutter Disc was designed to handle volunteer rape and difficult weeds cost-effectively.

Unbeatable for volunteer rape

In combination with a straw harrow as the front tool, CrossCutter Disc efficiently distributes the rape residue while also threshing out unharvested rapeseed pods. The discs cultivate the soil down to a depth of 3 cm and create a false seed bed. By creating a series of false seed beds, the rape seed bank is effectively reduced.

Effective against grass weeds

An increasing problem is multiple herbicide resistance in a number of herbaceous weeds and grass weeds. CrossCutter Disc is unbeatable for shallow intensity and creates the perfect conditions for the weeds to germinate. For example, black-grass is becoming more of a problem. Germinating black-grass effectively prevents other black-grass seeds from germinating. Through repeated passes with CrossCutter Disc, excellent control of this weed can be achieved. Similar effects can be achieved for other grass weeds and winter annual herbaceous weeds. No weed is resistant to steel.



CrossCutter Disc works best at high speed.



Volunteer rape is completely controlled, which is essential for good field hygiene.



The first pass is made directly after harvest at a 45° angle to the driving direction.



The second pass is made during the two-blade stage at a 90° angle to the first pass.

CrossCutter Knife and CrossCutter Disc – for maximum intensity

CrossCutter Disc in combination with Cross-Cutter Knife raises the cultivation intensity another level. The combination of cultivation and crushing at the front, along with high intensity and perfect responsiveness in the middle, gives extremely effective ultra-shallow cultivation. The combination is primarily recommended for combatting corn borers, a pest that overwinters as larvae in corn stalks. By cracking the stalks between the nodes using CrossCutter Knife and CrossCutter Disc in combination, the larvae is unprotected and less able to survive. To achieve the best possible results, the SteelRunner, which also actively breaks stalks apart, is recommended. An advantage with shallow cultivation is that the soil can bear further passes, for example for manure or fertiliser spreading.



CrossCutter Knife and CrossCutter Disc in combination combats corn borers effectively by cracking corn stalks. The SteelRunner that follows crushes the residue and mixes it with the soil.



















































CrossBoard for tough conditions

CrossBoard with double-acting stabiliser bars gives Carrier the ability to slice, crush and level in one pass. (See the CrossBoard section on pages 30–31). CrossBoard is controlled from the cab via Master and Slave hydraulics.



CrossBoard's double-acting stabiliser bar enables levelling in two directions, forwards and backwards.

Creating a false seed bed after:

Grass		Rape		Grain		Sunflower seed			
Disc	Front tool	Disc	Front tool	Disc	Front tool	Disc	Front tool		
									
									
									
									
									

Discs and front tool

CrossCutter Disc

Disc 45/47 cm

CrossCutter Knife































Disc 51 cm

Straw harrow

Disc 61 cm

CrossBoard

Cultivating and mixing after:

Catch crops		Corn silage		Corn under 10 t		Corn over 10 t		Ploughing	
Disc	Front tool	Disc	Front tool	Disc	Front tool	Disc	Front tool	Disc	Front tool
									
									
									

● = Our most recommended combinations



Stubble cultivation, seed bed preparation, reconsolidation and rolling, soil cultivation and furrow levelling. Carrier has a unique range of applications.



BioDrill

With BioDrill, Carrier is converted into a very precise seed drill for small-seed crops.

The major advantage of BioDrill is that drilling can be carried out directly after harvest when the soil is moist, while saving diesel and time in a hectic period. Compared with the conventional crop establishment system involving ploughing and a number of cultivations, the gains in time and diesel are enormous.

For the trailed Carrier models, there is a newly developed spreader plate that further increases the precision at high speeds where seed placement is sensitive to wind.

Roomy seed hopper

A 180–360 litre seed hopper, depending on model, is positioned at a low height for ease of filling with or emptying of seed.



The seed is distributed using a spreader plate or seed pipes that release the seed in a uniform arc into the soil flow behind the discs. The seed hoses are fixed, guaranteeing good distribution. The seed is covered by the packer, resulting in good emergence.



BioDrill BDX 180 or 250 is a flexible mechanical seed hopper and has a studded feed system that permits the seed to fall under its own weight.



Electric BioDrill BDA 360 including radar for Carrier L and Carrier XL.



BioDrill BDA 360 is a flexible pneumatic seed hopper for small-size seeds that are drilled in the same pass as cultivation.

Model overview



Carrier 300, 350 and 400 are hydraulically mounted – perfect format for small irregular fields.



Carrier 300, 350 and 400 are trailed with or without CrossBoard – a manoeuvrable and robust format.



Carrier X 425, 525 and 625 are hydraulically mounted – manoeuvrable with impressive working width.



Carrier 420, 500, 650, 820, 925 and 1225
For everything from stubble to plough furrows. Straw harrow or CrossCutter options.



Carrier 420, 500, 650 and 925 with CrossBoard for stubble to stiff plough furrows.



Carrier L/Carrier XL 425, 525, 625, 825, 925, 1225
For everything from stubble to plough furrows. Straw harrow, CrossCutter or CrossBoard options.

Carrier – effective multi-tasker

The discs with a 45 cm or 47 cm diameter have small notches, creating a finer flow of soil and are perfect for creating a false seed bed. This is particularly important for encouraging small seeds, such as volunteer rape and weeds, to germinate. Discs of 45 cm and 47 cm in diameter are fitted to Carrier models from 3.0 to 12.25 m.

Carrier 300-400 is a rigid version that is available in both a hydraulically mounted and a trailed model. The simple frame gives a stable and durable machine that sits very close to the tractor when carried on the three-point linkage, saving on front ballast and reducing the compaction risk. In combination with RubberRunner, the machine can be fitted with a drawbar and then also with CrossBoard. If additional penetration ability is required, the machine can be fitted with a full 800 kg of extra weight.

Since the weight on the centre frame is higher, the wing sections on Carrier 1225 are loaded with extra weight to achieve the same pressure on the soil across the entire working width. The same applies for reconsolidation, where the packers on the wing sections on both Carrier 925 and 1225 are heavier, to give uniform reconsolidation across the entire working width.

The patented Väderstad folding system means that Carrier models of up to 12.25 m, regardless of working width and front tool, still have a transport width of only 3 m. The bogie-mounted transport wheels under the centre of the machine make it stable and easy to manoeuvre during transport.



Carrier 300 hydraulically mounted.



Carrier 500 with CrossBoard.



Carrier 1225 in transport.

Carrier X – robust, folding, mounted

Carrier X has a compact design with a centre of gravity that is a lot closer to the tractor, which gives a lower weight requirement further forward on the tractor train and a lower risk of damage during transport. Carrier X is built on a very robust frame made of square hollow sections and all joints are designed to have a very long service life.

Superior penetration capacity

The operator is able to set the position of the two disc axles hydraulically from the cab in order to achieve the desired cultivation depth. The unique depth setting significantly increases the discs' penetration capacity, which gives Carrier X an unparalleled soil-seeking capacity for its weight class.

Since the discs are fitted in an X shape, the machine is also very stable and runs straight behind the tractor.

The following packer is wider than the discs, which ensure a very even result across the entire field. Carrier X, which is available in the work widths 4.25, 5.25 and 6.25 metres, can be equipped with Single SteelRunner, Single SoilRunner or CageRunner HeavyDuty. Carrier X can be folded with a transport width of only 2.4 metres.



The positioning of the discs in an X-shape ensures stability and permits operation with GPS. The disc angle ensures good penetration capacity.



Folded in the transport position, Carrier X is only 2.4 m wide and has impressive ground clearance.



The high quality of Carrier X permits work in extremely demanding environments such as slurry incorporation.

Carrier L and Carrier XL – robust and flexible

Carrier L and Carrier XL with working widths between 4.25 and 12.25 m were designed with a focus on flexibility, durability and low operating costs.

Carrier L and Carrier XL have conical discs made of Swedish high-quality steel, with diameters of 51 and 61 cm respectively. The discs have milled notches, TrueCut, which give more uniform wear and retain the discs' aggressive shape for the duration of their service life. Through the adjustable disc angle, MultiSet, the cultivating angle can be optimised for different working depths. Discs and bearings are designed as a flat unit to increase throughflow. The bearings are multi-sealed and protected with extra sleeve. The shape also ensures that the disc bearing is kept clear of baling twine, wire and other mechanical objects that otherwise risk shortening its service life.

Few lubrication points means that the time spent on daily maintenance is low, which gives greater efficiency and more time in the field.

The X-shape of the discs' suspension ensures that the machine constantly runs straight behind the tractor, avoiding expensive overlaps or side-shifting in work on sloping land. New solutions with fixed clips also make depth setting easier than before.

Robust frame and adjustable wing pressure

Both Carrier L and Carrier XL have reinforced centre frames and square hollow sections that keep the discs at 80 mm (normal Carrier 60 mm) and are equipped with an extra robust rubber suspension.

The disc arms are reinforced and all cylinder connections are specially designed Väderstad solutions, which considerably improve their service life and precision.

tion result across the entire working width, Carrier L and Carrier XL have adjustable wing pressure in the 6.25 and 8.25 widths. The wider Carrier L and Carrier XL 925 and 1225 ensure this through extra wing weights. All single packers are positioned on two axles. This gives them the stability of the double packers, providing better depth precision.



To ensure that the machine gives the same cultiva-

MultiSet increases flexibility

The adjustable MultiSet hubs allow the disc angle to be adjusted to one of three positions between 11 and 17 degrees with a simple movement. Cultivation can be optimised as required so perfect slicing can be achieved during shallow cultivation or good penetration is ensured at a greater working depth. MultiSet is available for both Carrier L and Carrier XL.

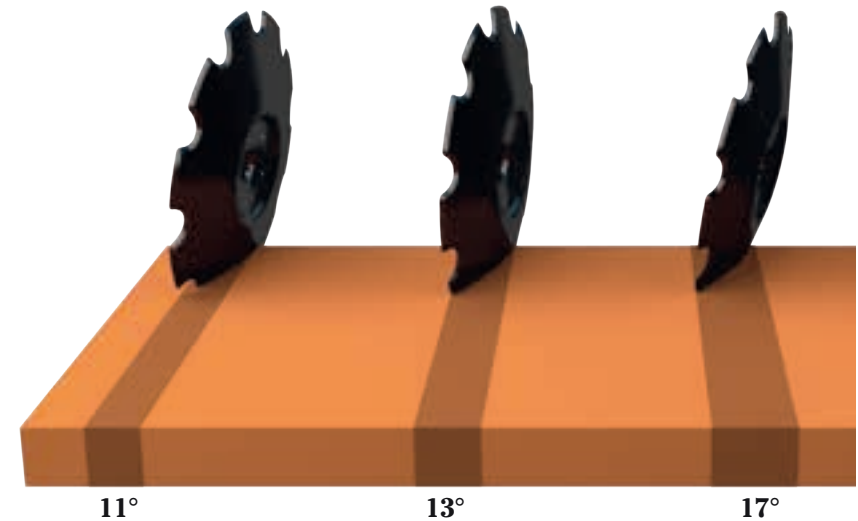
More aggressive discs with TrueCut

The notches on the Carrier L and Carrier XL discs are milled rather than die-cut. The cutting angle is the same around the entire rim, which means that the discs retain their shape throughout their service life. TrueCut also gives the discs a more aggressive cut, which means it breaks down crop residue quickly and effectively. The slightly larger notches on Carrier XL give better grip when working with large quantities of crop residue.

High flexibility

The special disc sizes for Carrier L and Carrier XL means that the machines' maximum working depth differs by a few centimetres. A dividing line here is that the larger 61 cm discs on Carrier XL manage larger quantities of crop residue, while the 51 cm discs on Carrier L give finer tilth.

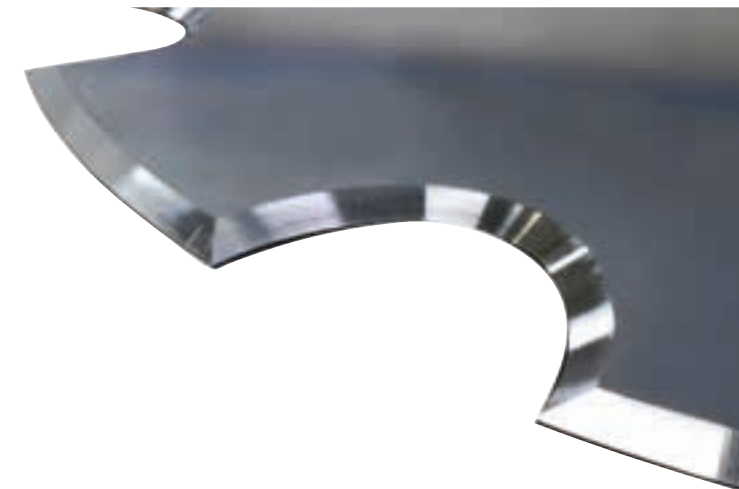
To adapt the cultivation intensity for the machine, the discs may be switched between 51 and 61 cm for both Carrier L and Carrier XL.



Both Carrier L and Carrier XL are equipped with MultiSet disc hubs, which allow the angle to be adjusted for better aggressivity at different working depths. MultiSet guarantees uncompromising cultivation.



The conical shape helps ensure that the soil is broken up and not turned over. The acute cultivating angle prevents a cultivation pan from forming.



The TrueCut discs slice soil better and give more uniform wear.



Carrier L and XL 9.25 and 12.25 have Väderstad folding. All models have a transport width of only 3 m.

Depth control from the cab

The desired maximum depth is easy to set using fixed clips on the machine, after which the depth can be adjusted from the cab. A clear scale shows the changes in the depth setting.

Easy to manoeuvre in the field

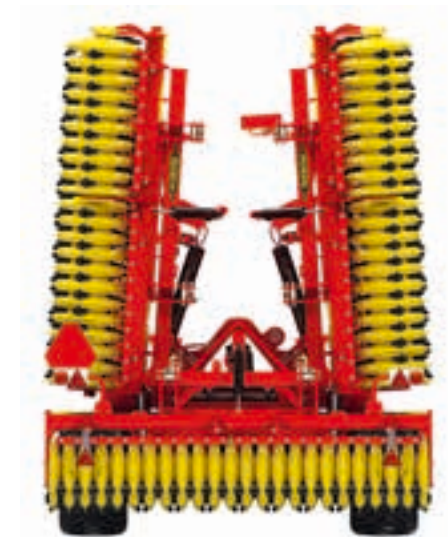
The design of Carrier L and Carrier XL 425-825, with transport wheels that can also be set down in the field, makes these machines very manoeuvrable. In the field, the machine can be turned on either the packer or the wheels. The wheels can be set down in damp areas or when shallower cultivation is required in some parts of the field. By raising the frame, it is easy to back out into corners so that the whole field can be cultivated.

Comfortable during transport

Transport suspension for the wheels, where the transport wheel cylinder is connected to an accumulator that ensures the machine runs smoothly, is standard for Carrier L and XL 425-825. This transport suspension radically increases the driving comfort and also results in less wear and a longer service life for the machine. The extra robust wheel carrier is designed for long-term use on rough roads. In the folded position, the transport width is only 3 m.



Transport suspension for the wheels, where the transport wheel cylinder is connected to an accumulator that ensures the machine runs smoothly, is standard for Carrier L and Carrier XL 425-825.



Carrier L and XL 825 are unique, combining conventional folding with 8.10 m working width, 3 m transport width and 4 m transport height.



The robust frame and 61 cm discs give Carrier XL the weight and power required in fields with dense crop residue.

Reconsolidation for varying conditions

All Carrier models are developed to provide high flexibility, with packers that adapt the machine's work to the conditions that different farmers face.

SoilRunner

SoilRunner, which is characterised by its U-profile where soil works against soil, gives an open cultivated surface. The soil gives the packer additional weight, increasing the reconsolidation effect. The hydraulically mounted rigid Carrier 300-400 can be equipped with Single SoilRunner, while the trailed folding Carrier L/XL 425-825 can be equipped with the tiltable Double SoilRunner.

CageRunner

CageRunner, by virtue of its generous diameter, both easy-rolling and self-cleaning. CageRunner, which has a relatively low tare weight, can be added to the hydraulically mounted rigid Carrier 300 and 350. With these models, CageRunner also takes a load off the tractor.

CageRunner HeavyDuty is available for the hydraulically mounted folding Carrier X 425-625, which is a more robust version of CageRunner.

RubberRunner

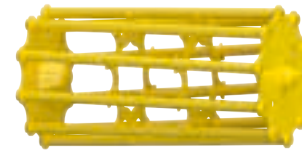
RubberRunner is a rubber packer which by virtue of its more extensive profile decreases inertia and the risk of soil drag for lighter soils. The packers are equipped with suspended scrapers which keep the packers clean even in difficult conditions. RubberRunner is available as an option for the hydraulically mounted rigid Carrier 300-400, the trailed rigid Carrier 300-400 and the trailed folding Carrier 420-820.

SteelRunner

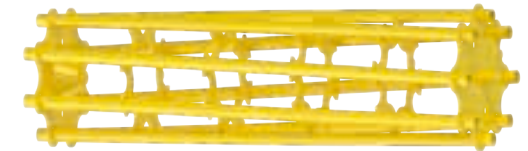
SteelRunner is a cultivating steel packer made of Swedish pressed hardened steel with enormous wearing force. It efficiently crushes clods and presses down stones. The deep profile makes it the best candidate for medium to heavy soils. The shape means that the packer not only works the surface, but also has the ability to press plant residue down into the soil and increase their rate of decomposition.



The new packer suspension on Carrier L and XL 425-825 has a very low-maintenance design.



CageRunner



CageRunner HeavyDuty (Carrier X)



Single SoilRunner



Double SoilRunner



RubberRunner



SteelRunner

CARRIER OVERVIEW WITH OPTIONS

Hydraulically mounted, rigid

45 cm 47 cm
Extra weight pack of 400 or 800 kg

300 350 400

Hydraulically mounted, folding

45 cm 47 cm

425 525 625

Trailed rigid

45 cm 47 cm
Extra weight pack of 400 or 800 kg

300 350 400

Trailed folding

45 cm 47 cm

420 500 650 820 925 1225

Trailed folding

51 cm 61 cm

425 525 625 825

Trailed folding

61 cm 51 cm

925 1225

CARRIER TRAILED TECHNICAL DATA

CARRIER CROSSBOARD TECHNICAL DATA

Model	300	350	400	420	500	650	820	925	1225	420	500	650	925
Draught requirement (hp) from	85	100	110	120	150	190	250	260	370	120	150	180	260
Working width (m)	3,0	3,5	4,0	3,94	4,94	6,44	7,94	8,94	11,94	3,94	4,94	6,44	8,94
Packer width (m)	2,9	3,5	4,0	4,2	5,0	6,5	8,2	9,25	12,25	4,2	5,0	6,5	9,25
Transport width (m)	3,0	3,5	4,0	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5	2,5
Transport height (m)	-	-	-	3,0	3,0	3,0	3,0	4,0	4,0	3,8	3,8	3,8	4,0
Weight RubberRunner (kg) 1900		2100	2300	3400	4050	4990	5960	-	-	4000	4600	5690	-
Weight SteelRunner (kg)	-	-	-	4000	4850	6100	7400	10000	11200	4600	5400	6800	10000
Hydraulic requirements	1-2 DA	1-2 DA	1-2 DA	2 DA	2 DA	2 DA	2 DA	2 DA	2 DA	3 DA	3 DA	3 DA	3 DA
SteelRunner	-	-	-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
RubberRunner	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-	-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-
SoilRunner (single)	-	-	-	-	-	-	-	<input type="checkbox"/>	<input type="checkbox"/>				

CARRIER L TECHNICAL DATA

Model	425	525	625	825
Draught requirement (hp) from	150	200	250	330
Efficient working width (m)	4,10	5,10	6,10	8,10
Transport width (m)	2,85	2,85	2,85	3,0
Max. transport height (m)	3,06	3,58	4,0	4,0
Weight SteelRunner (kg)	4700	5500	6000	7700
Weight Double SoilRunner (kg)	4300	5000	5500	7400
Hydraulic requirements	2-3 DA	2-3 DA	2-3 DA	2-3 DA
Wheel dimensions	400/60-15.5	400/60-15.5	400/60-15.5	520/50-17
Wheel dimensions 520/50-17	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

CARRIER XL TECHNICAL DATA

Model	425	525	625	825	925	1225
Draught requirement (hp) from	160	210	260	340	340	400
Working width (m)	4,10	5,10	6,10	8,10	9,25	12,25
Transport width (m)	2,85	2,85	2,85	3,0	3,0	3,0
Transport height (m)	3,06	3,58	4,0	4,0	3,95	3,95
Disc spacing (cm)	12,5	12,5	12,5	12,5	12,5	12,5
Weight SteelRunner (kg)	5100	6000	6600	8700	10 500	13 100
Weight Double SoilRunner (kg)	4500	5200	5700	7600	-	-
Hydraulic requirements	2-3 DA	2-3 DA	2-3 DA	2-3 DA	2 DA	2 DA
Wheel dimensions	400/60-15.5	400/60-15.5	520/50-17	520/50-17	400/60-15.5	520/50-17
Wheel dimensions 520/50-17	<input type="checkbox"/>	<input type="checkbox"/>	-	-	<input type="checkbox"/>	-

CARRIER MOUNTED TECHNICAL DATA

Model	300	350	400	425	525	625
Draught requirement (hp) from	85	100	110	150	200	250
Working width (m)	3,0	3,5	4,0	4,25	5,25	6,25
Packer width (m)	2,9	3,5	4,0	4,43	5,47	6,47
Transport width (m)	3,0	3,5	4,0	2,4	2,4	2,4
Transport height (m)	-	-	-	3,0	3,5	4,0
Weight RubberRunner (kg)	1600	1800	2000	-	-	-
Weight SteelRunner (kg)	1800	2000	2200	2850	3450	3850
Hydraulic requirements	1 DA	1 DA	1 DA	2 DA	2 DA	2 DA
SteelRunner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
RubberRunner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-	-	-
CageRunner	<input type="checkbox"/>	<input type="checkbox"/>	-	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SoilRunner (single)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

DA = Double-acting

= Option

= Standard

CARRIER OPTIONS



40 mm



50 mm



80 mm



D=41/52.5/57/72.5 mm

Swift

An efficient cultivator for both wet and dry years that cultivates intensively down to a depth of 20 cm. The vibrating tines create a flow of fine soil that helps keep the draught requirement and fuel consumption low. The spacious design can handle large quantities of crop residue.



The open and spacious frame design with 77 cm ground clearance allows large quantities of soil and crop residue to flow through. The machine has a robust main frame that can cope with stress, giving it a long service life.

Large wide support wheels are controlled hydraulically.



ZONE 4	ZONE 3	ZONE 2	ZONE 1
<p>Swift can be equipped with 12 mm following harrow tines or spring-suspended tiller tines. Both solutions are hydraulically adjustable.</p>	<p>The star-shaped maintenance free levellers are manufactured from specially hardened V-55 steel. The levellers are hung with rubber suspension on a triangular axle, TriForce. The levellers can be controlled hydraulically from the tractor cab.</p>	<p>Swift has a distance of 19.3 cm between its tines, which is a smaller tine spacing than for most other cultivators on the market. Since the tine and point are constantly vibrating, there is plenty of space for soil to be cultivated and pass through. The vibrating action keeps wearing-part costs down and also helps lower the draught requirement.</p>	<p>For Swift 560-870, a 50 mm hitch drawbar is standard, but several sizes and ball couplings are available as options. A linkage drawbar is available, since hydraulic support wheels do not come as standard (Swift 400-440).</p>



High capacity and low draught requirement

Swift is an efficient stubble cultivator with high capacity that was developed for stubble cultivation down to a depth of 20 cm. The unique design, with two frame axles each with two rows of vibrating tines, gives excellent throughflow of large quantities of crop residue. A smaller front axle completes the tine spacing for the cultivator. Swift has a robust design that gives a long service life, while also requiring little maintenance. The constant movement of the tines gives the machine a low

draught requirement (from 30 hp/m). The optimal driving speed is 10–12 km/hour, which gives high capacity when time is scarce during autumn cultivation. The long service life and the moderate draught requirement make the machine very cost-effective. Swift has a flexible design, which means that the wing and centre sections follow the contours of the soil independently of each other. On the wider models, there is a support wheel on each wing section.

A large, distinct scale clearly displays the working depth set hydraulically from the cab. Maximum working depth is set using a mechanical or hydraulic stop.





Three-year warranty

The vibrating Swift tine leaves a fine finish just like that of a harrow tine. The Swift tine vibrates at a frequency of up to 100 times per second. The points and shins, together with the narrow tine spacing of 19.3 cm, allow for full slicing in one pass without wide wing knives. The MixIn shin ensures perfect incorporation of plant material.



Clamps (M14) for stable fitting of tines.



Swift 560

VÄDERSTAD

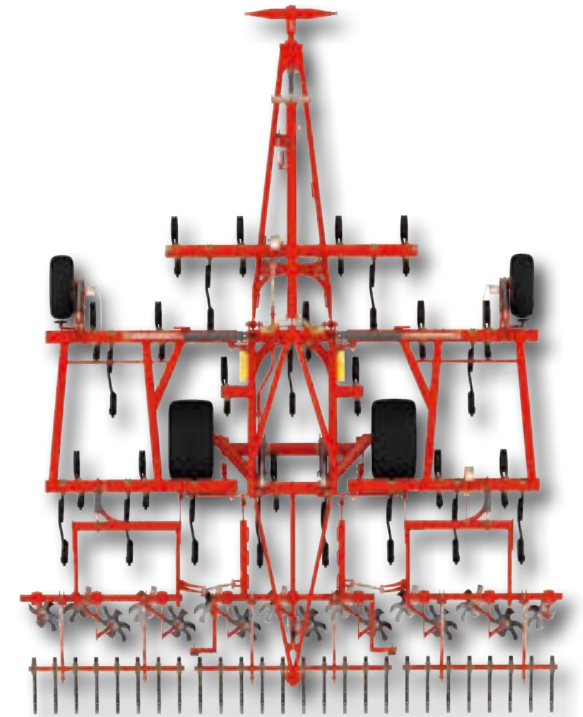




Robust, warp-resistant frame gives long service life

Using 3D robot laser technology, all conceivable shapes of hole can be cut in three different dimensions. The laser beams cut the steel with extreme precision, giving a 100 per cent match in shape for all components, resulting in a very strong, reliable design.

Round tubular axles are fitted through square hollow sections. This allows for a frame design with stronger welds and increased durability. Round tubes give a robust, warp-resistant frame and are better at absorbing shocks, since they have no concentrations of stress, since they have the same properties in all directions.





As standard, Swift 560 is equipped with fixed support wheels with hydraulic adjustment from the cab.



Swift 560 has large pivoting support wheels as an option. The support wheels are controlled hydraulically using a Master and Slave system. Swift 640, 720 and 870 are equipped with large support wheels.



Swift 400/440 have extra wide gauge wheels of 520 mm for a stable ride, even at high speeds on cloddy soils.



The working depth of Swift is easily controlled from the cab by a Master/Slave system.

Responsive and stable

The wide support wheels ensure uniform cultivation depth with excellent responsiveness, and the large diameter gives a stable run behind the tractor even during intensive cultivation at high speed.

The hydraulic fixed support wheels on Swift 560 can be controlled from the cab via a separate hydraulic function. Clear scales give the driver a quick, clear indication of the working depth set.

Hydraulic levelling discs

The work is completed using maintenance-free levelling discs. Both the working depth and the levelling discs can be adjusted hydraulically from the cab in order to ensure optimum results in all conditions.



The maintenance-free rotating levellers are rubber-suspended on a triangular axle, TriForce. TriForce gives a stable suspension with constant force, which results in a responsive soil levelling action. The rubber suspension absorbs shocks and vibrations, which protects the frame.

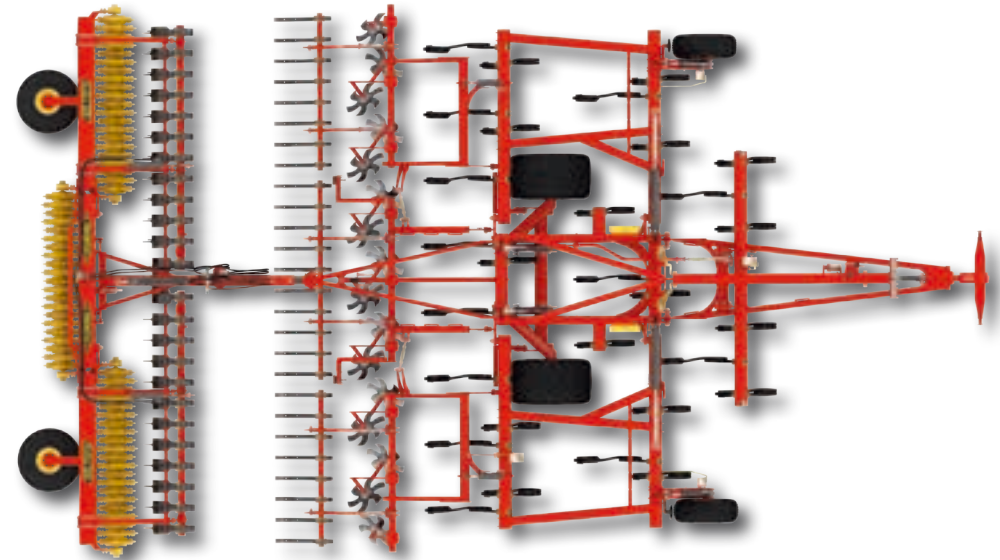
Flexible in the field with several optional trailing implements

Swift is suitable for both ploughed and non-ploughed cultivation systems. It works well in wet conditions and can cope with all types of soil. Swift can be equipped with a trailing implement that can be fitted with either following harrow tines (12 mm) or powerful, spring-suspended tiller tines (9.5 x 45 mm). The following harrow tines give a finer tilth, while the tiller tines give a coarser levelling effect.

If the reconsolidation is not sufficient, it is possible to hitch a packer to the machine's connecting drawbar.



Swift can be equipped with either 12 mm following harrow tines or powerful, spring-suspended tiller tines of 9.5 x 45 mm. It is possible to switch between the two trailing implements.



Swift can be equipped with a connecting drawbar. It is then easy to hitch on a Rollex or Rexus roller to increase reconsolidation.

SWIFT OPTIONS



Swift 400, 440 and 560 with fixed support wheels can be equipped with either a linkage drawbar or a hitch drawbar. Swift 560 with pivoting support wheels and Swift 640, 720 and 870 are supplied with a hitch drawbar as standard.



With BioDrill BDA 360, soil cultivation and drilling can be carried out at the same time. The seeds are released with high precision across the entire distribution pattern. The result is a smooth, fine surface where the seeds can germinate in a seed bed with saved soil moisture. The image shows Swift 560 with BioDrill BDA 360 and connecting drawbar pulling a Rollex 620.



SWIFT TECHNICAL DATA

Model	400	440	560	640	720	870
Draught requirement (hp) from	140	160	190	225	250	310
Working width (m)	4.06	4.45	5.60	6.37	7.15	8.70
Transport width (m)	3.0	3.0	3.0	3.0	3.0	3.0
Transport height (m)	2.8	3.0	3.6	3.4	3.7	4.0
Number of tines	21	23	29	33	37	45
Tine spacing (cm)	19.3	19.3	19.3	19.3	19.3	19.3
Weight (kg)	3000	3100	3500	450	4600	5100
Hydraulic requirements	3 DA	3 DA	3 DA	3 DA	3 DA	3 DA

DA = Double-acting

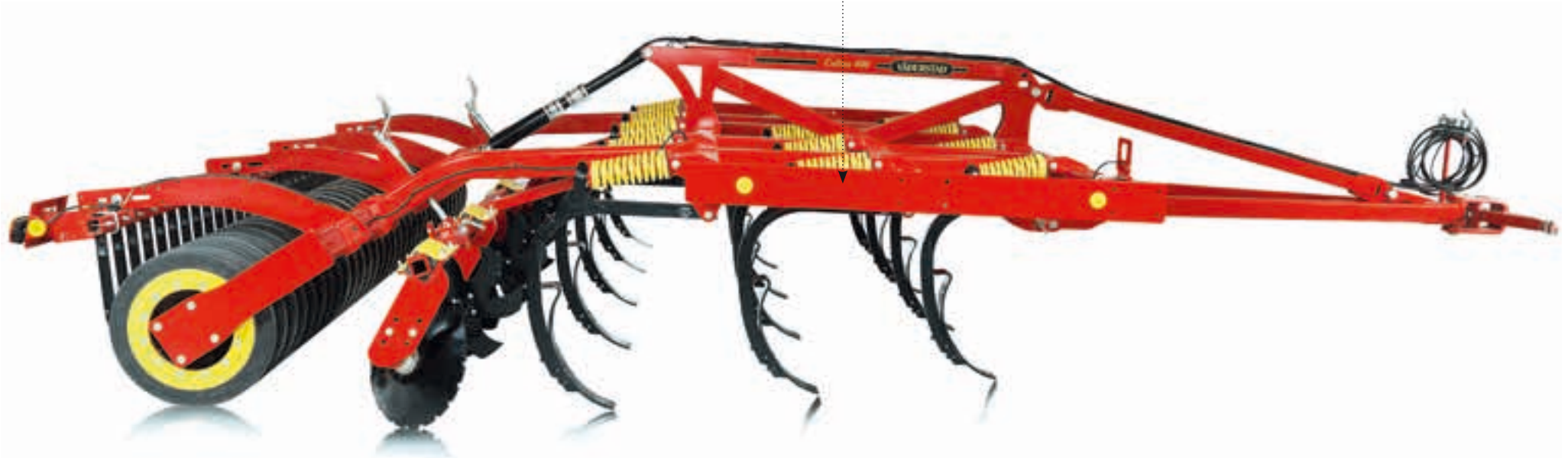
Cultus 300-400

The ideal cultivator for those looking for power, performance and durability. A very robust and spacious frame design along with a large free-rolling rubber packer give Cultus 300-400 a fantastic soil cultivation capacity, irrespective of soil type. The working depth is easy to set from the cab, which is an advantage in varying conditions.





The machine is spacious and has a frame height of 85 cm, allowing large amounts of soil and plant residue to flow through. The robust main frame is manufactured from square hollow sections (dim. 100x100x10 mm), giving a long service life.



ZONE 4	ZONE 3	ZONE 2	ZONE 1
<p>The trailed model is transported on the packer, which is why RubberRunner is supplied as standard. CageRunner, SteelRunner, Single SoilRunner and RubberRunner are options for the hydraulically mounted models.</p>	<p>Rubber-suspended levelling discs with maintenance-free bearings leave a very smooth surface. For light soils with little plant residue, tine levellers are available as an option.</p>	<p>The working depth is set hydraulically from the tractor. Cultus 300-400 has three axles 80 cm apart from each other with tines spaced at 90 cm. This gives an effective tine spacing of 30 cm, allowing high throughflow of large quantities of crop residue. The trailed Cultus models can be fitted with support wheels. Cultus can work down to a depth of 30 cm.</p>	<p>Hydraulic drawbars are available for trailed models.</p>

Quality of build and results

Cultus 300, 350 and 400 have three axles and 30 cm tine spacing. Together with the ground clearance, this gives maximum throughflow. Depth is regulated from the cab, and the machines are available in both mounted and trailed models.

Cultus is known to be effective in cultivating the soil and mixing in crop residue. Cultus leaves behind a level soil ready for drilling. The work result, robust de-

sign and simple handling are impressive. Equally impressive are the individual details of Cultus. They result in long service life and low maintenance costs.

The axles are positioned 80 cm from each other and the distance between the tines on each axle is 90 cm for maximum throughflow. The 85 cm ground clearance provides plenty of room even at maximum working depth.

Depth setting from the tractor

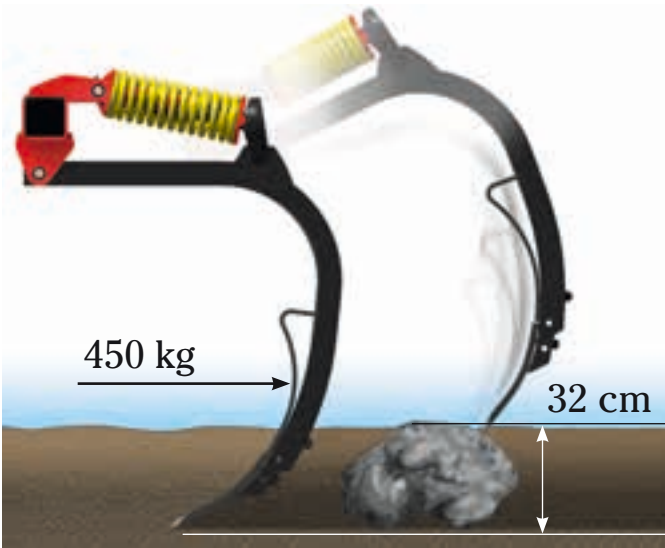
The depth regulation for the mounted Cultus 300-350 is continuously managed using hydraulics. For the trailed Cultus 300-400, the depth is also regulated from the cab, but the base level is marked with clips on the machine.



The tine spacing in combination with MixIn shins creates a large flow through the cultivator, where the soil is mixed several times as it is thrown forward.



Single SoilRunner reduces the weight while doing outstanding work in wet conditions.

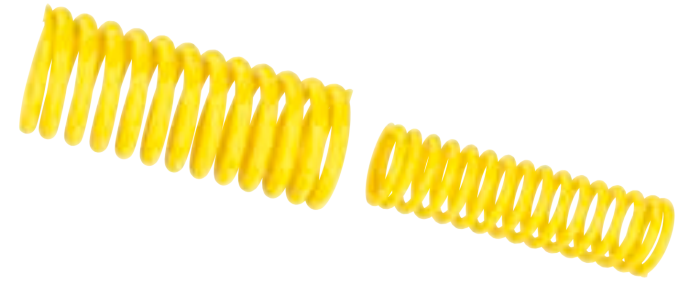


The tine has a release force of 450 kg. In the event that there is a stone in the way, the tine will maintain the same force in the soil until it finally springs up a maximum of 32 cm. When the obstacle has passed, the tine will quickly spring back into its working position.



With folding tines, the tine spacing and working width can be adjusted so that the cultivator can work to a greater depth without increasing the draught requirement.

Double springs improve depth control and also extend the service life since the vibrations from the two springs cancel each other out.

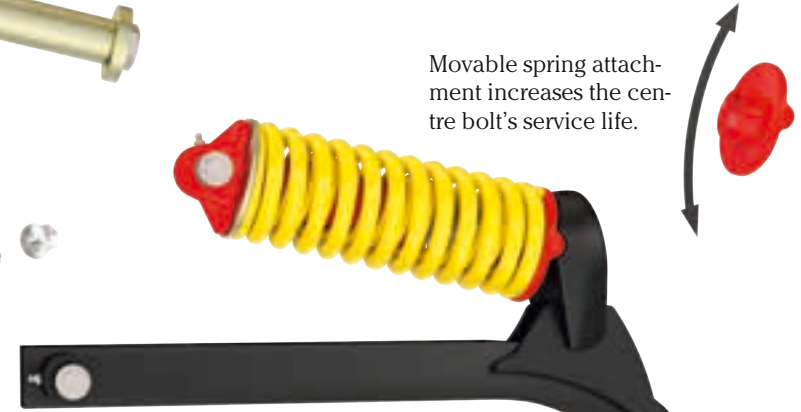


Very robust centre bolt ensures long service life.

Movable spring attachment increases the centre bolt's service life.



Conical bushings give a maintenance-free, stable and play-free mount.



Welded tine attachments in the frame ensure the tine's position.

Quality in the smallest detail

The Cultus Cobra tine is the result of intensive development work. The tine was designed as one piece to avoid bolted joints.

Thorough testing

Before being released onto the market, the service life of tines and springs were tested over many thousands of impacts in test rigs, and they were worked on countless hectares in the field on working farms. This ensures a top-class service life.



MixIn shin gives double mixing

The bowed shape of this shin makes it a phenomenal soil cultivator. The soil is lifted up, thrown forward in a circular movement and mixed once again when it lands, when the tine reaches it and throws it up again. This means that a single pass with Cultus actually has a double effect on cultivation and the mixing of crop residue.







Reliable reconsolidation

The trailed model is transported on the packer, which is why RubberRunner is supplied as standard. RubberRunner gives good reconsolidation and leaves a level surface. It also gives the machine smooth and safe passage during transport. CageRunner 600 mm, SteelRunner 550 mm, RubberRunner 587 mm and Single SoilRunner 580 mm are available as an option for the hydraulically mounted Cultus. Single SoilRunner is a lightweight packer with a diameter of 575 mm and a U-profile design, which permits soil to work against soil. On the hydraulically mounted models, the packer can be folded up completely to leave a more weatherproof surface, for example before the winter.



CageRunner



RubberRunner



Single SoilRunner



SteelRunner



Suspended scrapers keep the packer clean even in difficult conditions.

CULTUS OPTIONS



CULTUS TECHNICAL DATA

Model	Hydraulically mounted			Trailed		
	300	350	400	300	350	400
Draught requirement (hp)	90-140	120-160	130-200	90-140	120-160	130-200
Working width (m)	3.0	3.5	4.0	3.0	3.5	4.0
Transport width (m)	3.0	3.5	4.0	3.0	3.5	4.0
Number of tines	10	12	13	10	12	13
Tine spacing (cm)	30	30	30	30	30	30
Weight (kg)	2100	2300	2200	2400	2600	2800
CageRunner	<input type="checkbox"/>	<input type="checkbox"/>	-	-	-	-
RubberRunner	<input type="checkbox"/>	<input type="checkbox"/>	-	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
SteelRunner	<input type="checkbox"/>	<input type="checkbox"/>	-	-	-	-
Single SoilRunner	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	-	-	-
Hydraulic requirements	1 DA	1 DA	1 DA	1 DA	1 DA	1 DA

= Option

= Standard

DA = Double-acting

Drilling with BioDrill

With BioDrill, soil cultivation and drilling can be carried out at the same time. The seeds are steadily released in front of the packer and covered during reconsolidation. Cultus leaves a smooth, fine surface where the seeds can germinate in a seed bed with retained soil moisture.



BioDrill 180 and 250 are intended for Cultus 300-400.



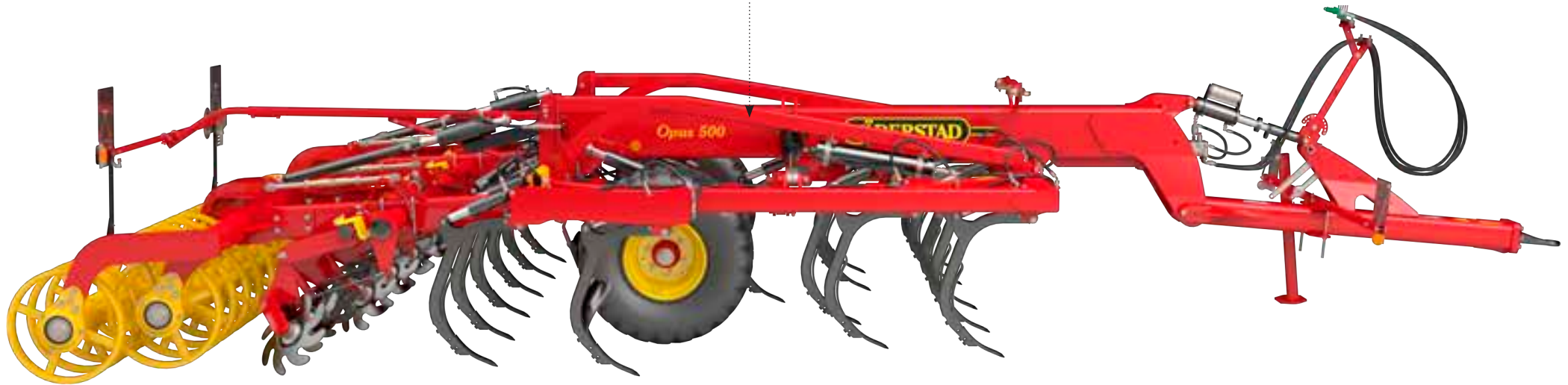
For the trailed models, support wheels are available as an option. The support wheels give better depth control.

Opus

If you need a robust and flexible cultivator that can work at depths down to 40 cm, Opus is a good choice. With 27 cm tine spacing, Opus permits good throughflow, and a unique selection of shins and points makes the cultivator very adaptable to local conditions. Reconsolidation can be adapted as required.



Powerful main frame gives a long working life.



ZONE 4

There are three models of packer to choose between, depending on requirements. Double SoilRunner that works soil against soil. SteelRunner, the market's most aggressive steel packer for heavy soils. Double SteelRunner also works when it is wet.

ZONE 3

Hydraulically adjustable rotating levelling discs leave a smooth surface. The sealed bearings mean that the discs are maintenance-free. The discs are operated from the tractor cab.

ZONE 2

The cultivator consists of hydraulically adjustable tines designed to loosen the soil, break up pans and mix in crop residue. The tines can be equipped with different point and shin options as required. The tine spacing and the high clearance of 80 cm allows large quantities of crop residue to flow through the machine which are then mixed into the soil. Welded tine attachments with special bolts hold the tines in place.

Large gauge wheels and support wheels with scrapers ensure that constant working depth is maintained.

ZONE 1

The drawbar is modular and available with both a ball coupling and a wide range of towing eyes.

Powerful action to a depth of 40 cm

Opus is built on a very robust frame and has a wide range of both points and shins, making it a precision machine. The design, with a tine spacing of 27 cm and a ground clearance of 80 cm, allow the cultivator to handle large quantities of crop residue while keeping the draught requirement moderate. For those wanting better drainage without mixing the soil, Low-Disturbance points are available as an option. Opus works well in all soil types.

Breaking pans without mixing

For those who need to penetrate into the subsoil to break up a pan, it is possible to fit deeply penetrating DeepLoosening points. The machine can also be equipped with folding tines, which allow it to work to greater depth and break up hard layers with a reduced number of tines, without having to alter the draught requirement.

Working with nature

Reduced cultivation means working with nature. In addition to saving fuel and time, the humus content in the upper topsoil is increased, which makes the soil easier to cultivate, decreases the risk of crust formation and increases the earthworm population. Earthworm channels improve the permeability of the soil profile and promote crop root development.



The tines are equipped with a split point and MixIn shin as standard. Ordinary points wear many times faster than MixIn shins, making it more cost-effective to have to change only the points. The advantage in cultivation terms is that this design ensures a constant mixing action over time.

The shins determines the mixing effect

The MixIn shins throw soil forwards instead of upwards, distribute crop residue longitudinally and finely distribute the soil. The point's cultivating angle is optimised to give as little clod formation as possible. This design results in very effective cultivation, since soil and crop residue are mixed several times in the same pass. To mix the soil in the vertical direction, a twisted shin is available as an option. Shins are available in three widths. For more information on points and shins, see pages 17–23.

High-precision cultivation

The tines have hydraulic stone release, which can be set variably with up to 700 kg release force. Thanks to the high release force of the tines and its soil-seeking points, Opus is able to maintain a constant working depth even in the heaviest soils. Väderstad tines are designed with horizontal spring packs, which increase the ability of the tines to absorb heavy shocks without deforming, an advantage in stony soils. There is also a positive effect on depth control, since the tines rebound better on hitting an obstacle. The welded tine attachments ensure that the tines maintain their position and eliminate the need for bolt tightening.



When equipped with DeepLoosening points, Opus can break pans down to a depth of 40 cm. To decrease the draught requirement, Opus can also be fitted with LowDisturbance points and folding tines.



The high stone release pressure means that the machine maintains perfect working depth in all conditions.



The tines are attached to the frame by specially designed bolts with conical bushings, which makes them maintenance-free and extends their service life.





Depth can be controlled from the cab

Working depth can be adjusted from the cab when the packer is working in the floating position.

The gauge wheels are positioned in the middle of the machine, making Opus easy to transport and giving the machine a small turning radius on headlands. The wheels are equipped with scrapers, enabling them to run clean even in difficult conditions. Support wheels on the wing sections ensure that the cultivator works to a constant depth across the entire working width.

Rotating levellers

Opus is equipped with hydraulically adjustable rotating levellers. These rotating levellers work very well even in heavy soils and can be adjusted from the cab. The parallel mounting of the levelling discs improves the work result, since it gives the same working angle irrespective of working depth. The levelling discs have rubber suspension and are maintenance-free.



Flexible choice of packer

Opus is available with three different packer models to suit all conditions, Double SoilRunner, SteelRunner and Double SteelRunner. SoilRunner is an overlapping double U-profile packer and SteelRunner is a steel packer with aggressively designed packer rings. For more information on appropriate choice of packer, see the section on packers on pages 26–29.

Exchangeable packer

Flexibility was the key word during the development of Opus. The degree of reconsolidation can be adjusted and the machine's packer is designed to be easily exchanged if required. This is a great advantage in the event of varying weather conditions, cultivation depth or soil type and further increases the cultivation precision. If necessary, the packer can be removed.

Double SoilRunner gives a large contact area

The special feature of SoilRunner is that it works soil against soil, leaving an "open" cultivated surface. By virtue of its design, SoilRunner does not get clogged, which is an advantage in wet autumns. When the U-profile is filled with soil, the wear is even lower. The overlapping packer has a large contact area and this, together with its diameter of 57.5 cm, helps to keep the draught requirement low. The packer can also be tilted to leave a weatherproof surface.

SteelRunner – a cultivating packer

In dry conditions, a high degree of reconsolidation may be required to promote decomposition and encourage weeds and volunteers to germinate. In such cases, the rubber-suspended SteelRunner with 60 cm diameter and aggressive steel rings is a good option. This packer efficiently crushes clods, cultivates the soil, breaks surface

straw and presses it into a shallow surface layer in order to achieve optimal decomposition rate.

Each ring also acts as a spring plate, eliminating the need to repeatedly tighten the packer unit. SteelRunner does its best work in soils where a lot of weight is required to reconsolidate the entire working depth.

Double SteelRunner

An aggressive packer with steel rings that efficiently crushes clods. The overlapping Double SteelRunner has a large contact area and a diameter of 60 cm, which contributes to a low draught requirement and minimises soil drag. The packer gives a weatherproof surface, allowing the next stage of cultivation to be carried out more quickly.



Double SteelRunner gives a well reconsolidated profile and it works well in most soil conditions, even when it is wet.



SteelRunner breaks surface straw and presses it into a shallow surface layer in order to achieve optimal decomposition rate.



Double SoilRunner is a U-profile packer where soil works against soil.

Adjustable contact pressure

The reconsolidation pressure is fully flexible and can be adjusted manually. In dry conditions where greater pressure is required on the packer to achieve a cultivating effect and crush clods, the weight of the cultivator can be redistributed so that a greater proportion rests on the packer.

In light and medium soils or under optimal conditions in heavy soils, the packer can be allowed to consolidate the soil under its own weight. In such cases, the gauge and support wheels bear a greater proportion of the cultivator's weight.

If there are difficult areas within the field, the packer can be raised so that it does not come into contact with the soil at all. During cultivation before winter where a rougher surface is required or conditions are very difficult, the packer can be removed completely before starting work. Even if the packer is removed, the tines behind the wheels will ensure that the cultivation effect is uniform.

With reconsolidation



In dry conditions, the entire weight of the machine can be borne by the packer.



In lighter soils or in wet conditions, the packer operates under its own weight so that it just rolls over the surface.

Without reconsolidation



In the event of high soil moisture, the packer can be raised completely.



In wet conditions, when a more lightweight machine is desirable, the entire packer can be removed.

OPUS OPTIONS



40 mm



50 mm



80 mm



D=41/52.5/57/72.5 mm



50 mm



50/80 mm



80 mm



120 mm



210 mm



50 mm Marathon



80 mm Marathon



300 mm wing knife



300 mm Marathon wing knife



DeepLoosening



LowDisturbance

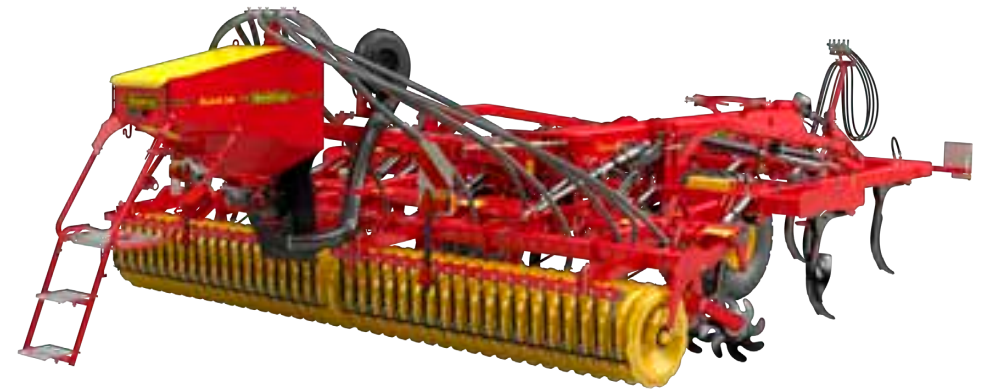


Folding tines reduce the draught requirement and allow deeper cultivation to be carried out using the same tractor.

OPUS TECHNICAL DATA

Model	400	500	600	700
Draught requirement (hp) from	170	220	270	320
Working width (m)	3.75	4.75	5.75	6.75
Packer width (m)	4.0	5.0	6.0	7.0
Transport width (m)	3.0	3.0	3.0	3.0
Number of tines	14	18	22	26
Tine spacing (cm)	27	27	27	27
Weight Double SoilRunner (kg)	5200	5600	7300	7800
Weight SteelRunner (kg)	5600	6200	8200	8800
Hydraulic requirements	3 DA	3 DA	3 DA	3 DA

DA = Double-acting



With BioDrill, soil cultivation and drilling can be carried out at the same time. The seeds are steadily released in front of the packer and covered during reconsolidation. Opus leaves a smooth, fine surface where the seeds can germinate in a seedbed with saved soil moisture.

TopDown

Flexibility in soil cultivation and the ability to adjust to different conditions make TopDown a reliable choice of cultivator. TopDown both slices and mixes large quantities of crop residue evenly into the cultivated soil profile. The machine can work at a shallow depth or down to a depth of 40 cm, in either case creating a seedbed in a single pass, which saves time and fuel.



Rubber suspension on the packer absorbs shocks and gives the frame a long service life.

The placement of the wheels makes the machine responsive on headlands and in transport.

The machine is spacious and has a frame height of 80 cm, allowing large quantities of soil and crop residue to flow through. The robust main frame can cope with stresses, giving it a long service life.



ZONE 5 ZONE 4 ZONE 3 ZONE 2 ZONE 1

There are three models of packer to choose between, depending on requirements. Double SoilRunner that works soil against soil. SteelRunner, the market's most aggressive steel packer for heavy soils. Double SteelRunner also works when it is wet.

The maintenance-free levelling discs leave a smooth soil surface. The levellers can be controlled hydraulically from the tractor cab.

The cultivator part of TopDown consists of hydraulically adjustable tines designed to loosen the soil and mix in crop residue. The tines can be fitted with different point options as required and can work down to depth of 40 cm. One of the advantages of having discs and cultivator tines in a two-stage process is that the total draught requirement is lowered. Clod formation is also minimised.

At the front there are two rows of serrated, conical discs with a diameter of 450 mm. These are made of V-55 steel. This steel extends the service life and lowers the operating costs. The discs slice up crop residue and mix it into the surface layer of the soil. The discs give a finely distributed result and the working depth can be set steplessly on the move.

The hitch drawbar is available in different sizes. A ball coupling is available as an option.

Flexibility gives three machines in one



A seed bed in one pass, all tools working.



Shallow cultivation, only discs and packer working.

Reduced cultivation means working with nature. In addition to saving fuel and time, the humus content in the upper topsoil is increased. This makes the soil easier to cultivate, decreases the risk of crust formation and increases the earthworm population. Earthworm channels improve the permeability of the soil profile and promote crop root development.

TopDown is a flexible machine where the working depth of the different tools can be adjusted individually to suit different requirements. It is designed to slice up the entire soil surface, mix in crop residue and loosen at a depth, all in a single pass. Finally the surface is levelled, any remaining clods are crushed and the soil is efficiently reconsolidated to full working depth. The secret is to have discs with a diameter of 450 mm and small notches in combination with narrow tine spacing and tines with mixing shins, giving a good balance between fine soil and small clods. Thanks to this design, the seed bed can be prepared in a single pass.

The front discs are suitable for shallow cultivation directly behind the harvester in order to mix in crop residue and encourage volunteers and weeds to germinate. The cultivator tines are kept in the raised position during this procedure. The conical discs of specialist hardened Swedish V-55 steel work best when driving at 12–15 km/h. This gives full mixing of crop residue, since it allows the discs efficiently to throw soil to the side. The discs create a flow of fine soil and a perfect false seed bed.

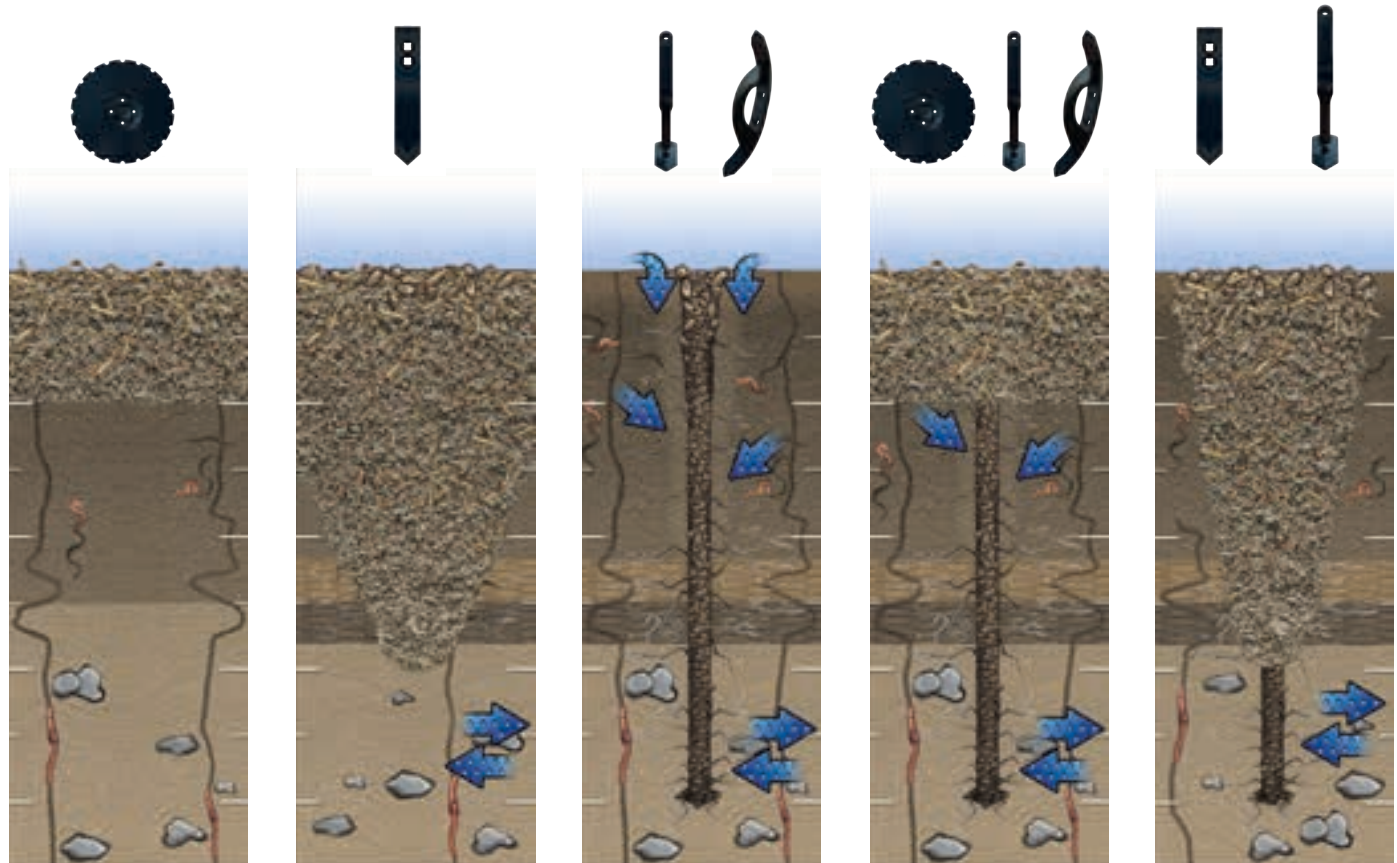
To use TopDown as a classic cultivator, the discs are lifted and the tines do the work. This type of operation can be used to break up a pan or hard soil layer. To work deeper down into the subsoil, deep Loosening points can be fitted to the rear tines. The tine spacing is 27 cm, which generates small clods. The clearance is high in order to cope with large quantities of crop residue.



Classic cultivator, tines and packer working.

Same tractor irrespective of working depth

With TopDown, it is possible to optimise the machine for all types of work, while still working fuel-efficiently with the draught capacity available on the farm. For example, by using the range of points and shins it is easy to cultivate the surface soil to shallow depth while at the same time breaking up deeper layers using LowDisturbance and DeepLoosening points. It is also possible to achieve full slicing of the entire cultivated layer and simultaneously break up pans in order to improve soil permeability. By equipping TopDown with folding tines and widening the tine spacing, the draught requirement can be reduced.

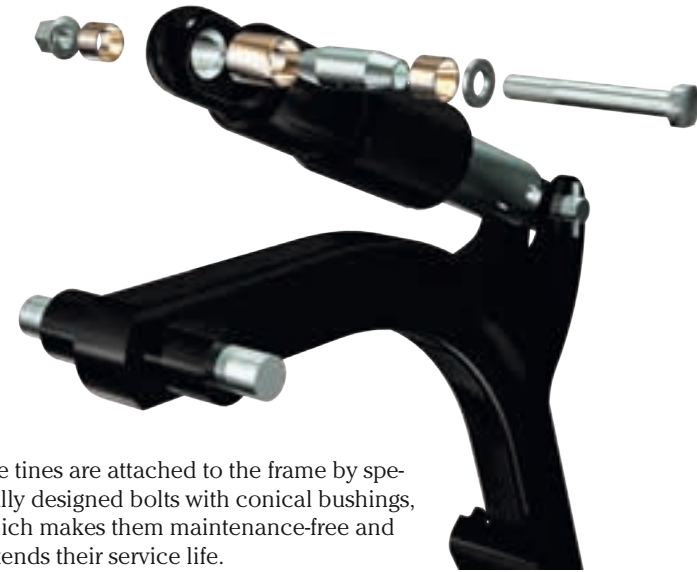


TopDown is designed to satisfy many requirements and also save fuel by using solutions with a lower draught requirement.

Effective mixing

The tines are equipped with a split point and MixIn shin as standard. Since an ordinary point is worn down many times faster than the shin, the two-part construction ensures a constant mixing action. The point's cultivating angle is optimised to give as little clod formation as possible. This design results in effective cultivation and mixing in of crop residue, since the soil is mixed several times in a single pass.

The tine has hydraulic stone release and can be adjusted variably by up to 700 kg release force, guaranteeing a constant depth even in the heaviest soils. The tines design has horizontal spring packs, which increase the ability of the tine to absorb strong shocks without deforming, an advantage in stony soils. The welded tine attachments ensure that the tines maintain their position and eliminate the need for re-tightening.



The tines are attached to the frame by specially designed bolts with conical bushings, which makes them maintenance-free and extends their service life.



The high stone release pressure means that the machine maintains perfect working depth in all conditions.



In dry conditions, the entire weight of the machine can be borne by the packer.

Rotating levellers

TopDown is equipped with hydraulically adjustable rotating levellers which can be adjusted from the cab. The parallel mounting of the levelling discs improves the work result, since it gives the same working angle irrespective of working depth. On heavy soils, the rotating levelling discs are better than the cheaper tine solution. The levelling discs are maintenance-free.

Flexible and exchangeable packer solutions

In dry conditions on heavy soils, powerful reconsolidation is required to break up clods, get decomposition started and to encourage weeds and volunteers to germinate quickly. In such a case, the entire weight of the machine can be borne by the packer rings. On lighter soils, the aim is not to let the packer work too deep, so it can be set to float over the surface under only its own weight.

In wet conditions on heavy soil, for example during autumn cultivation ahead of spring drilling, the packer can be removed completely. However, if there are only a few wet patches in the field, the packer can be raised in those areas so that it does not run on the soil. Tines behind the wheels ensure that tracks are eliminated.



On lighter soils, the packer is raised so that it just runs on the surface under its own weight. The packer can also be folded up completely.

The packer is also designed to be easily exchanged if required. This is a major advantage in the event of variable weather, working depth or very variable soil type, further increasing the cultivation precision.

Double SoilRunner – gives an open surface

TopDown can now be equipped with SoilRunner, a single or overlapping double packer that gives a greater contact area and lower draught requirement. Its special feature is that soil acts on soil, leaving an “open” cultivated surface. The packer can also be tilted to leave a weatherproof surface.

SteelRunner – cultivating packer

The strong, heavy packer rings with 60 cm diameter reconsolidate the soil surface and thoroughly crush clods. Each ring acts as a spring plate, which eliminates the need to re-tension the packer unit. The packer has suspended scrapers to ensure that the packer is kept clean even in difficult conditions.

Double SteelRunner

An aggressive packer with steel rings that efficiently crushes clods. The overlapping Double SteelRunner has a large contact area and a diameter of 60 cm, which contributes to a low draught requirement and minimises soil drag. The packer gives a weatherproof surface, allowing the next stage of cultivation to be carried out more quickly.



SoilRunner is a U-profile packer that leaves an open surface.



SteelRunner is rubber-suspended and made of special V-55 steel.



Double SteelRunner gives a well reconsolidated profile and it works well in most soil conditions, even when it is wet.





Make TopDown a seed drill with BioDrill

TopDown has a wealth of variation and a range of uses that includes most of the functions required in a modern soil cultivation implement. When it is equipped with BioDrill, it also becomes an efficient seed drill, allowing fast establishment of crops such as winter rape and catch crops.

Seed covered by BioDrill

When the machine is at work, the seeds are placed in front of the packer and covered over during reconsolidation. With TopDown 300, the seeds fall to the ground, while with TopDown 400-700 they are distributed evenly by spreader plates.

Sowing rape and catch crops

Early establishment in the right moisture conditions and thoroughly incorporated straw are important for winter rape. The right establishment time with sufficient heat ensures optimum development for the crop. TopDown with BioDrill provides a good starting point for the successful sowing of winter rape and catch crops.



BioDrill BDA 360 for TopDown 400-700.



Early sowing (right) is important for achieving good development before winter.



BioDrill 180 is suitable for TopDown 300.

TOPDOWN OPTIONS



40 mm



50 mm



80 mm



D=41/52.5/57/72.5 mm



50 mm



50/80 mm



80 mm



120 mm



210 mm



50 mm Marathon



80 mm Marathon



300 mm wing knife



300 mm Marathon wing knife



DeepLoosening



LowDisturbance



Folding tines reduce the draught requirement and allow deeper cultivation to be carried out using the same tractor.

TOPDOWN TECHNICAL DATA

Model	300	400	500	600	700	900
Draught requirement (hp) from	150	200	250	300	350	400
Working width (m)	2.65	3.75	4.80	5.75	6.75	9.10
Packer width (m)	3.0	4.0	5.0	6.0	7.0	9.0
Transport width (m)	3.0	3.0	3.0	3.0	3.0	5.0
Number of tines	10	14	18	22	26	35
Tine spacing (cm)	27	27	27	27	27	27
Weight (kg)	4400	6200	7000	9100	9900	13200
Hydraulic requirements	4 DA	4 DA	4 DA	4 DA	4 DA	4 DA

DA = Double-acting



NZ Aggressive

Looking for a machine that makes soil cultivation easier and has a guaranteed long service life? NZ Aggressive is the right choice. Its exceptional cultivation capacity saves on passes and frees up capacity. The OffSet bogie wheels give the harrow excellent manoeuvrability and consistent working depth, which can be simply adjusted from the cab.



Väderstad's smart foldback function folds back the following harrow in the event of accidental reversing.

NZ Aggressive has 7.5 cm tine spacing, distributed across five or six axles, which allows very good throughflow and intensive seed bed cultivation. Thanks to its long frame, very light soils with plant residue on the surface can also be harrowed without any problems. The Control function allows working depth to be adjusted from the cab on the move.

NZ Aggressive has a standard interface for towing eyes and can be supplied according to customer requirements.



ZONE 5

ZONE 4

ZONE 3

ZONE 2

ZONE 1

The spring-suspended following harrow loosens the surface and gives effective protection against crusting. Both the angle and contact force of the following harrow can be easily adjusted.

Rear CrossBoard is an option and can be refitted to the harrow (does not apply to six axles).

The five or six axles with vibrating AgrillaCobra tines slice, loosen and level off the soil for quick drilling. The intensive vibrations of the tines grade the soil and effectively level out hollows at the same time. The seed bed is so well worked that even small-seeded crops have optimal conditions for germination.

CrossBoard with double-acting stabiliser bar made of specialist hardened steel grinds and crushes clods. CrossBoard transports fine soil and levels off the soil surface. For tough soils, there is SingleKnife, a cultivator tool that further increases the slicing power of CrossBoard.

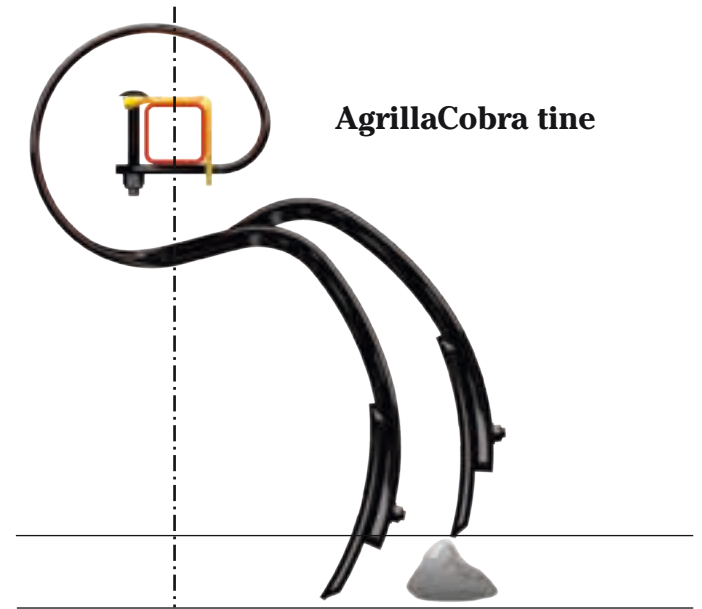
Aggressive Agrilla tines loosen up tractor tracks with their slicing points. The negative effect of tracks on the seed bed is eradicated.



Väderstad CrossBoard is supplied with a stabiliser bar made of specialist hardened steel as standard.



With the SingleKnife tool fitted to CrossBoard, the cultivation effect is further upgraded. This can be fitted without the need for any tools using the Väderstad QuickChange system.



AgrillaCobra tines by virtue of their design have an impressive release height in combination with good depth control.

Maximum cultivation with high throughflow

CrossBoard with its stabiliser bar made of specially hardened boron steel comes as standard for NZ Aggressive. The bar ensures that all CrossBoard tines work at the pre-set depth and give maximum cultivation without individual tines moving back and forth. The bar is easy to remove when working with lighter soil or if greater throughflow is desired.

The intensively vibrating AgrillaCobra tines are made from specially hardened spring steel in the dimensions 10x45 mm. They are strong and have

unique depth control. NZ Aggressive has 7.5 cm tine spacing, with the tines distributed across five or six axles. The clearance height and tine distribution provide impressive throughflow in combination with intensive seed bed cultivation.

The following harrow for NZ Aggressive is built to suit all soil types and requirements. It is easy to set the working angle and the contact pressure. An effective reversing guard prevents damage and costly repairs to the following harrow.



The responsive, spring-suspended following harrow is easy to set to optimal working depth.

Excellent depth control

The Control function for NZ Aggressive allows the working depth to be adjusted on the move. With the help of this, the harrow can be set to work slightly more intensely on headlands or in areas where deeper cultivation is required.

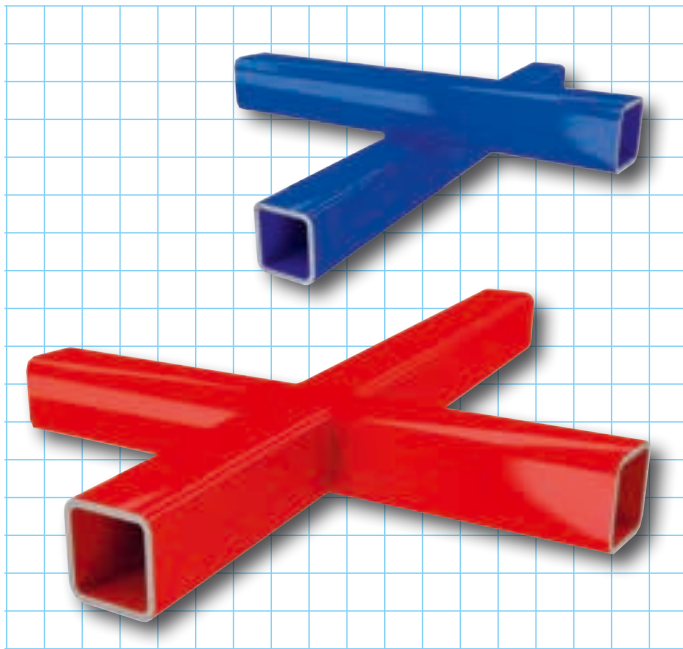
The Control cylinder is actually a cylinder with an adjustable bottom position. During work, the main cylinder is always in the bottom position. By adding or removing oil, the bottom position can be raised or lowered respectively. This allows the driver to adjust the working depth on the move and the machine “remembers” the last working depth set, which makes it easy to return to the pre-set working depth. The large and clear scale lets you know precisely what the set depth is. Each scale division indicates a 1 cm change. The Control function is standard for NZ Aggressive 600-1000.



Quality and steady ride

To live up to the increasingly stronger tractors of today, which allow deeper engagement of NZ Aggressive, a stronger drawbar has been produced.

The lattice design is a high quality framework structure of square profile steel lying in-line. Each weld is carefully made to give a uniformly strong, flexing structure, which prevents fatigue and cracking in welds and material. The hollow sections are also angled so that they can absorb shocks and stress in an optimal way.



A lattice solution where the hollow sections are placed at an angle to each other is more weld-intensive than the method of welding the hollow sections directly to each other, but this solution makes the structure 40 per cent stronger.

The bogie units are offset in order to give the frame two carrying lines. This ensures that the harrow is stable in the longitudinal direction. NZ Aggressive has new larger bogie bearings which increase service life and only require annual lubrication. The bogie bearings provide stability while allowing the bogie to work friction-free.



The OffSet bogie units also give a very steady ride even at high speed on uneven surfaces.



Robust drawbar that measures 200x100 and is 10 mm thick.



Having 40 per cent of the load on the front bogie wheels and 60 per cent on the rear gives impressive soil contouring and a “fast” bogie that efficiently deals with uneven ground. The angled contact bearings efficiently absorb any disruptive lateral forces that may arise.

Väderstad harrows

NZ Aggressive 500ST, 600T, 600

NZ Aggressive ST and T are the simpler models in the NZ Aggressive series. The ST model has single wheels on the outer sections. The working depth is adjusted using index-marked crank handles and an adjusting device on the centre cylinder. NZ Aggressive 600T has bogie wheels on the outer sections and a hydraulic Master and Slave system controls the working depth. Otherwise, the 5 and 6 m models have the same outstanding properties as the larger NZ Aggressive harrows.

NZ Aggressive 700-1000

NZ Aggressive 700-1000 is an extraordinary seed bed cultivator. A harrow for those farmers who require the absolute best on the market. Robust AgrillaCobra tines in a robust frame structure divided between five or six axles with a tine spacing of 7.5 cm. The cultivation is phenomenal and the harrowing is often complete after the first pass.



NZ Aggressive 600T



NZ Aggressive 900



NZ Aggressive 700 can easily be extended to 800 and NZ Aggressive 900 can be extended to 1000.

A close-up photograph of a red tractor's rear suspension and tire. The tractor is shown in motion, with a large cloud of dust rising from the ground. The focus is on the yellow-painted metal suspension components and the black tire. The text "NZ Aggressive 900" is printed in a stylized yellow font on a red background strip across the middle of the image. To the right, the "VÄDER" brand name is visible in a black oval with yellow text.

NZ Aggressive 900

VÄDER



All parts of the harrow contribute to creating something that is appreciated by farmers around the world – a perfect seed bed.

RSTAD

Cage packer is an option for all NZ Aggressive models

NZ Aggressive equipped with cage packer gives a very level surface, with the soil structure reduced to a good tilth, perfect for drilling small-seed crops such as sugar beet. The contact pressure of the cage packer is easily adjusted using centrally positioned cranks. We have focused on fitting bearings that have an extra long service life.



Sprung wheel suspension

To allow for higher tractor speeds, NZA 700-1000 have been equipped with sprung wheel suspension, significantly increasing the frame's service life.



The harrow that grows depending on its task

Following harrow

Both the angle and contact force of the following harrow can be easily adjusted. The following harrow has a built-in back stop function.

Cage packer

Leaves a very smooth and even surface with a well crumbled structure. Recommended for soils free of stones.



Lighting

An effective LED lighting kit is available as an option for the front and rear. It can be easily retrofitted to existing machines.

Spare wheel



Track eradicators

The track eradicators efficiently eliminate the tracks left by the tractor and can be individually adjusted to the desired depth.

Lighting

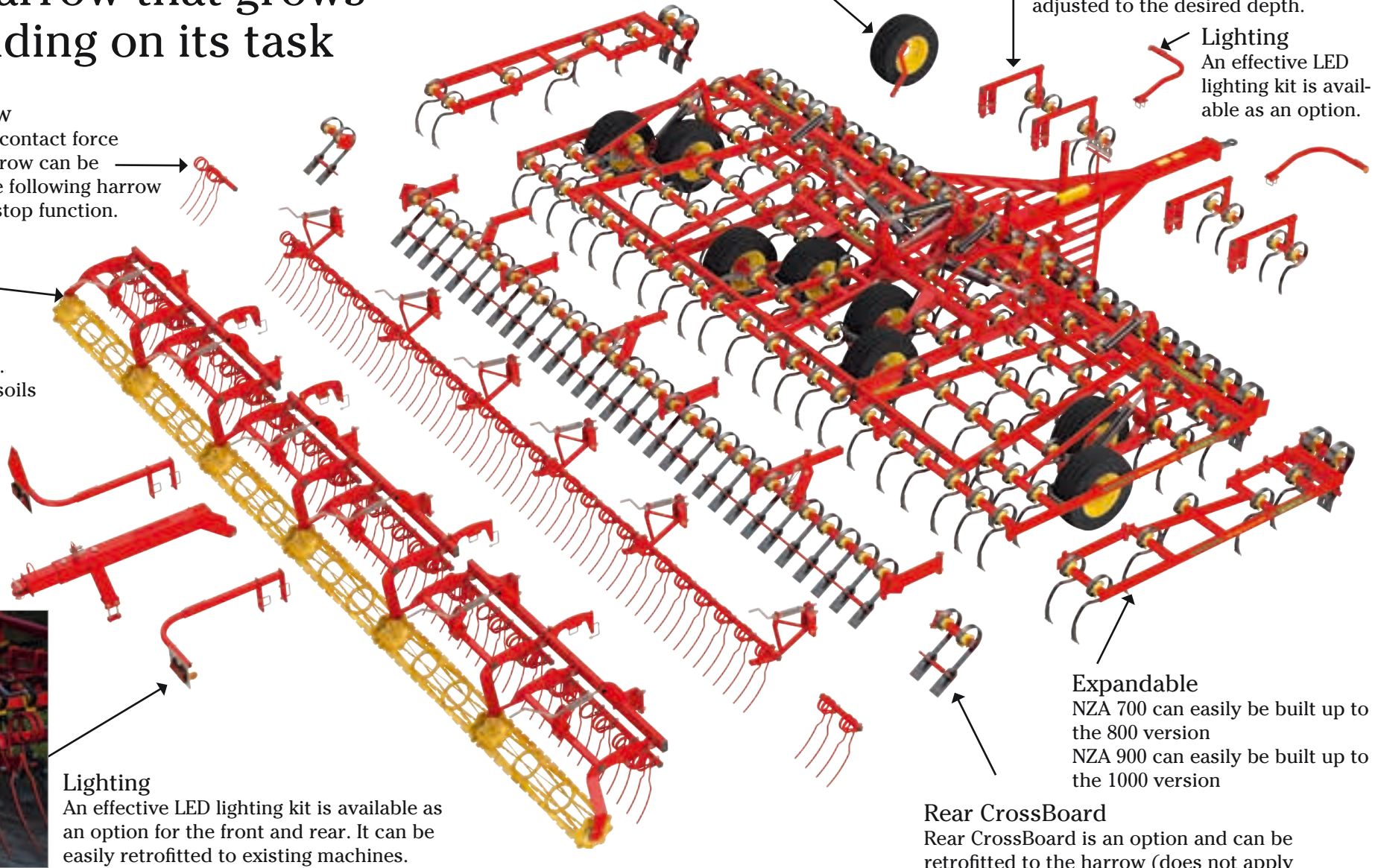
An effective LED lighting kit is available as an option.

Expandable

NZA 700 can easily be built up to the 800 version
 NZA 900 can easily be built up to the 1000 version

Rear CrossBoard

Rear CrossBoard is an option and can be retrofitted to the harrow (does not apply to six axles).





If the harrow is used for weed control, a goosefoot point is the obvious choice. It slices off all roots and effectively starves out weeds, which are left to dry out on the surface. The obvious choice for organic cropping.

Hitch a Crosskill packer behind the NZ harrow

Hitching the packer behind the harrow reduces the number of passes and gives a better seed bed with less driving. This packer is greatly appreciated by seed producers and sugar beet growers.

In the autumn, when the soil is often cloddy and wet, the Crosskill packer has its rightful place behind the harrow.



The hitch-on drawbar further increases the flexibility of NZ Aggressive, since it allows a packer to be pulled behind the machine. The hitch-on drawbar is available as an option.



The track eradicators efficiently eliminate the tracks left by the tractor and can be individually adjusted to the desired depth. Track eradicators are available for standard wheels (2x2 tines) and for twin wheels (4x2 tines).

NZ AGGRESSIVE OPTIONS



With the cultivator tool SingleKnife fitted to CrossBoard, the cultivation effect receives an additional upgrade. No tools are needed for fitting thanks to the Väderstad QuickChange System.



A good lighting kit is available as an option. It can be easily retrofitted to existing machines. The system uses LED lights to ensure a long service life in demanding environments.

NZ AGGRESSIVE OPTIONS

Rear CrossBoard with stabiliser bar is recommended for heavy soils where extra levelling is often an advantage. A rear CrossBoard can be fitted to NZA 600-1000 (does not apply to six axles). It can be set steplessly in relation to the front CrossBoard.



NZ AGGRESSIVE TECHNICAL DATA

Model	500ST	600T	600	700	800	900	1000
Draught requirement (hp) from	100	110	120	140	160	180	210
Working width (m)	4.95	5.95	5.95	6.95	7.90	8.95	9.90
Transport width (m)	3.0	3.0	3.0	3.6	3.6	3.9	3.9
Transport height (m)	2.3	2.9	2.9	3.1	3.6	3.9	4.4
Wheel dimensions	200/60x14.5	200/60x14.5	200/60x14.5	250/65x14.5	250/65x14.5	250/65x14.5	250/65x14.5
Number of tines	66	79	79	93	105	121	133
Tine spacing (cm)	7.5	7.5	7.5	7.5	7.5	7.5	7.5
Depth control	-	Yes	Yes	Yes	Yes	Yes	Yes
Weight incl. double CB (kg)	2050	2400	2900	3400	3900	4400	4900
Hydraulic requirements	1 DA+1 SA	3 DA	3 DA	3 DA	3 DA	3 DA	3 DA
Track eradicators	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Spare wheel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rear CrossBoard	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Following harrow	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hitch-on drawbar	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lighting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Local conditions, e.g. sloping fields, can greatly increase the draught requirement.

DA = Double-acting SA = Single-acting NZA with six axles cannot be equipped with rear CrossBoard

= Optional equipment



Rollex/Rexius

A simple yet multifunctional roller with rubber suspension to extend its service life. It can be equipped with both CrossBoard and BioDrill. CrossBoard has Master & Slave hydraulics, which ensures perfect depth control across the entire working width.





Robust frame with large stone trays as an option and automatic locking device. The locking device prevents accidental unfolding of the roller during reversing. The switch from transport to field work is made from the tractor cab.



ZONE 3

Roller rings are available in several different models. Maintenance-free rubber suspension absorbs shocks and vibrations, making the roller very durable.

ZONE 2

CrossBoard with stabiliser bar that is adjusted hydraulically from the cab crushes clods and levels the field. CrossBoard can be equipped with SingleKnife or DoubleKnife for an increased slicing and crushing effect. The tool is an option.

ZONE 1

Reversible hitch drawbar with various sized towing eyes. The extension drawbar is available for equipping the roller with CrossBoard or running it behind other tools.

Why roll?

The roller's traditional use is to ensure that crops and seeds have good soil contact and optimal conditions for growth, and to ensure that stones are pressed down into the ground so that they do not become a problem during threshing. Modern rollers can do more and are also used as soil cultivation tools for everything from crust-breaking to levelling plough furrows.

Roll winter rape in the autumn

A Rexus with Cambridge rings after rape drilling ensures that the rape has better contact with the soil and better conditions for quick and uniform establishment.

Roll autumn drilling in the spring

Frozen ground can lift the soil and worsen the roots' contact with moist soil. A roller with Cambridge or Crosskill rings presses the soil together so that the roots have good contact with the soil and the balance between soil moisture and air supply is restored so that the crop's growth is stimulated. The aggressive Crosskill ring breaks hard surfaces that are often formed if there are autumn conditions during the spring.

Roll after spring drilling

A Rollex or Rexus roller equipped with Crosskill or Cambridge rings after spring drilling creates optimal germination conditions for the seed. Stones are pressed down as the soil surface is loosened, preventing slaking after heavy rain.



With CrossBoard, the roller becomes an efficient furrow leveller.



The roller creates optimal germination conditions after drilling.



Rolling autumn crops in spring improves air transport to the root system.

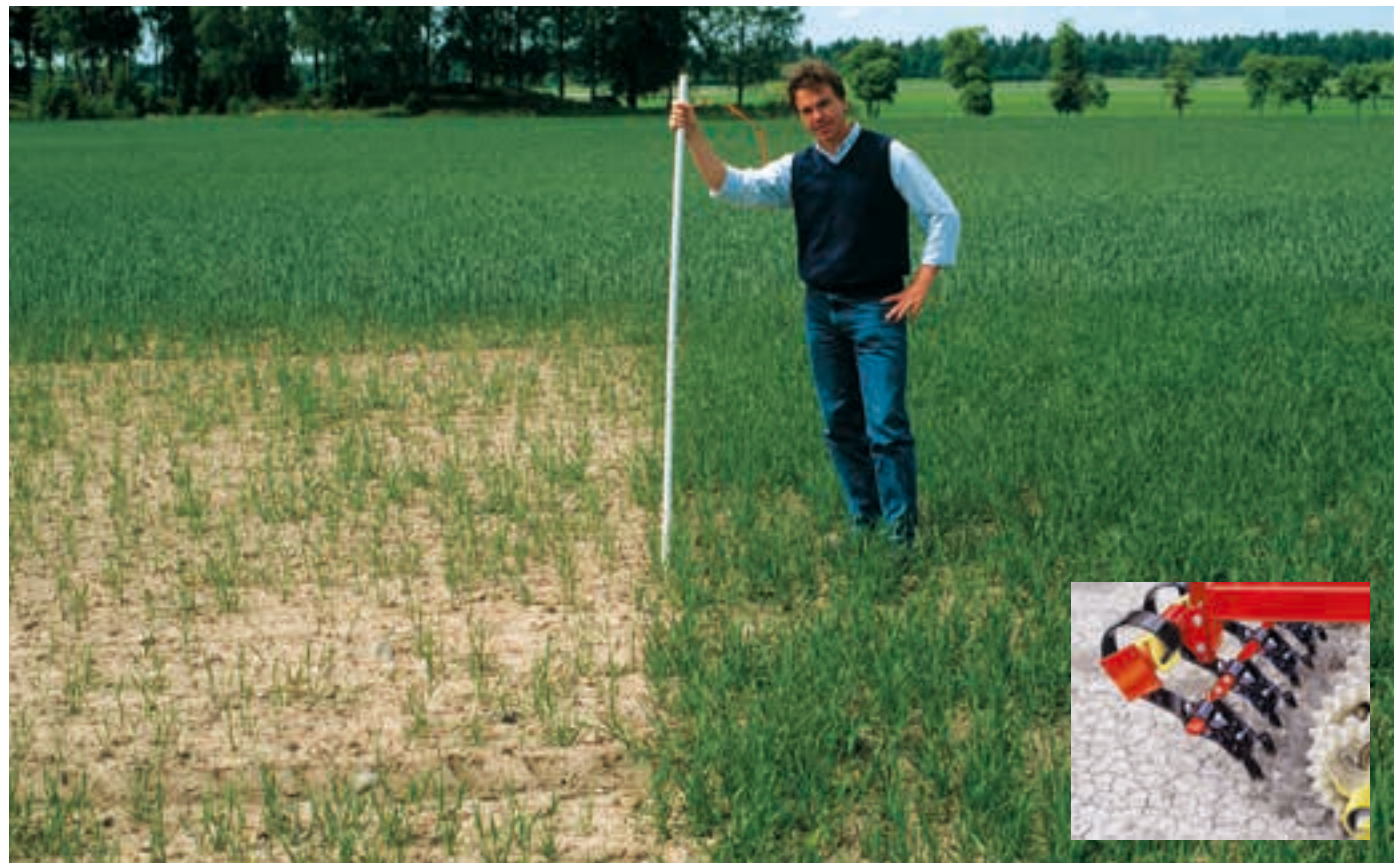
Soil cultivation with a roller

Crushing clods and levelling ploughed soil are perhaps the main tasks of the roller. A roller equipped with Crosskill rings and CrossBoard gives high-calibre soil preparation. If further reconsolidation is desired after a cultivator, Rexus may be hitched on. A following Crosskill roller combines efficient cultivation with uniform reconsolidation and few passes, in both spring and autumn. When equipped with Crosskill rings, the roller has the unique ability to keep itself clean, even when the soil is relatively wet, which it often is after a harrow or cultivator during cultivation.

Breaking a crust

Rain between drilling and emergence may risk the establishment of the crop if a crust is formed. In such cases, quick and resolute action is necessary to rescue the emergence and safeguard the crop. In such cases with hard crusts, Rexus and Rollex rollers with CrossBoard and DoubleKnife crust-breaking tools have given big yield increases. The advantage of DoubleKnife is that you can cultivate hard ground without tearing up the soil, since the movement is directed forwards. The contact pressure is adjusted hydraulically from the cab and CrossBoard is equipped with a Master & Slave system to ensure that various segments of the roller maintain the same position.

For a more brittle crust, the Rexus roller with Crosskill rings works just as well without the crust-breaking tool.



DoubleKnife breaks efficiently through hard crusts. Attempts have shown that the crops can be more than halved if the crust is not broken.



The Master & Slave hydraulics ensure exactly the same depth control for all CrossBoard segments.



Responsive and robust roller

All of Väderstad's rollers have maintenance free bearings and large diameters to ensure durability and good responsiveness in the field. The responsiveness is important for ensuring that all soil undergoes the same rolling and that you give the plants the same conditions. The bushings are hardened and very high quality, which gives a long service life.

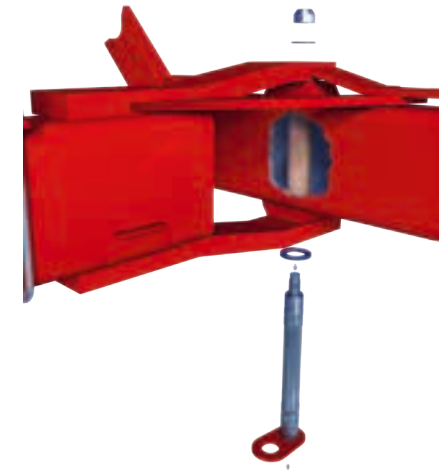
The roller sections are freely jointed from each other, which allows large obstacles to be overcome in the field without affecting the responsiveness.

The rollers are equipped with axles made of micro-alloyed special steel of the highest quality. The roller bearings' rubber suspension is a

Väderstad solution that increases the service life of the frame, axles and roller rings. The maintenance-free bearings are double-sealed to prevent dirt from entering.

The roller rings are equipped with spring plates. They give increased precision and contribute to reducing wear since the rings cannot move back and forth. The service life increases as the maintenance requirement decreases since the roller rings rarely require readjustment.

Flexible wing folding and the placement of the wheels in the centre of the roller makes it easy to transport and helps keep the weight from the tractor.



The rollers bearings are made of special steel and have bushings to guarantee of a long service life.



The roller sections are freely jointed from each other, which allows large obstacles to be overcome in the field without affecting the responsiveness. The design solution with a more robust frame compared with centre-suspended rollers gives a more uniform work result, and stones are pressed down more efficiently.



The specially hardened axles are built for a very long service life.



The rubber suspension is a unique Väderstad solution that gives the roller great durability. The spring plate (marked green) keeps the roller unit tensioned.





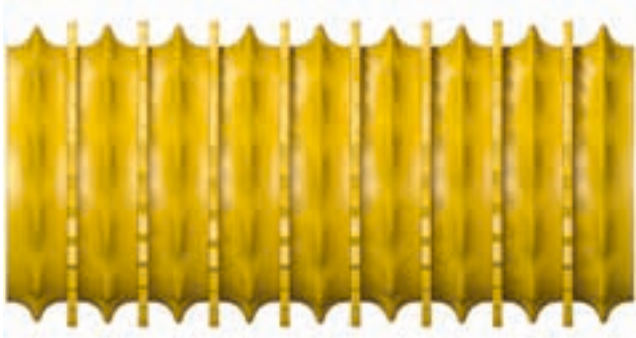
Rollex/Rexius with BioDrill

Using Biodrill on a Väderstad roller, you can drill ley seed, catch crops and other small-size seeds. This saves passes, time and money. The Fenix system meters the seeds with great precision. The seed nozzles are positioned in front of the compaction roller and give a uniform distribution. The seeds are covered by the roller in the uppermost soil layer where the conditions for germination are best.

The larger Rexius 1020 and Rexius 1230 can be equipped with the electric drilling unit BioDrill BDA 360, and the option of two different spreader plates. The first option is to allow the electric feed system, Fenix, to spread small-seeded crops such as rape, ley or catch crops in front of the compaction roller. The other option is to fit the spreader plate behind the roller to then spread slug pellets with great precision across the entire working width. Thanks to the roller's efficient reconsolidation and the spreader plate's careful spreading pattern, this is very effective and the roller plays a crucial role in combatting slugs.

Select ring depending on task

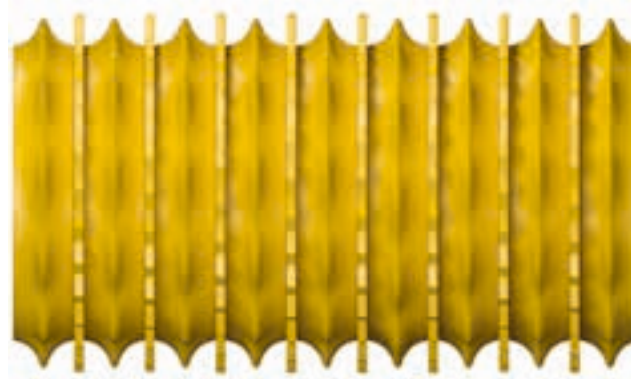
Rollers



Cambridge (480/485 mm diameter)

The ring for traditional rolling in ley, growing crops, after drilling or spring rolling. The larger serrated ring has a driving action and the narrow ring gives the roller a soil-cultivating action, whilst also keeping it clean.

Axle diameter 55 mm.

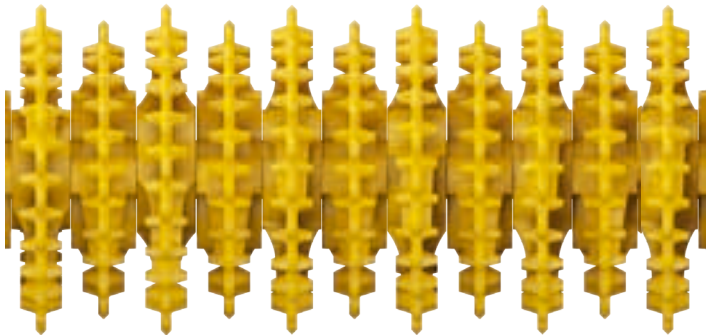


Cambridge HeavyDuty (550/565 mm diameter)

For heavy soils during autumn cultivation where an extra reconsolidation effect is required to recreate the capillarity. A larger diameter reduces the rolling resistance.

Axle diameter 60 mm.

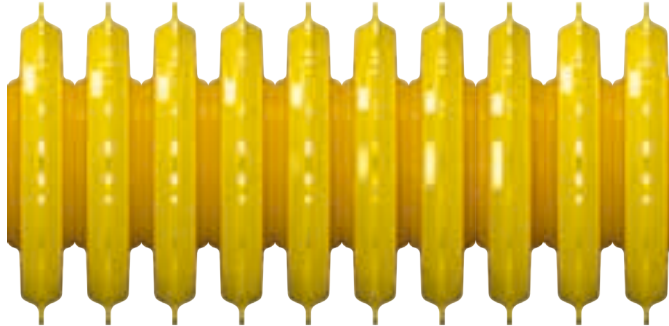
Cultivates and rolls



Crosskill (470/520 mm diameter)

Soil-cultivating rings with aggressive pattern that gives a loose and crust-resistant surface even as the roller reconsolidates at depth. The difference in ring diameter does not only give a self-cleaning effect, but also an Offset behaviour which in turn loosens more soil in light conditions, which reduces the draught.

Axle diameter 55 mm.



SteelRunner (550 mm diameter)

Only Rexius 500-650

Aggressive soil-cultivating roller with high point pressure through the deep profile. Reconsolidates at depth and on the surface and leaves a free-draining, crust-protected surface. Equipped with suspended scrapers that keep the roller clean, even in very wet conditions. Axle diameter 60 mm.




















































Models and options, rollers

Rollex

Rollex is the flexible roller in the segment 4.5–6.2 m working width. The robust frame (200x100x10mm) is well designed for the working widths of Rollex and guarantees a long service life. The transport wheels are 25.4 cm wide. Rollex has a transport width of 2.8 m.

Rexius

The Rexius rollers are equipped with an extra robust frame (250x150x10mm) to withstand tough conditions. This also gives a higher weight per metre, up to 800 kg, which is an advantage during rolling. Rexius is available with a working width of up to 12.3 m and has a number of different ring options to choose from. Rexius is supplied with sturdy 400 mm wide wheels. Tandem wheels are available as an option for certain models (see table below). Rexius has an impressively narrow transport width of only 2.5 m.

Rollex 450	Rollex 510	Rollex 620	Rexius 500	Rexius 650	Rexius 820	Rexius 940	Rexius 1020	Rexius 1230	
									Cambridge
									Crossskill
									Cambridge HeavyDuty
									SteelRunner
									CrossBoard
									BioDrill
									Single wheel
									Tandem wheel

Pick up stones when you see them

The roller often represents the perfect opportunity to clear the field of stones that have come to the surface during soil cultivation or frost periods. Using the option of stone trays, you can quickly and efficiently load large quantities of stones and leave the field ready for drilling without the need to worry about stones damaging the machines.



The stone trays are ergonomically positioned and easily accessible.



High capacity means fewer stops for emptying.



They are easy to empty from the cab using the roller's hydraulics.



ROLLEX AND REXIUS OPTIONS



40 mm



50 mm



80 mm



D=41/52.5/57/72.5 mm



To further increase the cultivating and crushing effect of CrossBoard, it can be equipped with sharp and hardened knife tools, SingleKnife. Using the crust-breaking DoubleKnife, you can break through the surface hardening that often arises on silty soils after heavy rain. This can be fitted without the need for any tools using the Väderstad QuickChange system.

ROLLEX TECHNICAL DATA

Model	450	510	620
Draught requirement (hp) from	55	60	70
Working width (m)	4.5	5.1	6.2
Number of sections	3	3	3
Transport width (m)	2.3	2.8	2.8
Weight** incl. CB (kg)	2000	2310	2800
Hydraulic requirements	1-2 DA	1-2 DA	1-2 DA

DA = Double-acting

** Crosskill or Cambridge

REXIUS TECHNICAL DATA

Model	500	650	820	940	1020	1230
Draught requirement (hp) from	60*	70	90	100	110	100*
Working width (m)	5.0	6.5	8.2	9.4	10.2	12.3
Transport width (m)	2.5	2.5	2.5	2.5	2.5	2.5
Weight with SteelRunner (kg)	3100	4000	-	-	-	-
Weight** incl. CB (kg)	-	3820	4800	5200	5550	5800*
Weight*** incl. CB (kg)	-	4820	6100	7000	7350	7380
Hydraulic requirements	1 DA	1-2 DA	1-2 DA	1-2 DA	1-2 DA	1-2 DA

DA = Double-acting

* cannot be equipped with CrossBoard. For other models, the pulling power requirement is specified with CrossBoard.

** Crosskill or Cambridge. Rexius 1230 is only supplied with Cambridge rings.

*** Cambridge HeavyDuty (1230 without CrossBoard)

RexiusTwin

If the soil is cloddy and hard, RexiusTwin, with a weight of up to 1660 kg/m can help with a high working intensity. By virtue of the press both cultivating and reconsolidating the soil, a surface is created that is suitable for drilling. Together with Väderstad Rapid, RexiusTwin constitutes an interesting alternative to rotary cultivator combinations since it both retains the ground structure and increases capacity.



Robust frame with 60 cm ground clearance.



ZONE 4	ZONE 3	ZONE 2	ZONE 1
<p>The sharp, heavy rings that are positioned so that they overlap force the remaining clods through and under the rings, whereby extreme slicing is achieved. The rings are slightly wavy to give driving force and give a loose surface. The diameter is 730 mm with a spacing of 200 mm.</p>	<p>CrossBoard with stabiliser bar that is adjusted hydraulically from the cab crushes clods and levels the field. CrossBoard can be equipped with SingleKnife or DoubleKnife for an increased slicing and crushing effect.</p>	<p>Vibrating Raptor tines with 22 cm tine spacing and 44 cm between the axles give good flow of soil and plant residue. The standard tines are 40 mm wide and 17 mm thick. They work best in ploughed soil. The machine works down to a depth of 15 cm. A third row of tines is available as an option.</p>	<p>Reversible towing eye that can be adapted to the tractor's hitching hook.</p>



RexiusTwin – a versatile heavyweight

Whether you have light or heavy soil, there is great potential with RexiusTwin. RexiusTwin levels (almost excavates if required), crushes clods and reconsolidates at a pace and on a scale that is unique.

The vibrating tines move continuously and reduce the machine's draught requirement and consumption of wearing parts even as they give a high soil-cultivation capacity down to a depth of 15 cm. The tines can be equipped with either cultivating or mixing points. When the tines and points have sliced through the furrows, CrossBoard takes over and efficiently breaks up the clods. CrossBoard is equipped with a double-acting stabiliser bar,

ensuring it works level across the entire working width. CrossBoard is adjusted hydraulically from the cab.

RexiusTwin was designed for the efficient reconsolidation of both light and heavy soils. The rings wide shoulder combined with an aggressive edge efficiently crushes clods, and an excellent bearing capacity is achieved on both wet and dry soil. The shoulder also means that the draught requirement is also measurable for loose surfaces. Front tools and rings give a surface that is well prepared for drilling.



To further increase the cultivating and crushing effect of CrossBoard, it can be equipped with sharp and hardened knife tools, SingleKnife. These can be fitted quickly and without the need for any tools by using the Väderstad QuickChange system.

RexiusTwin concept

It is well known that deeply cultivated soil is too loose and requires reconsolidation to yield an optimum crop. By reconsolidating the soil a few days after ploughing or other deep cultivation, you reduce the risk of the soil drying out and becoming cloddy in a dry year.

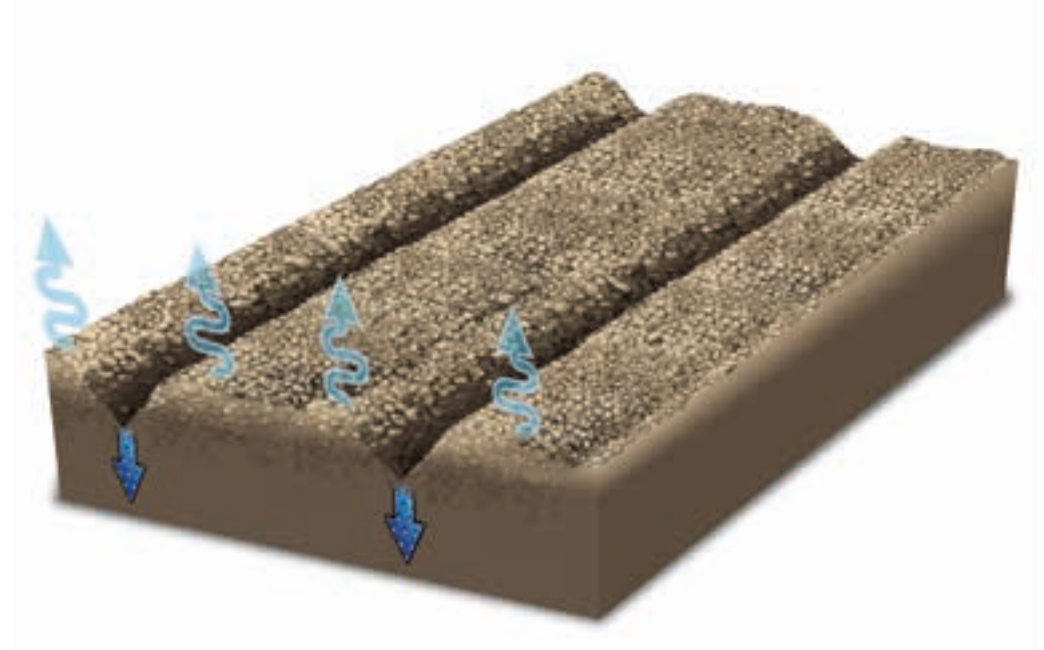
Lighter, sandy and medium-firm soils are often difficult to cultivate just after ploughing and also risk becoming impossible to handle in a dry or very wet autumn. Stiff soil must be levelled, reconsolidated and given a slightly loosened surface with larger clods pressed down into fine soil as soon as the soil is ready. Ploughing or other deep cultivation directly followed by RexiusTwin and then drilling may be a weatherproof system with high capacity for these soils.

Combatting pests

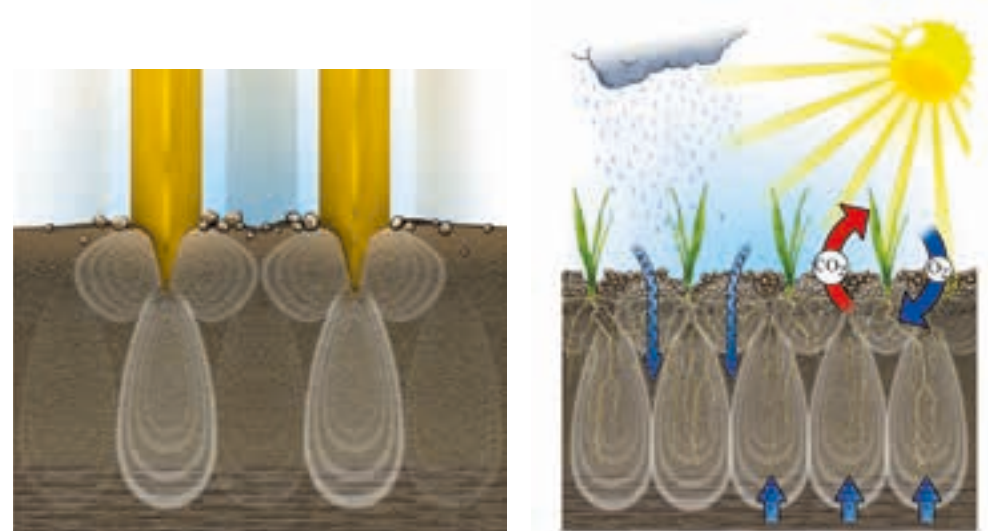
The cultivating and reconsolidating properties of RexiusTwin also mean that air pockets in which slugs reside and breed are compressed. If mice are a problem, the combination of deep cultivation followed by RexiusTwin works better than traditional ploughing.



CrossBoard with double-acting stabiliser bar is used in ploughed cultivation to crush clods and level the surface. If CrossBoard is used during stubble cultivation for levelling purposes, this should take place without the stabiliser bar.



RexiusTwin gives a weatherproof surface where the water evaporates quickly from the uppermost soil layer, allowing the next stage of cultivation to be carried out more quickly.



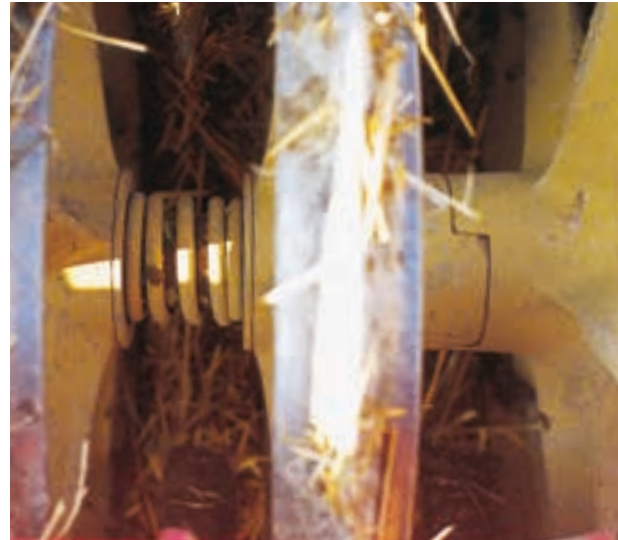
The roller's shoulder contributes to reconsolidating the surface soil and gives a very good bearing capacity. Correctly reconsolidated soil ensures moisture transfer and gives the roots the correct conditions to develop.

Carefully designed compaction roller



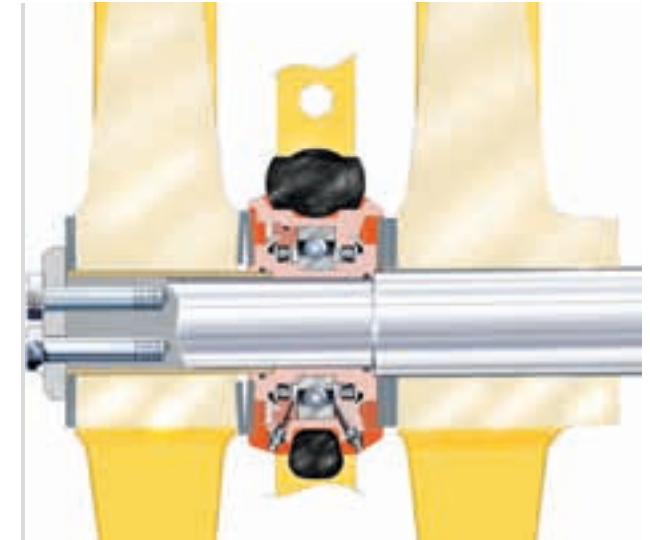
Double packer

The overlapping rings are self-cleaning, and together with scrapers, they permit work in wet conditions. The shape of the wheels and a wide shoulder gives a high bearing capacity.



Always driving

The robust rings are linked, which means that they continuously assist each other during cultivation. This prevents the sections from dragging on light or wet soil, but continuously rotate and cultivate. The spring continuously re-tensions any ring wear.



Spring-suspended bearing and long service life

A specially hardened axle with a diameter of 65 mm and a high-quality bearing, which is also spring-suspended to absorb any shocks, give problem-free seasons year after year. The bearing also has multiple seals and can be lubricated on both sides. Several of the bearing components are made of hardened special steel.

REXIUSTWIN OPTIONS



SingleKnife knife tool. Fitting to the CrossBoard points is simple when you use the Väderstad QuickChange System.



To increase the tine spacing in the front tool, the packer can be upgraded by adding a third axle. This gives better soil flow and more throughflow of straw and crop residue.

REXIUSTWIN TECHNICAL DATA

Model	450	550	630	830	1030
Draught requirement (hp) from	140	160	200	270	350
Working width (m)	4.5	5.5	6.3	8.3	10.3
Transport width (m)	3.0	3.0	3.0	3.0	3.0
Weight (kg)	7400	8700	9700	13800	15000
Weight per metre (kg)	1665	1580	1540	1660	1470
Hydraulic requirements	3 DA	3 DA	3 DA	3 DA	3 DA

DA = Double-acting



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