Kverneland

HELIOS

ROTARY HOE

WHEN FARMING MEANS BUSINESS

Realising the full potential of farming is about growing and developing your business, not only your crop or livestock, but also your profit. Improve productivity and profitability by focusing on the positives and minimising disadvantageous aspects, through strong, dedicated management.

Success springs from determination and clear targets, from laying down the appropriate strategy and allocating correct investments for the future. Quality results require the right ideas and equipment. When there is work to be done, you need the optimal setup and smart solutions that support you towards an easier, more profitable way of working. You need solutions that make tough and demanding conditions less complicated.

WEEDING

Efficient weed control is a prerequisite for healthy plant growth as the basis for yield, profit and safe food production.

In addition, the protection of the environment is of rising importance. With the Farm to Fork policy, new standards have been set. Since certain weeds have developed resistance to herbicides, alternatives to chemical weed control are needed.

IN MAIZE TO REMOVE THE SURFACE CAPPING AFTER HEAVY RAINFALL

YOUR KVERNELAND
INTELLIGENT FARMING SOLUTIONS

Choose the best farming solution for you and your land. Combine the highest possible yields with sustainability. This will start with the correct tillage. The choices you make depend on various factors and should match your specific circumstances, like soil structure, crop rotation, residue management, economic and ecological viabilities.

The choice is yours!

You must consider environmental and legal issues. From conventional methods to conservation tillage: the balance of operations at the right time has to be found to achieve high yields with the best soil condition (air, moisture, biological activity, etc.) with a minimum amount of energy, time and investment. For this, Kverneland offers a full range of intelligent farming solutions.

CONVENTIONAL TILLAGE

Conventional Tillage
- **Intensive** method of cultivation
- Complete soil inversion e.g. by a plough
- Less than 15-30% crop residues left on soil surface
- Seedbed preparation done by an active tool or special seedbed harrow
- High phytosanitary effect by reduced pressure of weed and fungi diseases - fewer herbicides and fungicides needed
- Better dry-off and faster increase of soil temperature for better nutrients absorption

CONSERVATION TILLAGE

Mulch Tillage
- **Reduced** intensity in terms of depth and frequency
- More than 30% of residues are left on soil surface
- Extended repose period of the soil
- Cultivator and/or discs incorporate the crop residues within the top 10cm of soil for stable bearing soil
- Full-width tillage - seedbed preparation and seeding in one pass
- Protection against soil erosion; reduce soil loss by run-off and improve water storage capacity.
- Improvement of soil moisture retention

Strip Tillage
- **Zonal strip loosening** before or during seeding of up to 1/3 of the row width (Loibl, 2006). Up to 70% of the soil surface remains untouched
- Strip-till combines the soil drying and warming benefits of conventional tillage with the soil-protecting advantages of no-till by disturbing only the area of the soil where the seeds are placed
- Exact fertilising deposit
- Soil protection against erosion and drought

Vertical Tillage / No-Till
- **Extensive** method
- Working soil vertically avoids additional horizontal layers or density changes
- Increasing water infiltration, root development and nutrient take-up
- Plants' roots dictate the overall health of the plant, as they deliver nutrients and water throughout the season, contributing to a higher yield
- A strong set of roots make plants more resistant to wind and drought.
- Lower energy input required


PRECISION
VERSATILITY
SUSTAINABILITY
EFFICIENCY

WEEDING FOR HEALTHY CROPS
WITH HIGH CAPACITY AND PERFORMANCE

Certain weeds have developed resistance against herbicides, and chemicals will slow down crop development. Thus, an alternative is needed for effective weed control under different conditions.

Conditions in field vary. Individual farming concepts have been set up. **Versatility** is important. The rotary hoe, Helios, also works in case of resistance and can be used in pre-emergence status for blind weeding. Weeds need to be brought to the surface to dry out. It replaces and/or extends the options to react when conditions limit the application of chemical crop care. Also operation in mulch conditions is possible without the risk of blockages.

Furthermore, due to the climate changes, farmers are often faced with draught resulting in hard soil surface with limited water reserve or surface capping after heavy rain falls. Therefore, there is a strong need to restore water and air flow and to protect the soil moisture, improving the nutrients supply of the roots. By cracking the upper topsoil, breaking the surface capping on certain soils after rain, the Helios promotes seed emergence and restores the water and air flow, stimulating physico-chemical reactions and soil life. It will increase mineralization and promote the absorption of nitrogen by increasing biomass. All in all resulting in better tilling of the crop for a healthy and **sustainable** plant development.

Selective mechanical weeding under any conditions

Selective mechanical weeding asks for **precision**. The even working depth adjusted to the height of crop emergence and sowing depth reduces the negative impact on the crops. A precise speed management can be set up in order to work as aggressively as necessary, maximising performance and output.

Recommendation when to operate with HELIOS in which crops*

Crop	Pre-ermergence	Emergence	1 leaf (Cotykedon)	2-3 leaves	4 leaves (Tillering)	6 leaves (Ear 1cm)	8-9 leaves (2 knots)
Cereals							
Rape					Possible but leaf hash problem		
Maize							
Sunflower			From cotyledon spread out			up to 30cm height	
Soyabeans			<10km/h	12-15km/h	up to 25cm height		
Peas	10-15km/h						
Faba beans	10-12km/h		young seedlings	10-12km/h	10-12km/h	10-12km/h	

Optimal | With caution | Unsuitable

* Depending on individual circumstances

PRE-EMERGENCE

CEREALS

MAIZE

SUNFLOWERS

BEANS

EXTENDED SCOPE OF WEEDING APPLICATIONS
EXTENDED OPTIONS AND BENEFITS

The rotary driven star-wheel design of the rotary hoe, HELIOS, adapts to individual farming concepts and will be a good partner for a wide range of applications in spring and autumn. For successful weeding, the correct timing is of utmost importance and needs to be adapted to the soil conditions, the weed pressure and the machinery of the farm.

For cereals, maize and more.

For all field conditions
... whatever the soil's textures if stony or mulch condition
... in draught or after rain falls
... as aggressive as needed at lower but also higher speeds (6 to 15km/h)
... 3 to 6.4m working width with constant working depth

Weeding in wide range of crop establishment
... before emergence on bare ground as blind weeding,
... to 4 leaves-stage maize, cereals, beans etc.
... to 6-leaves stage sunflowers, Faba beans

Stimulating physico-chemical reactions and soil life
... supporting soil aeration and mineralisation
... protecting soil moisture
... loosening and crumbling again after rain falls and sun
... consolidation of the subsoil
... destroying of eggs and larvae e.g. of slugs as pest control

3 ACTIONS IN ONE PASS
THE HELIOS CONCEPT

The unique design of the rotary-driven star-wheels and its application combines several beneficial impacts on the soil and crop: crust removal without projection, up-the-seed layer packing and upper layer structuring, weeds elimination by the combination star-wheels and following harrow.

Benefits for crop and soil

1

Selective weed control

The back of spoon design, curved upwards, work without digging, by gravity. It's operation does not require a high driving speed.

Under any soil condition, even the most demanding ones (surface capping, clay, pebbly or residue-cluttered soils), it can be operated at 6 to 15 km/h, with low impact on the growing crop.

Thanks to its 2.2 tons-weight (6m), the HELIOS rotary hoe rests well in the soil and fully respects the depth control above the seedbed. Thereby, it allows crossing the passes. The "wheels and comb harrow" combination enhances the weeding effectiveness about 40%.

2

Stimulating physico-chemical reactions and soil life

By tackling the soil surface with the "back of spoon" the wheels generate a cracking impact over 3cm either side, being a 6cm-wide stripe tilled 3cm deep.

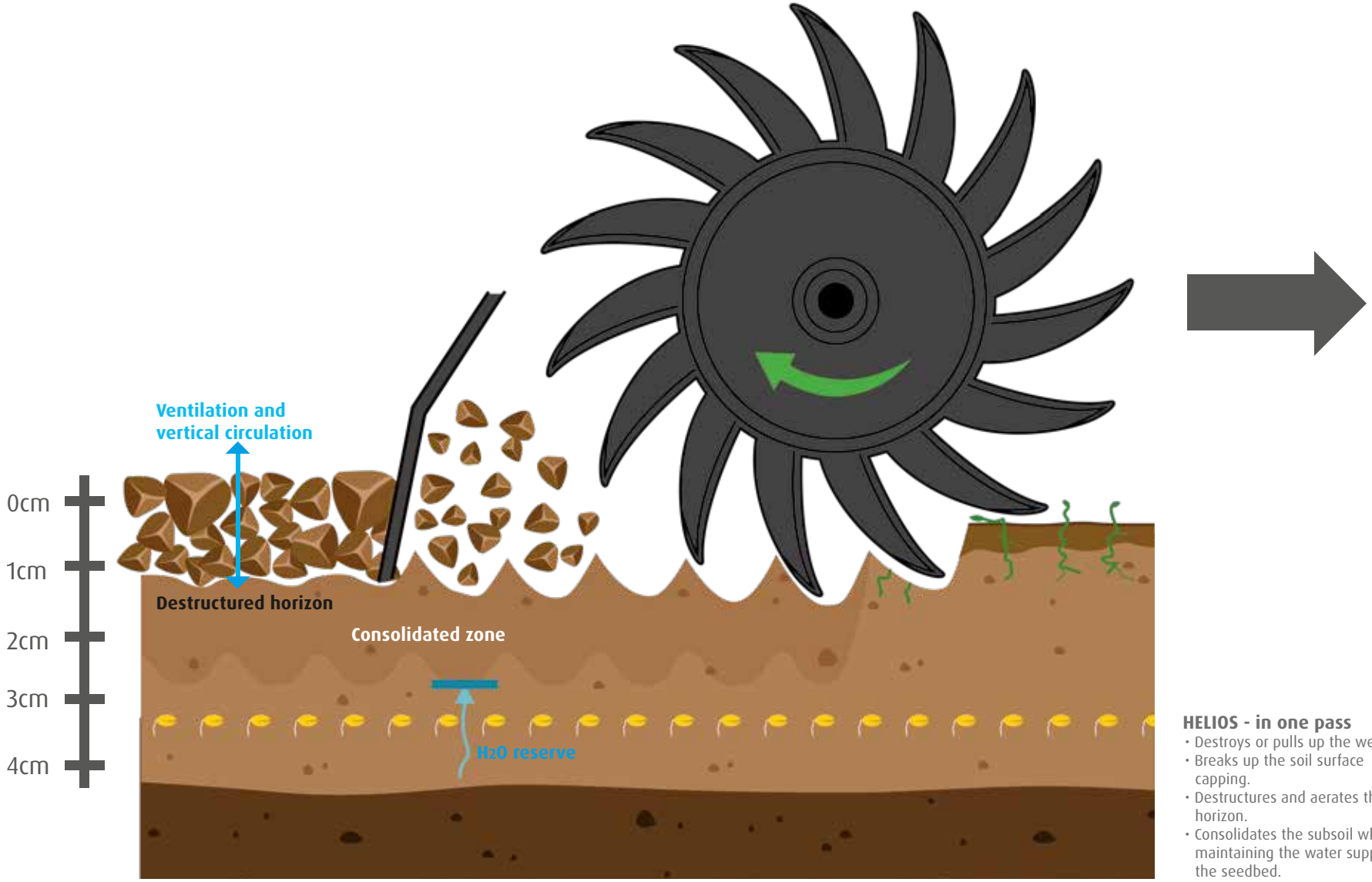
This operation will prepare for the pass of the comb harrow's teeth and help an accurate control of it's work, preserving the seedbed. By disrupting the topsoil's upper layer, the harrow restores the fluids, water, air, vertical flow s and stimulates physico-chemical reactions, mineralisation and soil life.

3

Protecting soil moisture

By cutting the rising damp from the surface, the HELIOS rotary hoe reduces evaporation water losses. By blocking it under the packed layer, it saves water reserve in the seedbed layer.

This bonus will also be profitable for the crop's start and growth.



HELIOS - in one pass

- Destroys or pulls up the weed.
- Breaks up the soil surface capping.
- Destructures and aerates the top horizon.
- Consolidates the subsoil while maintaining the water supply of the seedbed.

- Strength
- Long lifetime
- Reliable design
- Proven performance

HIGH QUALITY
WITH LONG LASTING COMPONENTS

Double H-frame
The double H frame increases the penetration force by transferring the load to the ground-driven star wheels. Its sturdy concept provides safe transport on roads. The HELIOS is equipped with a standard Cat. II linkage.

2 years warranty

Tandem star wheel bogie
Each star wheel with arm segment is protected by a spring or by hydraulics as a auto-reset system. The special shaped arm and the tandem bogie which is especially wear-resistant allows the lifting of the arm in case of obstacles. Due to the exclusively slim profile and curved shape, they carry out weed control with consolidation of the subsoil and aeration of the surface horizon. They pass cleanly in all conditions and even in mulch and stones. The angle of the stars always stay in the same position.

For each row, two star wheels are mounted individually as a bogie to perfectly follow the ground contour. The arm is fixed by the conical polymer ringed pins, no play or deformation of the axle possible, only a periodic tightening. It is wear-resistant and ensuring smooth and stable operation. The bearing has been designed for intensive use. Guides ensure perfect alignment of the stars in the driving direction, even with lateral stresses. At the same time, the short distance of the star wheels allow a combined work of both wheels and a stronger action onto the ground.

- **Strong in weed control - gentle to the crops**
- **Perfect ground following and penetration**
- **High working quality over entire constant working depth**
- **Overload protection**

GROUND-DRIVEN STAR WHEELS
EXCELLENT PENETRATION

The cast-iron steel, ground-driven star wheels excel by the special back-of-spoon design. Curved upwards, they work without digging by gravity. They lift the weeds particularly well whilst being gentle to the crop with no splashes or projections.

Unique design

The special back of spoon design allows efficient penetration even in difficult soils without any blockages. For extremely crusted soil, there is the option of reversing the stars in the opposite direction.

In addition to the weed control, by tackling and disrupting the soil surface, the star wheels crack the upper topsoil. The stars and bearings are maintenance-free. The special shape of the stars makes them self-sharpening.

CONSTANT WORKING DEPTH
WITH SOFT CONTROL

The HELIOS can be equipped either with spring or hydraulic "Soft control" pressure overload protection to ensure a constant working depth over the entire width.

Perfect working depth

With the hydraulic "soft control" system, the star wheel elements are provided with the same oil pressure on the entire width. Hydraulic linkage between cylinders. This results in a constant working depth over the entire width of the HELIOS, independent of the surface. Each element maintains the same ground pressure. Additional pressure can be adjusted on the star wheels.

With the mechanical version each arm is independent equipped with an infinitely adjustable mechanical spring system. The ground pressure setting (penetration force) is adjustable by tightening a nut on each element.

SOFT CONTROL

LEVELLING AND SOIL FLOW REGULATION
WEED ROOTS DRY OUT

In order to ensure perfect levelling and to create an even weatherproof surface, Kverneland offers an one row following finger harrow in the final working zone. The rear-harrow operates over the entire working width of the HELIOS. The following harrow finishes the job and preserves the seedbed. It restores the fluids, water, air and stimulates physico-chemical reactions and soil life.

The following harrow supports the weed control as it uncover and pulls the uprooted weeds out of the soil, leaving them on the surface to dry out in the sun. As the weeds are lighter than the soil particles thrown up, they fall more slowly and lie on top surface after passing over. They dry out quickly - regrowth is practically impossible. This is particularly important with rhizome and other weeds that could start growing again.

Also, the cracking of the surface by the star wheels is completed by the following harrow. By disrupting the topsoil's upper layer the harrow restores the vertical flows, stimulates physico-chemical reactions and soil life.

A perfect finish

The fingers bent at the end allow a progressive soil flow without the need of higher power requirement. The fingers are overload protected to avoid damage in stony or other difficult conditions. Individual springs ensure the releasing of the tines and keep levelling quality even in stony conditions. The angle and height of the harrow can be adjusted as aggressive as needed for a perfect result. Different setting positions are possible from neutral, smooth, strong and floating. If necessary, it can also be lifted in no-work position.

USER COMFORT IS KEY
EASY ADJUSTMENT

Kverneland always focuses on safe operation and user comfort. With all the adjustments being done without the need of tools, a lot of precious time is saved!

Adjusting the HELIOS is easily done. The depth is adjusted by the gauge wheels and with the hydraulic soft control version by adding pressure on the stars. On the mechanical version it is done automatically by the spring. With the hydraulic linkage of the tractor the implement is adjusted horizontally aligned with the complete frame. Finally, adjust the right angle of the following harrow. This is all!

The implement weight and shape of the star and the complete segment improves the penetration and ensures a constant working depth. There is hardly any maintenance to be done on the HELIOS apart from changing wearing parts.

No maintenance, best comfort.

MORE STABILITY
SIMPLE AND PRECISE

Gauge wheels

In addition to the two standard gauge wheels positioned in front of the middle frame bar, there is the option of fitting two gauge wheels in the outer extensions to optimize the following of ground contour and ensure more stability and a constant depth control, especially with larger working widths.

Depth setting is done mechanically via a clamp lockable crank on all wheels. A scale indicates the depth for precise adjustment.

Parking legs

Original parking legs are delivered as standard for storage of the machine. The parking legs allow an easy and safe coupling and uncoupling to the tractor.

SAFE ON THE ROAD
EASY TO CONVERT

Easy conversion from working to transport position with the mounted three-part hydraulic folding frame.

A transport folding lock is fitted as standard for total safety on the road. The locking device reduces the risk of accidental opening during transport and eliminates wear or tear.

An additional road light kit ensures good visibility and safe transport on the roads.

ORIGINAL PARTS & SERVICE
LET'S FOCUS ON YOUR BUSINESS

MYKVERNELAND
SMARTER FARMING ON THE GO

A personalised online platform tailored to your machine needs

With MYKVERNELAND you will benefit from easy access to Kverneland's online service tools.

Receive first hand access to information on future developments and updates, operator and spare part manuals, FAQs and local VIP offers. All information is gathered in one place.

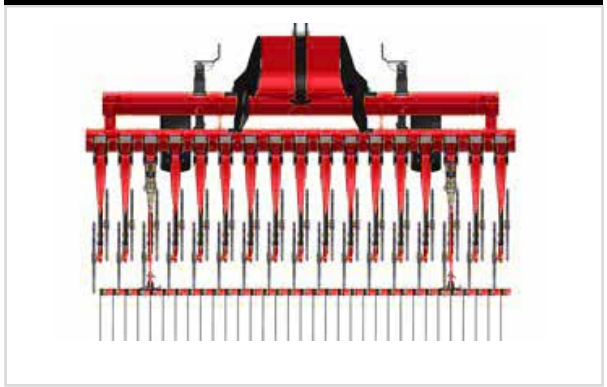
REGISTER YOUR PRODUCT NOW:
MY.KVERNELAND.COM

TECHNICAL DATA

	HELIOS			
Model	Helios 2030	Helios 2048 F	Helios 2060 F	Helios 2064 F
Frame	mounted rigid	mounted fold (3 frame sections)	mounted fold (3 frame sections)	mounted fold (3 frame sections)
Working width (m)	3.06	4.80	6.12	6.40
Transport width (m)	3.08	3.08	3.08	3.08
Linkage	Cat. II	Cat. II	Cat. II	Cat. II
Gauge wheels	Standard: 2 Option: 2 additional	Standard: 2 Option: 2 additional	Standard: 2 Option: 2 additional	Standard: 2 Option: 2 additional
Gauge wheel - Size	18.5x8.50-8	18.5x8.50-8	18.5x8.50-8	18.5x8.50-8
No. of star wheels	34	52	68	72
Ø Star wheel (mm)	530	530	530	530
Star wheel width (mm)	22	22	22	22
Star wheel weight (kg)	10.9	10.9	10.9	10.9
No. of tines per star	16	16	16	16
Star spacing (cm)	9	9	9	9
Star wheel pressure adjustment	Mechanical or hydraulic "Soft-Control"	Mechanical or hydraulic "Soft-Control"	Mechanical or hydraulic "Soft-Control"	Mechanical or hydraulic "Soft-Control"
Following Harrow	Option	Option	Option	Option
Following Harrow tine length (mm)	410 x 7	410 x 7	410 x 7	410 x 7
Following Harrow - Pressure adjustment	By compressing spring	By compressing spring	By compressing spring	By compressing spring
Following Harrow - Aggressiveness adjustment	By multi-position system	By multi-position system	By multi-position system	By multi-position system
Max. weight with following harrow (kg)	1150	1800	2200	2300
Min. Power requirement (hp)	80	100	120	130
Max. Power requirement (hp)	200	220	240	250

HELIOS MODEL

mounted rigid



3.00m

mounted fold (3 frame sections)

4.80m - 6.00m - 6.40m

WHEN FARMING MEANS BUSINESS

kverneland.com