

TECHNOLOGY FOR WEED CONTROL

 **LEMKEN** THE AGROVISION COMPANY



CONTENTS

Editorial	2
EC-Weeder	6
IC-Light	26
EC-Weeder in action	34
EC-Steer	38
IC-Weeder	40
IC-Weeder AI	44
EC-Ridger	46
EC-Spray	48
SprayHub and SprayKit	50
Service	54

LEGAL INFORMATION

Published by: LEMKEN GmbH & Co. KG

Weseler Strasse 5 • 46519 Alpen • Tel.: +49 2802 81-0
info@lemken.com • lemken.com





As a working farmer or contractor, you are faced with ever-changing challenges of farming in your daily work. LEMKEN wants to support you with its proven innovative ideas and products both as "YOUR PARTNER FOR NEXT LEVEL FARMING" and as the Agrovision Company.

Resource conservation in agriculture is a holistic approach that takes into account ecological, social and economic aspects to preserve the environment for future generations. Changes are ahead in crop care, above all: Consumers are demanding food producers, like you, to reduce your reliance on chemical crop care products and use environmentally compatible, nature-friendly, sustainable alternatives like mechanical weed control instead. The LEMKEN hoeing technology supports you optimally and makes weed management a success factor for your arable farming. LEMKEN is focused on your environmental goals and economic success.

YOUR PARTNER FOR **NEXT LEVEL FARMING**

ADVANTAGES THAT IMPRESS

Mechanical weed control has become an integral part of agricultural practice. This technology is now part of everyday life – not only for organic farms. Conventional arable farmers are also relying more and more on mechanical weed control. This is only partly due to government regulations, as the use of hoeing machines and harrows also offers numerous agronomic advantages. It has additionally been proven that mechanical approaches promote root growth and improve crop development.

Mechanical weed control means:



Saving water



Breaking up crusted soils



Interrupting capillarity



Releasing nitrogen



Promoting mineralisation



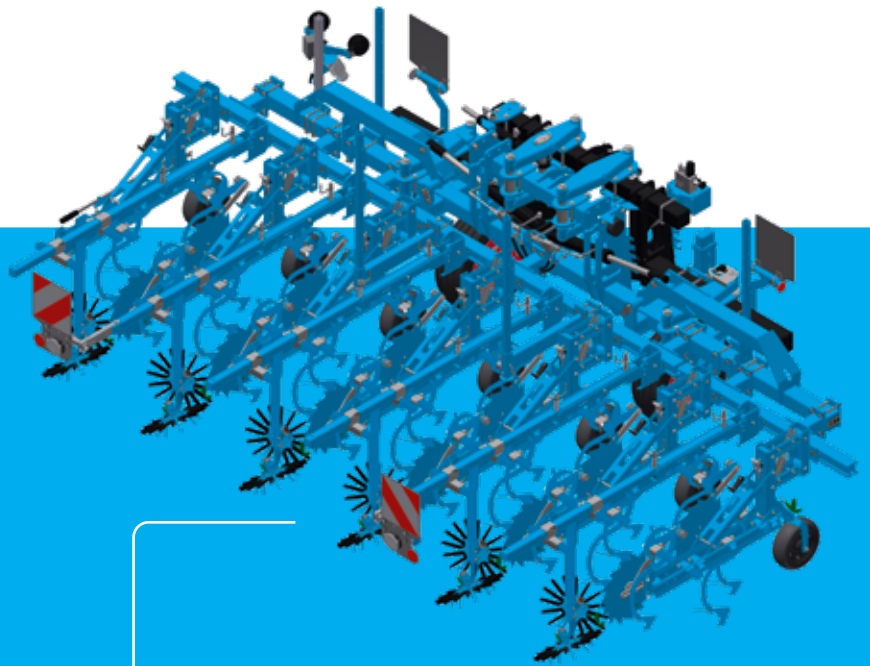
Reducing the use of chemical crop care products



COMPREHENSIVE SOLUTIONS

TAILOR-MADE

With us, you get customised technology that is optimally adapted to your needs. Our quality promise begins with personal, customised consultation and extends to the use of your machine in the field, down to the last screw. As a result you are guaranteed to get the right technology to successfully control your weeds.



Evaluation of your requirements



Individual configuration and production of your hoeing machine



Delivery of your machine



First use supported by professionally trained technicians



Reliable after-sales support by our experienced sales partners



INDIVIDUAL HOEING MACHINE

What is the right hoeing machine for your row crops? The answer is EC-Weeder. You have a choice between numerous inter-row and intra-row tool options to match your local soil conditions. Hydraulically operated parallelogram elements allow section control and flexible adaptation to changing soil conditions. Add the optional IC-Light camera control for even greater precision and fatigue-free work.

- Individually customisable row spacing from 15 to 150 cm
- Individually customisable working widths of up to 13 m / transport width >3 m
- Profile toolbar for flexible row widths
- Numerous tool options
- Optional: hydraulically operated parallelogram elements
- Optional: IC-Light camera control
- Optional: infinitely variable manual EC-Space tool adjustment for different row spacings and growth stages

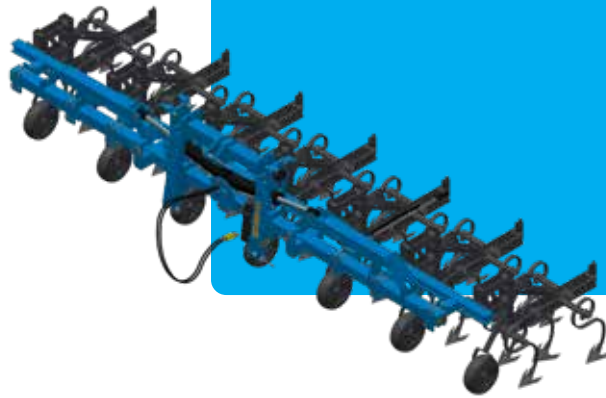
Watch the **EC-Weeder** in action here. Be impressed!



EC-Weeder or EC-Weeder V?

When purchasing an **EC-Weeder**, you may ask yourself whether to get an implement without camera control or the V model with camera control. The **EC-Weeder V** is particularly suitable for larger fields with a high proportion of root crops, where hoeing needs to be as precise as possible. The automatic row guidance system relieves the driver and allows them to work longer without getting fatigued. The cameras additionally support a higher forward speed and therefore a higher area output.

The **EC-Weeder** without camera system is the right choice for farms with smaller field structures. However, this implement is also suitable for farms that want to successfully control weeds with crop rotations that involve only a low proportion of root crops.



EC-Weeder 7
100 × 100 mm box section frame



EC-Weeder 7 V
100 × 100 mm box section frame

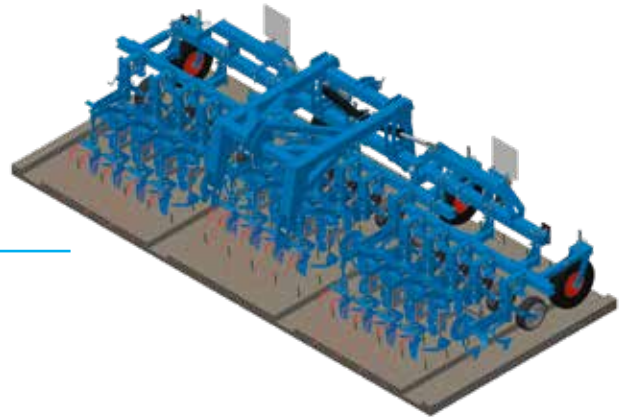
- Parallel steering frame
- Various controls (joystick, push button, camera)



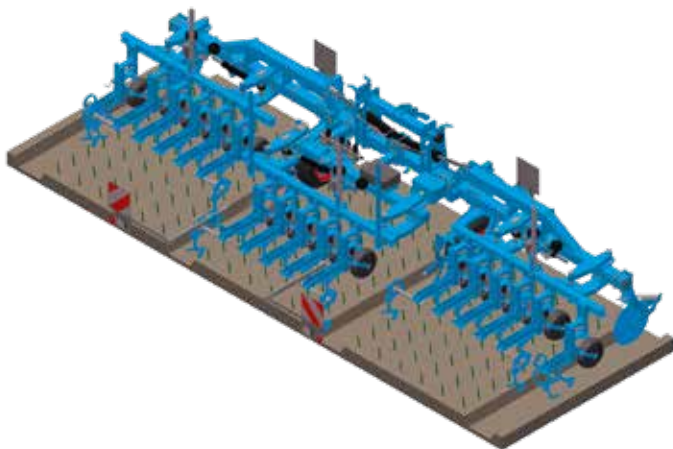
FOR MORE PRECISION

The 3-bed version of the **EC-Weeder** is also precisely matched to your crop and cultivation method. A longer element in the track or in the areas next to the beds respectively ensures reliable, full-surface cultivation. The 3-bed implement is also available with independent control for even greater precision. Each bed is hoed individually thanks to three cameras and three parallel steering frames – regardless of whether the crop was planted in a 3-bed or a 1-bed system. This allows beds to be tilled regardless of the planting or seeding method used.

Hoeing machine for three beds



Hoeing machine with three parallel steering frames and 3 cameras





FRAME AND ELEMENTS



Base frame

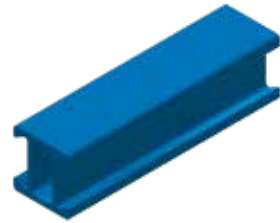
The base frame has a rigid or folding design, depending on the working width, and is suitably sturdy. It has the profile toolbar with the parallelogram elements attached to it. The V series features a parallel steering frame in front.



Parallel steering frame

The EC-Weeder combined with the integrated parallel steering frame has impressive compact size compared to units with a separate steering frame between the tractor and hoeing machine. The parallel steering frame has a swivel range of up to 20 cm to the right and 20 cm to the left.

When the **EC-Weeder** is raised, the hoeing machine is automatically centered behind the tractor. The support wheels allow the machine to be operated with open lower link stabilisers, which prevents the transfer of movement between the tractor and steering frame. Two or four support wheels in two different versions are optionally available for the parallel steering frame.



Profile toolbar

For flexible row widths: The elements are clamped to an 80 x 80 mm profile toolbar via robust connections and can be easily adjusted. This allows for a range of row widths.

The components can be attached both at the front and at the rear of the profile toolbar. As a result, the required hoeing elements can be flexibly attached.





Rubber support wheel

- Large wheel diameter for optimal load-bearing capacity
- Height adjustment via a perforated grid
- Gentle to crops



Support wheel with steel wheel flange

- Wheel flange for improved directional stability when traversing slopes
- Height adjustment via a perforated grid

PRECISE HOEING MADE EASY



Basic element – the compact option

For light soils and shorter crops with row spacings of 15 to 50 cm. A tension spring maintains the requisite ground pressure to keep the tools working at the correct working depth. The depth control wheel allows the working depth of the tools to be easily adjusted to a wide range of settings. Optional underframe clearance of 50, 60 or 70 cm.



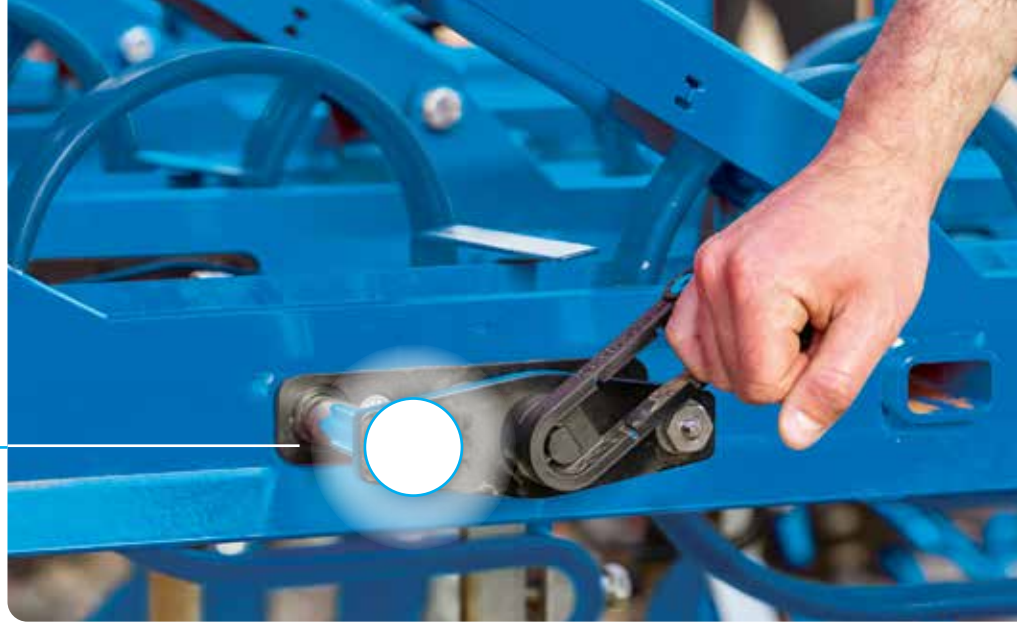
Combi element – the all-rounder

Suitable for medium and heavy soils with row spacings of 20 to 80 cm. Comes with a maintenance-free parallelogram supported by a ball bearing as standard. Hydraulic lifting or pressurisation are optionally available to support both manual and GPS-controlled sectional control via ISOBUS and improve penetration into hard and muddy soils are options. The system is controlled via the **IC-Light** terminal or any ISOBUS terminal. The Combi element is available in a short version with a holding element for up to three blades and in a long version with up to five blades. The depth control wheel allows the working depth of the tools to be infinitely adjusted using a scale. The underframe clearance is 70 cm, so that even tall crops such as maize can still be hoed at more advanced growth stages.



TRS element – the heavyweight

Particularly suitable for heavy soils and high loads with row spacings of 50 to 100 cm. The underframe clearance is 70 cm, and the depth adjustment is made via a screw. The TRS element is particularly robust and can have up to five hoeing tools attached via the tool holder.



EC-Space – precision hoeing made easy

EC-Space, our toolless option for adjusting hoeing knives for the Combi element, makes it easy to adapt hoeing tools to the size of your individual crop and shortens set-up times. This means that time-consuming adjustments to hoeing tools are a thing of the past. **EC-Space** allows tools to be widely adjusted manually via a screw, which is operated via a manual crank to move the tool holder. The adjusted distance can be easily read from the integrated scale and transferred onto the remaining elements. **EC-Space** is particularly economical for businesses with very heterogeneous fields or in situations where there are frequent changes between fields sowed or planted at different times. The tool-free hoeing knife adjustment helps you to optimise your machine settings and increases efficiency.

HYDRAULIC LIFTING AND LOWERING

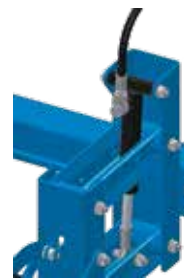
Hydraulic lifting and lowering of the individual elements optimises the turning process and minimises hoeing losses.

The process is controlled manually via the **IC-Light** terminal or automatically via Section Control and an ISOBUS-certified terminal. The hydraulic element pressure adjustment can also be controlled via these two control units or alternatively via a double-acting spool valve together with the lifting function. The pressure can be manually adjusted between 0 and 50 kg or controlled via an automatic system.

This ensures that the hoeing coulters produce impressive results even with heavily crusted soils.

If fields have pointed edges at the headland or if edge strips need to be left out, the parallelograms of the hoeing elements can be lifted manually or individually using Section Control. Crops are therefore reliably protected against damage. This function additionally helps to minimise overlaps and gaps and therefore increases efficiency.

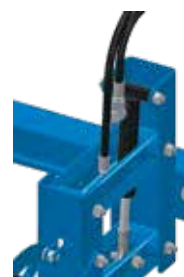
Moreover, automatic lifting via Section Control with GPS relieves the driver and allows them to work without getting fatigued.



Hydraulic pressure adjustment
via a double acting spool valve



Hydraulic lifting
via LS or oil circulation control



Hydraulic lifting and pressure adjustment via LS or oil circulation control





IC-Light terminal

- Manual lifting and pressure control of elements
- Ability to raise / lower elements from the left, from the right or from a previously selected element (e.g. section 4)
- Up to 26 elements



CCI 800 / CCI 1200

- 8" or 12" touchscreen
- Up to two ISOBUS machines at the same time
- MaxiView function or split screen
- Automatic Section Control of elements via ISOBUS in combination with a GPS receiver and CCI Command SC



VERSATILE TOOL OPTIONS

Hoeing tools

The hoeing tools cut weeds close to the surface, pull them out and bury them. The working depth can be set exactly for precise work. Various hoeing tools are available for different soil conditions, which support shallow, even hoeing that protects capillary water.



Duck-foot share on spring tine

- Robust tool for rocky soils, as the spring tine can deflect in the direction of travel and to the sides
- Excellent soil penetration
- Also suitable for deeper tillage up to 4 cm deep
- Vibrating, burying and pulling action
- Shallow design ensures that weeds are deposited on the surface, where they dry out
- Long shape minimises susceptibility to blockages



Hoeing knife on a Vibro mount

- Precise tool, also for rocky soils, as the Vibro mount can deflect both to the sides and in the direction of travel
- Vibrating, cutting and burying action
- Blockage-free work



L-blade on a Vibro mount

- Precise tool, also for young, small crop plants and stony soils, as the Vibro mount is able to deflect both to the sides and in the direction of travel
- L-blades prevent crop plants against being buried
- Vibrating, cutting and burying action
- Increased crumbling effect for particularly thorough exposure of weeds
- Blockage-free work
- Continuous cutting surface optimally breaks up crusted soils
- Clods are cleared from the rows



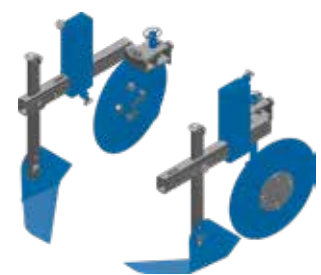
Hoeing knife on a rigid mount

- Precise tool for soils without stones
- Very shallow tillage
- Cutting action
- Little movement of soil



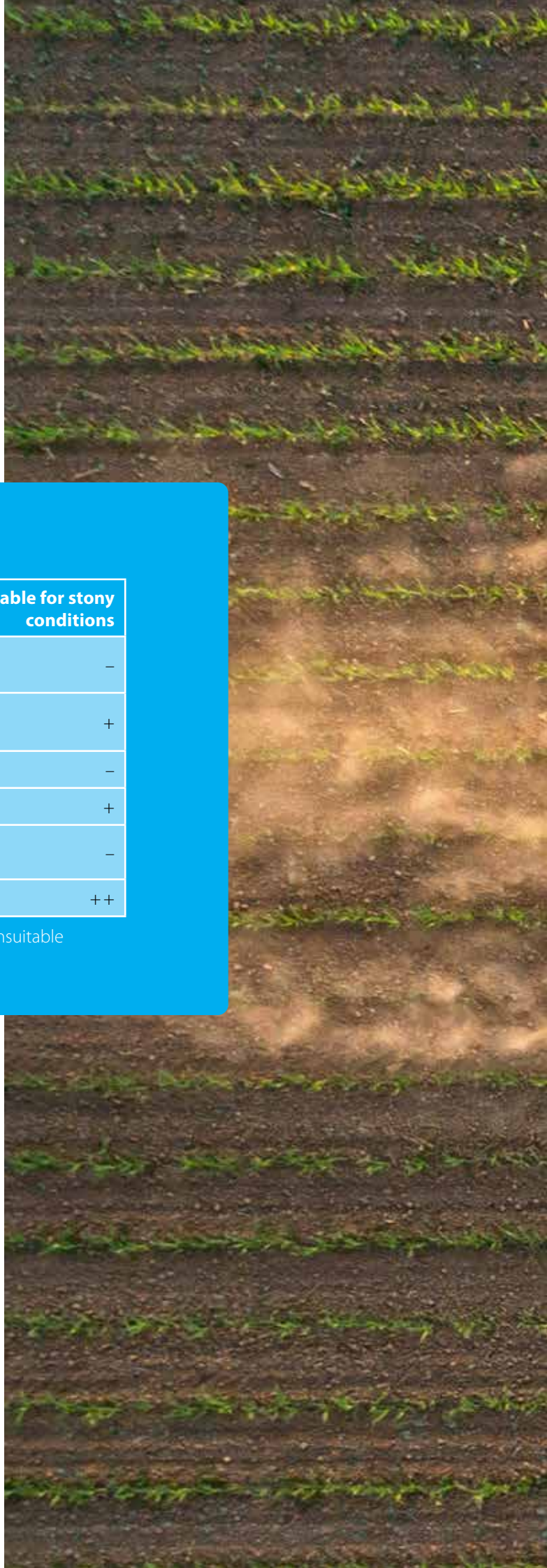
L-blade on a rigid mount

- Precise tool for soils without stones and young, small crop plants
- L-blades prevent crop plants against being buried
- Cutting action and transfer of weeds towards the middle of the row
- Continuous cutting surface optimally breaks up crusted soils
- Clods are cleared from the rows
- Little movement of soil



L-blade with cutter discs

- Precise tool for soils without stones and young, small crop plants
- Protects crops from soil clods
- Self-propelled, no damage to crop plants
- Versatile use in sugar beet or onions
- Cuts the soil so that small crop plants are not uprooted by displaced soil clods
- L-blades prevent crop plants against being buried



	Precision	Suitable for stony conditions
L-blade & hoeing knife on a rigid mount	++	-
L-blade & hoeing knife on a Vibro mount	+	+
Hoeing knife on a rigid mount	+	-
Hoeing knife on a Vibro mount	+	+
L-blade with Cutter discs	++	-
Duck-foot share on spring tine	+	++

++ very high / highly suitable + high / suitable - low / unsuitable



Protective tools

Protective tools are mainly used in combination with hoeing knives on Vibro mounts and duck-foot shares to protect crop plants against being buried by the hoeing tools.



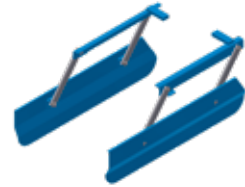
Small protective discs

- Can be used with the Basic element
- Cutting action due to a smooth, bevelled disc shape
- 305 mm diameter



Geared protective discs

- Can be used with the Combi element
- Multiple parking positions for applications where no protection is required
- Not susceptible to blockages due to self-propulsion
- 500 mm diameter



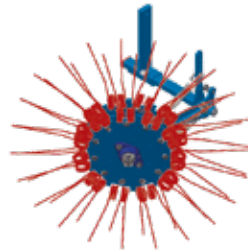
Guard plates

- Available for the Basic and Combi element
- Protects crop plants over the entire length of the hoeing element



Harrow

Harrows extract young weeds from the soil and remove soil from extracted weeds to prevent them from becoming established again.



Harrow

- Can be used with the Basic element from 15 to 50 cm row width
- Can be used with the Combi element from 15 to 80 cm row width
- Exposes and distributes grasses and weed roots so that they dry out more efficiently
- When crop rows are harrowed, weeds are successfully controlled even between crop plants
- Additional crumbling effect

Rotor weeder

- Can be used with the Combi and TRS element
- Uproots or buries weeds in rows between crop plants
- Allows intra-row cultivation
- Can also be used in rocky and crusted soils and with organic residue after mulch tillage
- Sweeps weeds out of rows
- Angle adjustment supports adjustment of the working width/aggressiveness for relieving spring loads
- Harrows the strip within the row that is not worked by the hoeing knives



Finger hoes

Finger hoes remove weeds from within crop rows (intra-row action) by means of rubber fingers which tackle weeds between crop plants. This ensures that weeds are also controlled where hoeing knives cannot reach.

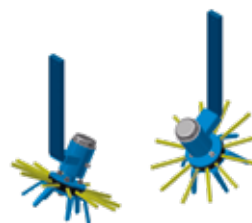
- Effective shearing off and removal of weeds from rows
- Also burying effect at high ground speeds
- Driven via the steel drive sprocket
- No blockages, as the rubber fingers are mounted underneath the steel sprocket
- Diameter of 220, 340 or 400 mm, depending on row spacing
- Pressure is applied and taken off finger hoes via compression springs to ensure full-surface penetration, which is particularly important in crusted soils and uneven ground
- Finger hoes can be raised when they are not needed
- Optional: hydraulic lifting via Section Control



Finger hoe
Manual implement lift



Finger hoe
Hydraulic lift



Brush hoe
For sensitive crops such as onions and lettuce

1. One behind the other



2. Next to each other



3. Engaging with each other



Variable mounting positions with different levels of intensity against weeds

Ridging tools

Ridging tools bury weeds within crop rows (intra-row action). They build up soil and therefore contribute to strengthening crop plant roots.



Ridging share

- Can be used with the Combi element
- For row spacings between 45 and 80 cm
- Adjustable guide plates



Ridging body

- Can be used with the Basic and Combi element
- For row spacings between 35 and 80 cm
- With share point for an intensive ridging effect
- Working width adjustment via a turnbuckle



Ridging plate

- Can be used with the Basic and Combi element
- Adjustable guide plates
- For row spacings between 40 and 75 cm
- Mounted to the hoeing knife

Other tools

Our specialists for special requirements.



Crumbler rotor

- Can be used with the Basic element
- Uproots small perennial weeds and breaks up crusted soils



Torsion weeder

- Intra-row tool for sensitive crops
- Main action by burying small weeds in rows



SeedHub

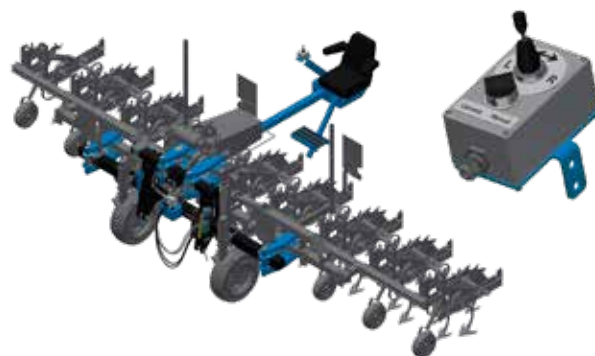
- Enables hoeing and undersowing in a single pass
- Reliable incorporation of undersown seeds thanks to the trailing harrow

TYPES OF CONTROL



Automatic control via a row sensor

- Precise steering even at late growth stages and with tall crops
- Requires strong crop plants



Manual control via a joystick from the cab seat

- For overriding the camera steering signal or for general control of hoeing machines not equipped with a camera system





Automatic control via IC-Light camera

- Precise hoeing even at night
- Hoeing as close as 2 cm to crop plants
- Forward speeds of up to 15 km/h



INTELLIGENT AND PRECISE CAMERA CONTROL

With the specially developed **IC-Light** camera control system developed by us, you get an independent, self-contained system that embodies our entire know-how. Designed for the EC-Weeder or EC-Steer, it makes it even easier to create space for your crop plants. **IC-Light** impresses with its simple, intuitive operation and is constantly being optimised so that you are always up to date with the latest technology. The three key components of **IC-Light** control, i.e. the camera, terminal including job computer, and parallel steering frame, allow fatigue-free, precise work even at night. The system precisely controls the steering of the hoeing machine between the rows to minimise damage to crop plants. Data is collected from camera images, an angle sensor, a speed sensor and a lift sensor to deliver particularly precise steering.

- Hoeing as close as 2 cm to crop plants
- Forward speeds of up to 15 km/h
- Remote maintenance for service directly in the field
- LED work lights for night work installed as standard
- Optional: second camera for optimal row guidance





Camera

- Detection of one to five rows of plants
- Recognition of hues of green and the RGB colour spectrum
- Learning function for recognising the specific colour hue of crop plants in the field
- Optimal row guidance even with very deep shadows, as overexposed and underexposed images are offset for higher contrast

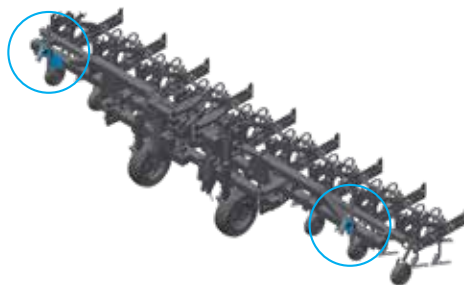


LED work lights

- Illumination of the camera's field of view for highly precise night work
- Installed as standard

Joystick

- For overriding the camera steering signal from the tractor cab
- Installed as standard



Row sensor

- Can be used with the Combi element
- Precise steering even at late growth stages and with tall crops
- Requires strong crop plants such as maize, soybeans or sunflowers

Second camera

- Accurate steering at the headland and in wedge-shaped fields
- Precise hoeing with large working widths
- Accurate steering of the hoe in heterogeneous crops

COMBINED PRECISE

Whether integrated into the EC-Weeder V or used separately with EC-Steer, our parallel steering frame, combined with **IC-Light**, transmits the steering signal hydraulically to the hoeing machine being used and ensures smooth and precise steering movements within a swiveling range of 20 cm to the left and right. Open lower link stabilizers result in smooth steering and ensure that no movement is ever directly transferred between the tractor and steering frame.

The frames of the EC-Weeder 5V, EC-Weeder 7V and EC-Steer 7 feature an open design to allow the **IC-Light** camera control to be optimally positioned. The camera can then be positioned centrally for implements with up to 6 m working width.





INTUITIVE OPERATION

Terminal

Intuitive operation and self-explanatory icons make it a breeze to set up and adjust the **IC-Light** camera. By switching between live and digital displays, the camera settings can be optimally adapted to individual conditions and optimised. Switching between two cameras is also easily done at the click of a button. And if you do need extra support in the field, a member of our Service Team is always quickly available for remote maintenance.

Live/digital image of the steering camera

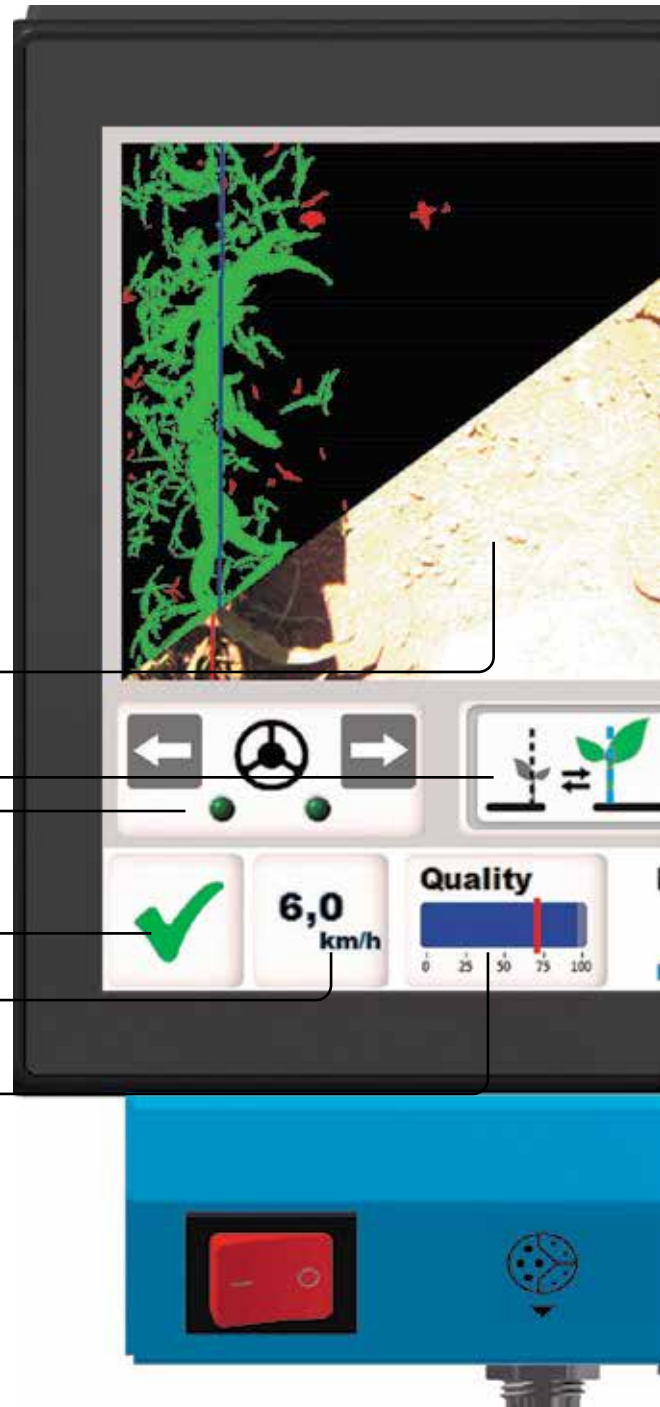
Inclination of the crop plant

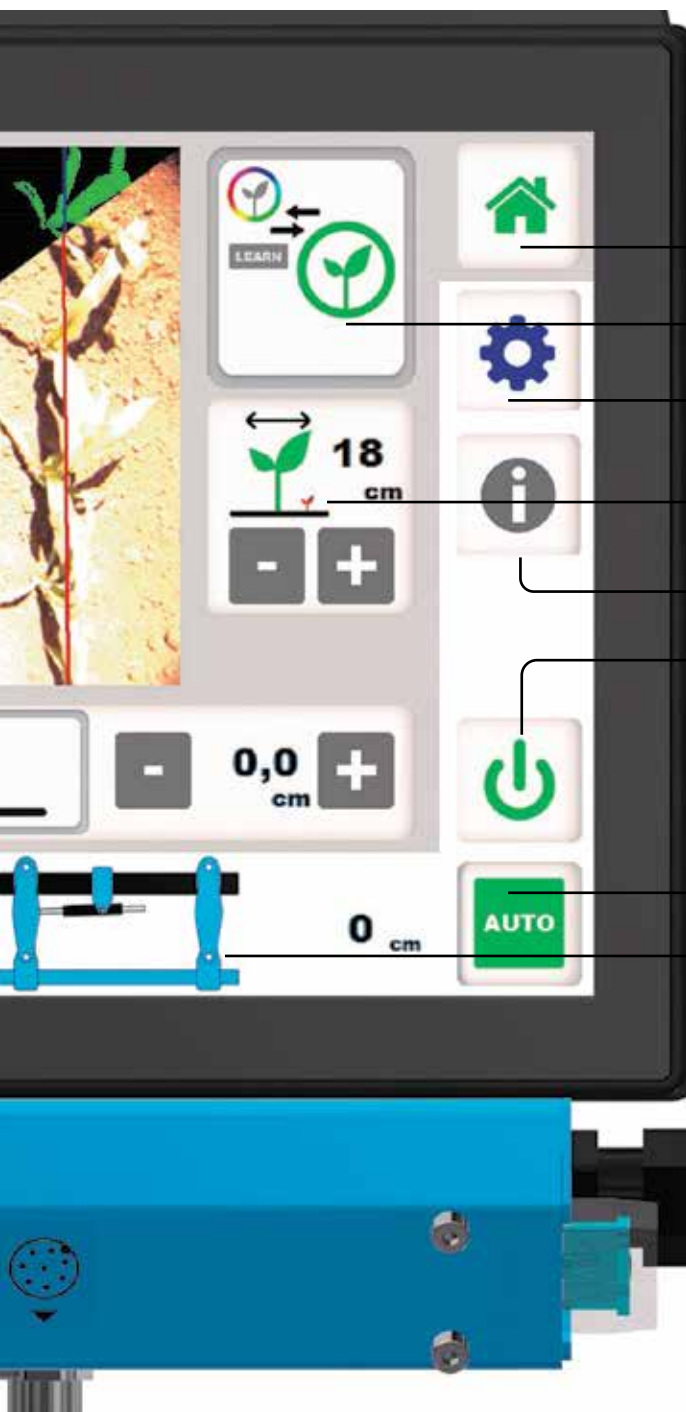
Manual override

Status display

Forward speed

Quality of the camera image





Main menu

Green/RGB mode and learning function

Settings menu

Diameter of the crop plant

Information menu

Switch off terminal

Activate camera control

Parallel steering frame animation

HIGHLY PRECISION OPTIONS

IC-Light +

IC-Light +, a special option for the **IC-Light** camera system, enables high precision hoeing in crops with many shades of blue. This makes it particularly suitable for crops such as onions, leeks, broccoli and red cabbage and keeps these crops weed-free even at very early growth stages.



Combi Cam

The **Combi Cam** function is automatically integrated in machines equipped with two cameras (Switch Cam). This function automatically combines the image data received from the two installed cameras, making manual switching a thing of the past. It therefore doubles the image data used of the IC-Light system. **This results in significantly improved row recognition, particularly in heterogeneous or very short crops, and Combi Cam** increases the steering precision of the hoeing machine many times over.



AutoSwitch Cam

AutoSwitch Cam is the tool of choice when hoeing heterogeneous, patchy crops and field wedges. This function can be activated in machines equipped with two cameras (Switch Cam) when working in particularly difficult conditions. It then automatically switches back and forth between the two cameras, depending on which camera records the better image quality. As a result, the hoeing machine continues to be guided precisely through the crop for efficient weed control.

USE IN VARIOUS CROPS

Good to know

Most crop plants are highly sensitive to competing weeds, especially at the early stages of their development. The risk of later yield losses can be minimised by keeping fields weed-free until crops cover the soil. Farmers have fewer chemical crop care options and have to be much more cautious of chemical resistance in weeds. LEMKEN has an optimal mechanical weed control solution for every crop.

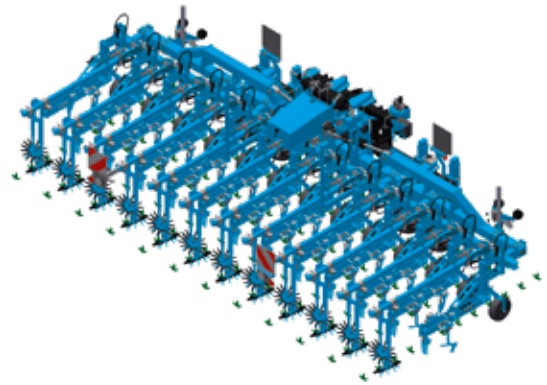
The EC-Weeder can be customised with tools depending on individual needs and local conditions. **IC-Light** camera control provides a steering system that is not only precise, but also supports comfortable, stress-free crop care work.





Possible EC-Weeder package for maize:

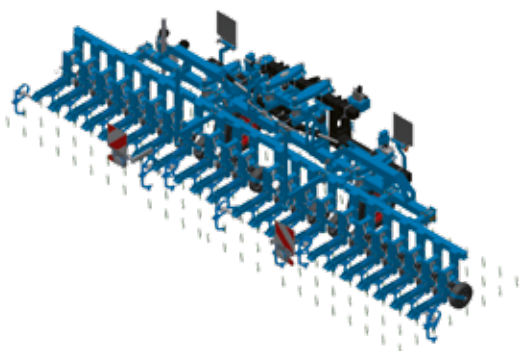
- 8 rows with a row spacing of 75 cm
- **IC-Light** camera control with LED work lights for fatigue-free work day or night
- Second camera for secure steering at the headland and for heterogeneous crops
- **Combi element** mounted to the profile toolbar for flexible row widths
- Duck-foot shares on spring tines for intensive tillage even in rocky soils
- Trailing harrow for clean removal of soil from weeds
- SeedHub for reliable incorporation of undersown seeds
- Hydraulic pressurisation and lifting of the **Combi element** for better penetration and less damage to crop plants at the headland



Possible EC-Weeder package for sugar beets:

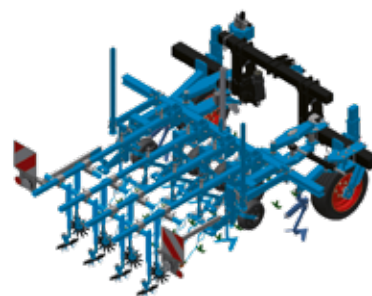
- 12 rows with a row spacing of 50 cm
- **IC-Light** camera control with LED work lights for fatigue-free work day or night
- Second pair of rubber support wheels for better weight distribution with large working widths
- **Combi element** with the **EC-Space** tool adjustment mounted to the profile toolbar for flexible row widths
- Hydraulic lifting of the **Combi element** and finger hoes for less damage to crop plants at the headland
- Hoeing knives and L-blades on a rigid mount for ultimate precision





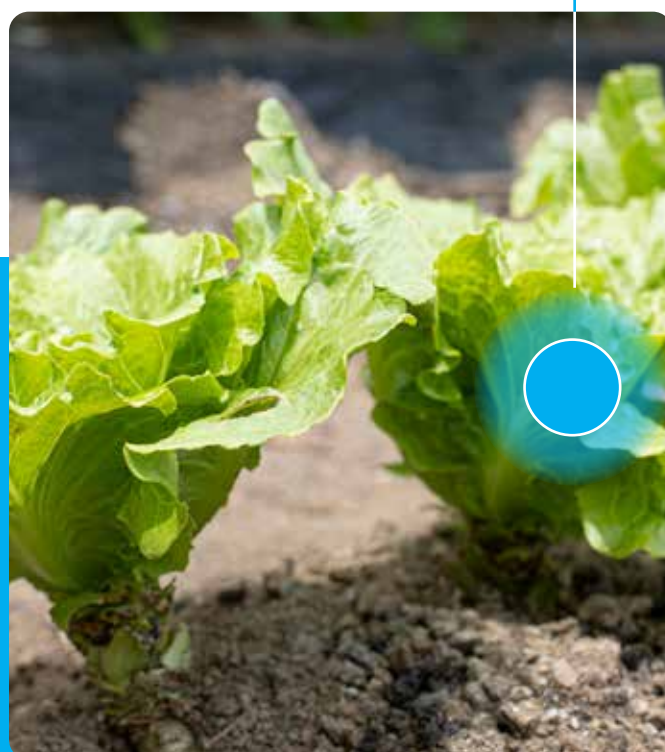
Possible EC-Weeder package for grains:

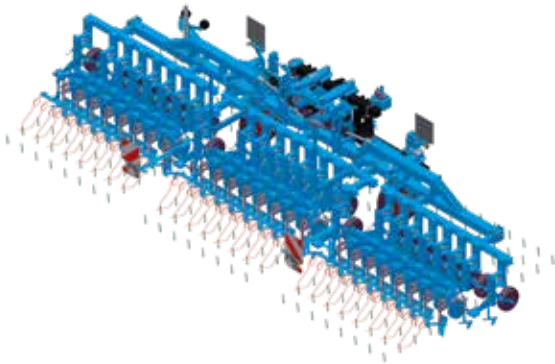
- 24 rows with a row spacing of 25 cm
- **IC-Light** camera control with LED work lights for fatigue-free work day or night
- Basic element mounted to the profile toolbar for flexible row widths
- Hoeing knives on the **Vibro** mount are precise tools even in rocky soils and produce a gentle burying effect into rows



Possible EC-Weeder package for lettuce:

- **5 rows with a row spacing of 30 cm**
- **IC-Light** camera control with LED work lights for fatigue-free work day or night
- Open frame, allowing the camera to be placed at a central position above the bed
- Basic element mounted to the profile toolbar for flexible row widths
- Hoeing knives on a rigid mount for ultimate precision
- Separate parallelogram elements to loosen tracks
- Brush hoe for cutting weeds with an action that is gentle to crops





Possible EC-Weeder package for onions:

- 3 beds with 8 rows each with a row spacing of 24 cm
- **IC-Light +** camera control with LED work lights for fatigue-free work day or night
- Basic element mounted to the profile toolbar for flexible row widths
- Hoeing knives and L-blades on a **Vibro** mount combined with cutter discs for ultimate precision
- Separate parallelogram elements to loosen tracks
- Torsion weeders remove weeds between crop plants within rows



Possible EC-Weeder package for soybeans:

- 18 rows with a row spacing of 45 cm
- **IC-Light** camera control with LED work lights for fatigue-free work day or night
- Second camera for secure steering at the headland and for heterogeneous crops
- Second pair of rubber support wheels for better weight distribution with large working widths
- Side-mounted rotating wheels on the main frame for better implement guidance
- **Combi element** mounted to the profile toolbar for flexible row widths
- Hoeing knives on the **Vibro** mount are precise tools even in rocky soils
- Geared protective discs for preventing crop damage
- Ridging shares for burying weeds within crop rows



PARALLEL STEERING FRAME FOR ANY HOEING MACHINE

Hoeing is high precision work! That's why every millimetre counts during work. The **EC-Steer** parallel steering frame makes controlling your hoeing machine a breeze. Whether you have a third-party machine or an EC-Weeder – **EC-Steer** allows EC-Weeders or any brand of hoeing machine to upgrade to a steering system controlled via an in-cab joystick or with the IC-Light camera control. This is particularly advantageous if you want to use hoeing machines for various row widths with a single steering system. Our **EC-Steer** movable frame is manufactured to the highest standards and opens up the possibility of precise and stress-free hoeing for weed-free crops!

- Hoeing machine swivel range of up to 20 cm to the right and left
- Optimal visibility even with heavy weed infestations and short crop plants
- IC-Light camera control or manual control via an in-cab joystick
- No transfer of movement between the tractor and steering frame when driving with open lower link stabilisers
- Gentle to crops thanks to high ground clearance
- Optional: short linkage connection for an optimised centre of gravity

Series

The number indicates the assembly type.



EC-Steer 7

- Coupling via Cat. 2 (L2 Z2) three-point linkage
- Coupling of implements with a gross weight of up to 2500 kg
- Open frame, allowing the camera to be placed at the centre of the frame



Support wheels

The support wheels allow the machine to be operated with open lower link stabilisers, which prevents the transfer of movement between the tractor and steering frame. Two or four support wheels in two different versions are optionally available for the parallel steering frame.



EC-Steer 9

- Coupling via Cat. 3 (L2 Z3 or L3 Z3) three-point linkage
- Coupling of implements with a gross weight of up to 4000 kg



Rubber support wheel

- Large wheel diameter for optimal load-bearing capacity
- Height adjustment via a perforated grid
- Gentle to crops



Support wheel with steel wheel flange

- Wheel flange for improved directional stability
- Height adjustment via a perforated grid



INTELLIGENT INTRA-ROW HOEING MACHINE FOR VEGETABLE CROPS

The **IC-Weeder** delivers automated hoeing at the highest level. Its cameras are mounted underneath the cover and reliably display the field of view, which is illuminated by LED lights, even in changing light conditions and at night. As a result, the IC-Weeder detects the exact location of plants based on their hue, size and position, and hoes precisely around them from both sides.

- Minimum row width of 25 cm
- Minimum plant spacing of 20 cm
- Working widths of up to 3 m
- Forward speeds of up to 4 km/h
- Hoeing as close as 2 cm to crop plants
- Multiple cameras, each covering a 60-cm field of view
- Recognition of hues of green and the RGB colour spectrum
- Remote maintenance for direct support in the field
- Pneumatic blade operation





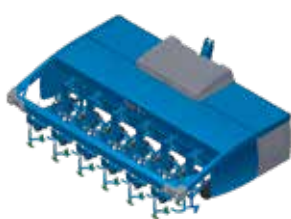
See the **IC-Weeder** in action here.
Be impressed!

Series



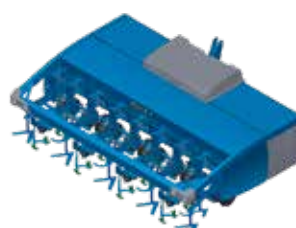
IC-Weeder 5 x 30 cm

- Lettuce
- Onions
- Iceberg lettuce



IC-Weeder 6 x 50 cm

- Cabbage
- Celery



IC-Weeder 4 x 75 cm

- Cabbage
- Pumpkin



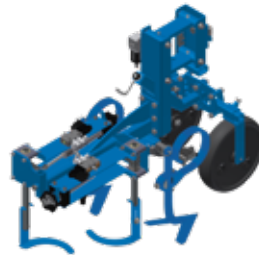
FRAME AND ELEMENTS





Hydraulic parallel steering frame

- Swivel range of up to 15 cm to the right and left
- The hoeing machine is automatically centred behind the tractor when it is raised
- Support wheels enable driving with open lower link stabilisers to avoid the transmission of movements between the tractor and steering frame



IC-Weeder elements

- Parallelogram element equipped with three or four tool holders for inter-row and intra-row tools
- Front tool holder with a rigid or **Vibro** mount with hoeing knives for working between rows
- Behind are two crescent-shaped blades, which remove weeds between plants within a row
- Crescent-shaped blades work when pulled and pushed
- **Crop Clean** blast of air removes dust and soil from crop plants
- Elements can be swivelled into rows on both sides and overlap when closed
- Optional: The element ground pressure can be reduced via pneumatic cylinders.



Support wheels

- Hydraulically correct the machine height
- Transmit the speed signal to the job computer
- Ensure the lateral stability of the machine



Camera

- Several cameras on the machine, depending on the working width and crop type
- Camera covers prevent shadows caused by natural sunlight
- The field of view is illuminated with LED lights for high-quality camera images
- Autonomously learning software reliably distinguishes plant colours within a field and can be switched between RGB and green mode
- Depending on the mode set, the integrated software searches for green hues or a calibrated colour hue
- Field of view: 60 cm per camera
- Transfer of images to the job computer, visualisation on the terminal



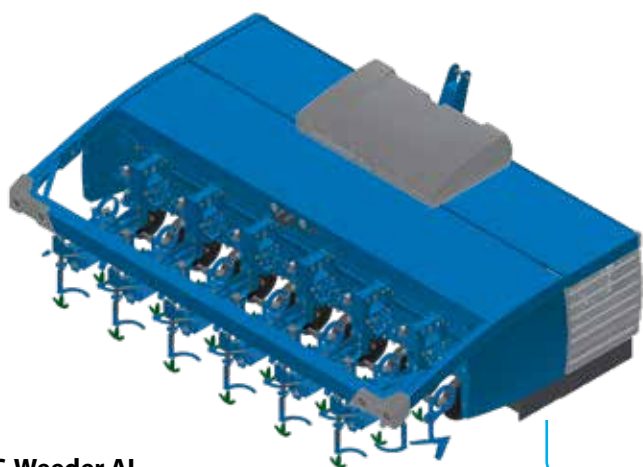
Terminal

- Processes the camera images to produce precise steering signals
- The actual plant position is calculated from the camera image, plant size and expected plant position
- The steering signal is transmitted both to the parallel steering frame (to ensure that rows are followed precisely) and to the active hoeing knives (which remove weeds within the row)
- The touchscreen terminal controls the job computer
- Simple and convenient operation via the terminal
- Remote maintenance ensures quick help when needed

A ROW AHEAD THANKS TO ARTIFICIAL INTELLIGENCE

The **IC-Weeder AI** automatic intra-row hoeing machine for seeded crops hoes at the highest level using artificial intelligence. The intelligent camera control of this automatic hoeing machine is based on artificial intelligence (AI) and keeps a firm eye on each and every sugar beet. Whether in the row or between the rows – weeds are reliably removed even under difficult conditions. With a perfect interplay of precise technology and Crop Care Elements, you'll always be a row ahead.

- Standard **IC-Weeder** with additional AI package
- Equipped with six cameras (one camera per row)
- Working speed up to 1.8 km/h
- Sickle blades move actively between the plants within a crop row.
- User-friendly, intuitive operation
- Minimum row width of 25 cm
- Minimum intra-row plant spacing of 18 cm
- Working widths of up to 3 m
- Hoeing as close as 2 cm to crop plants
- Multiple cameras, each covering a 60-cm field of view
- Remote maintenance for direct support in the field



IC-Weeder AI



**FARM
MACHINE
2022**

powered by
traction & @grarheute

HOEING MACHINE AND RIDGER **FOR** **RIDGE CROPS**

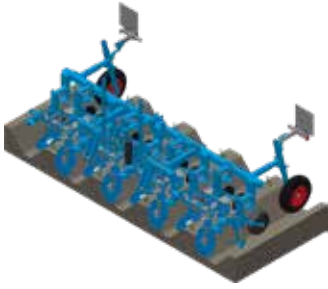
The **EC-Ridger** is suitable for all crops grown on ridges with a 75 cm row spacing, such as potatoes and carrots. Its operating principle comprises three to five steps. The deep loosener optionally loosens the soil between the ridges. Next, the hoeing discs cut weeds both along the sides and on top of the ridges right next to crop plants.

Spring tines loosen the soil between ridges. At the end of the process, the ridging body returns the ridges to their intended shape. An optional leaf guard protects crop plants against damage.

- Row spacing of 75 cm
- Working widths of up to 6 m
- Forward speeds of up to 8 km/h
- Automatic and manual steering systems

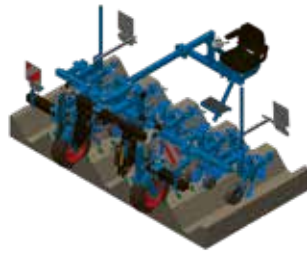


Series



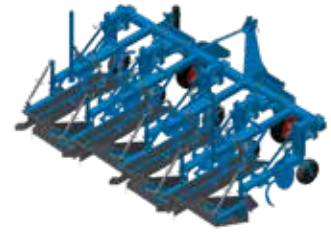
EC-Ridger 5

- Available for front or rear mounting with optional steering
- Basic elements for hoeing the ridge crest and sides
- Only cutting, no rebuilding of the ridge



EC-Ridger 5 V

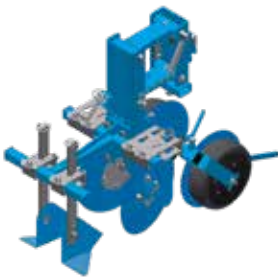
- Steered version (with camera system) of the **EC-Ridger 5**



EC-Ridger 7

- Rear mounting
- TRS element with hoeing discs, spring tines and ridger
- Cutting of ridge sides and simultaneous rebuilding of the ridge
- Optional leaf lifter: Protects small crop plants; lifts drooping foliage

Elements and tools



EC-Ridger 5 – Basic element

- For light soils and shorter crops
- L-blades remove weeds **on ridges**
- Breaks up crusted soils
- Depth control wheel with leaf guard



EC-Ridger 5 – Basic element

- For light soils and shorter crops
- Removes weeds **between ridges** and along their sides



EC-Ridger 7 – TRS element

- Well suited for heavy conditions
- For ridging bodies and other heavy tools



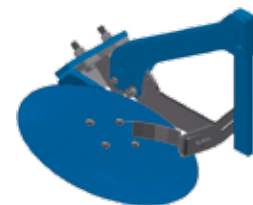
EC-Ridger 7 – subsoiler

- Optional subsoiler for loosening the soil **between ridges**
- Supports water flows
- Individually adjustable working depth



EC-Ridger 7 – leaf protection

- Protects crop leaves when hoeing along ridge sides and ridging
- Allows excess soil to slide gently off the crest of the ridge
- The distance between the plates can be adjusted in keeping with the growth stages of the crop



EC-Ridger 7 – ridging discs

- Optional instead of ridging shares
- Particularly well suited for light soils

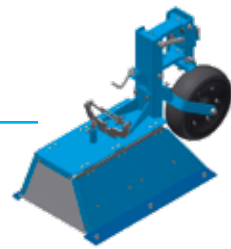
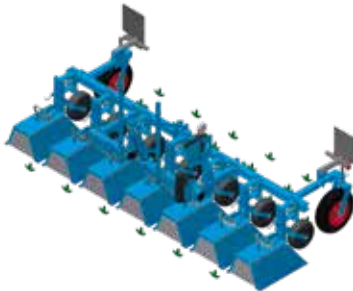
BAND APPLICATION BETWEEN ROWS

The **EC-Spray** systems offer you versatile options for targeted crop care applications. As crop care products are applied to weeds very specifically, growth retardation of crop plants is prevented.

- Up to 13 m working width
- Forward speeds of up to 8 km/h
- Row spacings of 20 to 75 cm
- Automatic and manual steering systems

For row crops

Herbicide is applied between rows under the hood. Crops are optimally protected against the herbicide in the process. **EC-Spray^{Hood}** blocks the wind and is easily adjusted.



EC-Spray^{Hood}

- Available as front or rear implement (with IC-Light camera control only as rear implement)
- Spray hoods between crop rows enclose the application nozzle
- Product is applied under the spray hood

Elements

- The hood is mounted to the Basic or Combi element for optimal ground contour following
- Easy conversion to a rear implement

Hood

- Nozzle inside the hood for precise herbicide application between crop rows
- The width of the hood can be adapted to the different growth stages of the crop (25 to 75 cm)
- Glides through the soil on skids to seal the soil completely
- Two nozzles per hood for larger row distances



VERSATILE OPTIONS



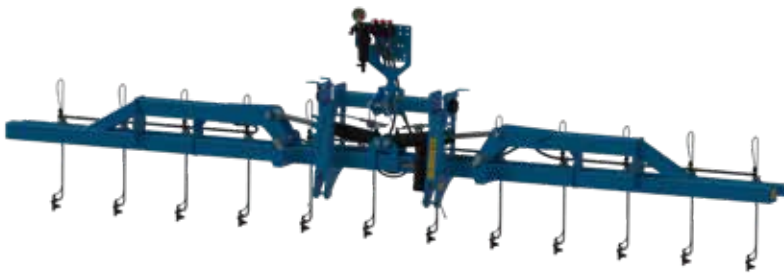
SprayHub

Whether crop care measures or the application of micronutrients or liquid fertilisers – the **SprayHub** front tank not only provides ultimate flexibility in supporting different implement combinations, but also impresses with a clear and compact design and offers all the benefits modern crop care sprayers deliver.

- Tank volume of 1,100 l or 1,500 l with adjustable agitator
- Filling filter in the tank lid (optionally with an induction nozzle for liquid and solid products)
- Hydraulically driven piston diaphragm pump with a flow rate of 140 l/min
- Two rotating interior cleaning nozzles for easy cleaning
- Hand wash tank with 15 l and clean water tank with 127 l capacity
- CTS connection for contactless induction (optional)



The **SprayHub** allows you to save 40 to 60% in crop care products!



SprayKit

The LEMKEN **SprayKit** allows you to apply liquid fertilisers, crop care products and other liquids. Its compact spreading unit is suitable for mounting on a wide range of implements. Various features such as the electric individual nozzle control and the water hydraulics make the **SprayKit** a highly efficient tool.

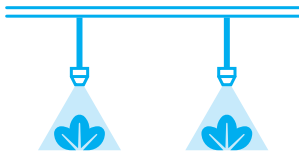
- Height-adjustable nozzle holder (via a scale) for optimal positioning above the plant row
- Very easy handling thanks to a lock on the holder
- Compact basic fitting for the implement as interface between the application kit and **SprayHub**
- Optionally one or two nozzles per row

Nozzle holders

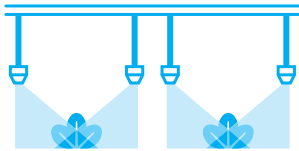
- Nozzle holder with drip stop
- Lockable diaphragm valve
- High-precision work thanks to easy angle adjustment

A strong combination with the EC-Weeder

The best solution from a single source: with the **SprayKit**, LEMKEN turns the **EC-Weeder** into a highly efficient hoeing machine with band sprayer. In this combination, the **Spray-Kit** is available in different variants.



From above with one nozzle per row



From left and right with two nozzles per row



For liquid fertiliser on the duck-foot share



Savings thanks to reduced herbicide use

Band spraying of 25 cm wide strips means substantially reduced costs.



Time savings

The system allows several operations to be performed simultaneously: Hoeing, band spraying and fertilising.



Less risk for the environment

The reduced use of herbicides minimises the risk of environmental pollution.



Reduced water consumption per hectare

As the area to be treated is reduced by about two thirds, less spraying fluid and therefore less water is needed for each application.



Less soil compaction

Combining different operations in a single pass reduces the risk of soil compaction.



Precisely adjusted
iQblue spray is the ISOBUS-based operating concept for the LEMKEN **SprayHub** front tank. Numerous features make work easier for drivers and ensure the targeted application of liquid fertiliser and crop care products.

The integrated calculator in the **iQblue spray** control panel makes it easy to calculate the application rate per band width from the rate per hectare.



WE'RE HERE FOR YOU

Our internal development team does everything in its power every day to make our technology even better for you. We work in constant exchange with you as practitioners and put our heart and soul as well as our extensive expertise into the development of practice-oriented technology. As a result, we provide you with customised machines that offer the right solution for your individual requirements. Our entire product portfolio stands out through its excellent user-friendliness in daily work, and we continuously optimise our range of imple-

ments.

With us, you get everything from a single source: passionate development, reliable production and personal all-round

service. This enables us to respond quickly to a wide range of challenges, and we always work in close exchange with agricultural practice.

Our competent team of experienced product specialists guarantees optimal service. Our promise starts with sound advice before your purchase and continues with support during initial field use as well as throughout your work in the field. Our remote maintenance system ensures that you receive help very quickly and easily without having to wait for an appointment.



Supplying high-quality original wear parts

Our LEMKEN original wear parts enable your LEMKEN implement to stay as it is: an original. Whichever machine you need a spare part for, we ensure that the original parts are always available for all LEMKEN implements. Not only in the short term, but for years to come.



Delivering spare parts speedily

The right parts at the right time in the right place — this is how a reliable replacement parts service should operate. Our professional logistics handling service ensures we can supply a wide range of replacement parts quickly, whenever and wherever they are needed.

A WELL-ROUNDED SOLUTION.

At LEMKEN, we don't think in terms of isolated work steps – instead we look at the full cycle including all facets of agricultural engineering. The result is a range of comprehensive solutions that intermesh perfectly. For you, this means: high-quality, future-oriented, efficient technology for an agriculture that is both profitable and sustainable.



LEMKEN 11/23, 17517836/en. All data, dimensions and weights are subject to ongoing further technical development and are therefore not binding. Weights given are always based on standard features. All information given is subject to change without notice.

LEMKEN GmbH & Co. KG
Weseler Strasse 5
46519 Alpen, Germany
Tel. +49 2802 81-0
Fax +49 2802 81-220
info@lemken.com
www.lemken.com

**FIND OUT MORE
ABOUT OUR PRIVACY
REGULATIONS
WHEN HANDING OVER
MACHINES HERE**



Your specialist LEMKEN dealer:

