PeK agroline

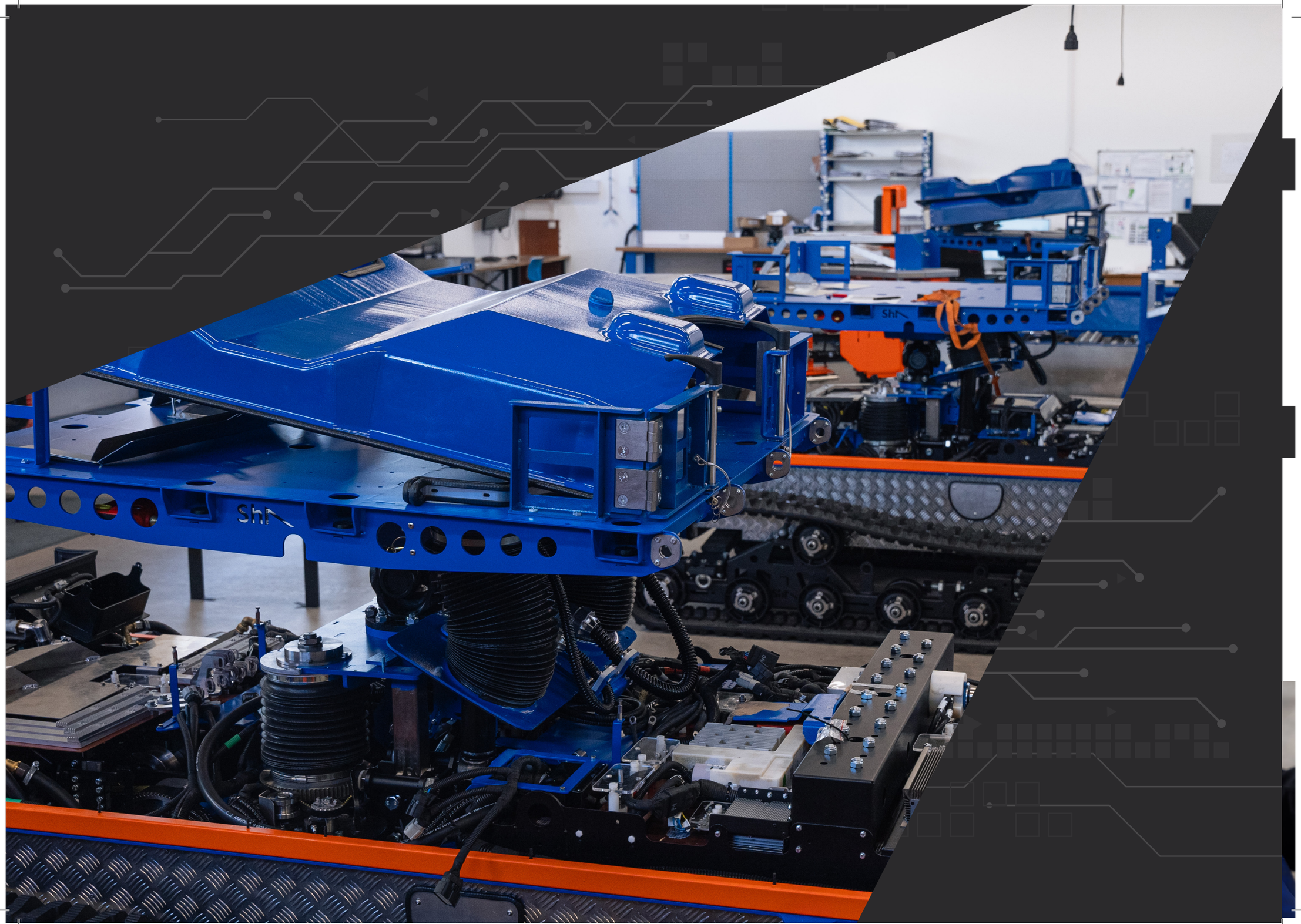
PEK AGROBOTS

AGILEHELPER

SLOPEHELPER

AGRICULTURAL ROBOTIC SYSTEM FOR YEAR-ROUND AGRO-OPERATIONS

Autonomous robotic system for the entire plantation agrocycle



PeK Automotive's **TECHNOLOGICAL FOUNDATION**

R-WAVE 2D MP RADAR

The R-Wave 2D MP Radar is a **Radio Detection And Ranging system**, harnessing radio waves to reliably measure the surrounding space geometry, as well as speed and distances from objects, including those that may not be visible to the naked eye.

Moreover, the R-Wave 2D MP RADAR can determine the velocity of a moving object and is used for navigation and flawless autonomous operation.

R-WAVE RTK

The R-Wave RTK, or **Real-Time Kinematic positioning**, is a sophisticated technology that significantly enhances the accuracy of GNSS (Global Navigation Satellite System) positioning.

While conventional GNSS receivers, such as those relying on GPS, provide locational accuracy within a range of 2–4 meters, the RTK technology narrows this down to a remarkable Centimeter-level precision.

R-WAVE AUTONOMOUS

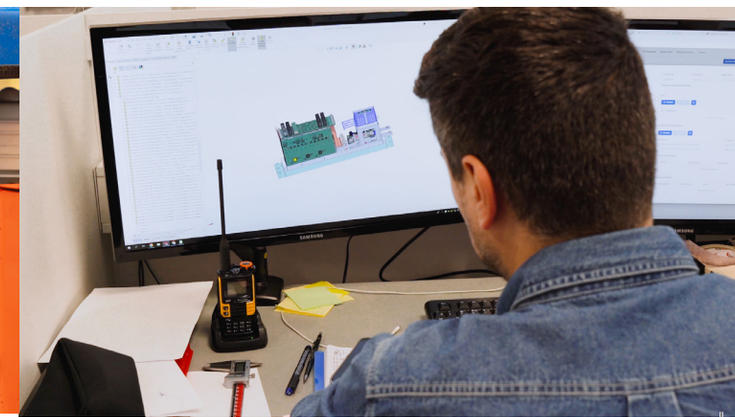
The R-WAVE Autonomous facilitates the **autonomous operation of vehicles and robots within a pre-defined area**. By harnessing the capabilities of R-WAVE RTK and 2D MP RADAR, along with reflectors, the system creates a detailed map of the area for subsequent repetitive tasks.

Once this map is drawn up, the vehicle can navigate autonomously without the use of RTK and GNSS signals, relying solely on the map, radar, and reflectors.

For operations outside permanent plantations, utilizing the GNSS and RTK system is advantageous, given its swift setup and ease of dismantling.

R-WAVE POWER

The R-Wave RPower is the **base technology system** that powers our vehicles. It enables endless configuration options for the development of custom special-purpose electric vehicles.



HOW it works?

Setting up the PeK Agrobot robotic agrosystem is simple and ensures reliable operation throughout the plantation's lifetime. Once deployed, it requires only minimal maintenance. Everything you need to streamline your field agro operations with effortless simplicity. Simple, just like counting 1–2–3.

1

BASE PLATFORM

Charge the Base Platform at the **Charging Station**, ensuring full operational readiness.

2

HINGED ATTACHMENTS

Secure the appropriate Hinged Attachment using the **Installation Carrier** for precise functionality.

3

TEROAIR

Transport with a B-category trailer, set parameters, attach tools, and start. Monitor remotely via TeroAir. **TeroAir** is a mobile app for real-time monitoring and control, keeping users updated on Slopehelper's performance and events directly from their smartphones.

3 Easy Steps for DEPLOYMENT

With these quick setup steps, the machine is ready to deliver fully autonomous agricultural operations, optimizing efficiency and reducing labor costs for vineyard and orchard owners.

CLEAR THE FIELD FOR OPTIMAL NAVIGATION

Remove obstacles
such as fallen trees, broken wires, large stones, columns, and earth mounds that could obstruct the robotic system's movement.

INSTALL REFLECTORS FOR PRECISION

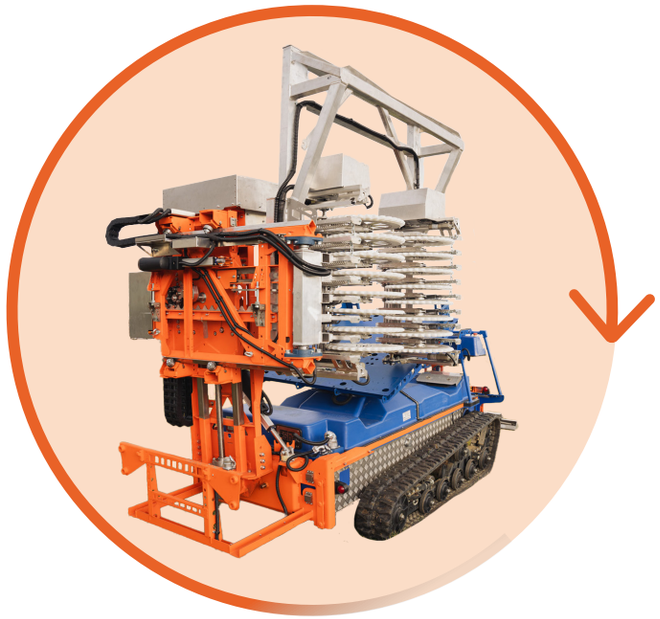
For plantations without metal pillars, **install reflectors at the beginning of each row**. These cost-effective plastic elements enhance radio locator precision, allowing **accurate row detection** for seamless automation. (Note: If metal pillars are present, reflectors are usually unnecessary.)

CREATE A GEOMETRICAL PLANTATION MODEL

Map the plantation **manually** using a meter or

Use an **advanced mapping system** for precise digital modeling, ensuring optimal robot navigation.

TWO ROBOTIC SOLUTIONS for every farmers needs



SLOPEHELPER

- HINGED ATTACHMENTS
- ORCHARDS, VINEYARDS
- WIDER ROWS (≥ 2,1 M)

AGILEHELPER

- INTEGRATED TOOLS
- VINEYARDS, BUSHES
- NARROWER ROWS (≥ 1,7 M)

Advantages

- GNSS ON/OFF — DRIVE WITH OR WITHOUT GNSS
- WARRANTY UP TO 5 YEARS
- 100% AUTONOMOUS
- 3X — LESS COSTS
- LOW ELECTRICAL VOLTAGE OF 48V
- WORKING UP TO 14 HOURS
- AUTONOMOUS VEHICLE KIT & SAFETY BUMPER
- EASY TO USE
- 100% ELECTRIC

What is SLOPEHELPER ?

Slopehelper is a fully autonomous, electric agrosystem that replaces traditional farm machinery—delivering efficient, cost-effective, and sustainable field management.

- HINGED ATTACHMENTS
- ORCHARDS, VINEYARDS
- WIDER ROWS (≥ 2,1 M)

BASE PLATFORM

+

HINGED ATTACHMENTS

ACTIVE SIDE TRIMMER
COMING SOON

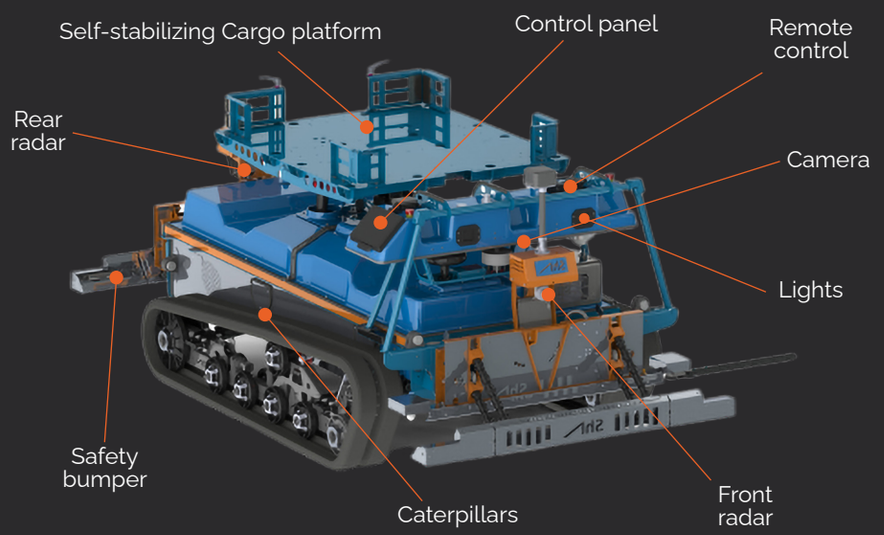
PRUNER
COMING SOON

PLOUGH
COMING SOON

Main technical parameters of the Slopehelper Base Platform

PARAMETER	VALUE
Size of base platform (length x width x height)	2600 x 1610 x 1230 mm
Weight	1750 kg
Operation time	up to 12 hours (depends on instrument)
Number of operations	19
Maximum speed	5 km/h
Platform side inclination	± 35° in axial directions
Maximum slope operation	42°
Battery (maximum on-board voltage)	48V (based on EV48 FEV technology)
Charging time (speed charger)	8 – 10 hours (3,5 hours)
Safety system	Electromechanical bumpers and Collision avoidance system based on radiowave scanners

BASE PLATFORM PARTS



AGROCYCLE OPERATIONS

TREATMENT & PROTECTION

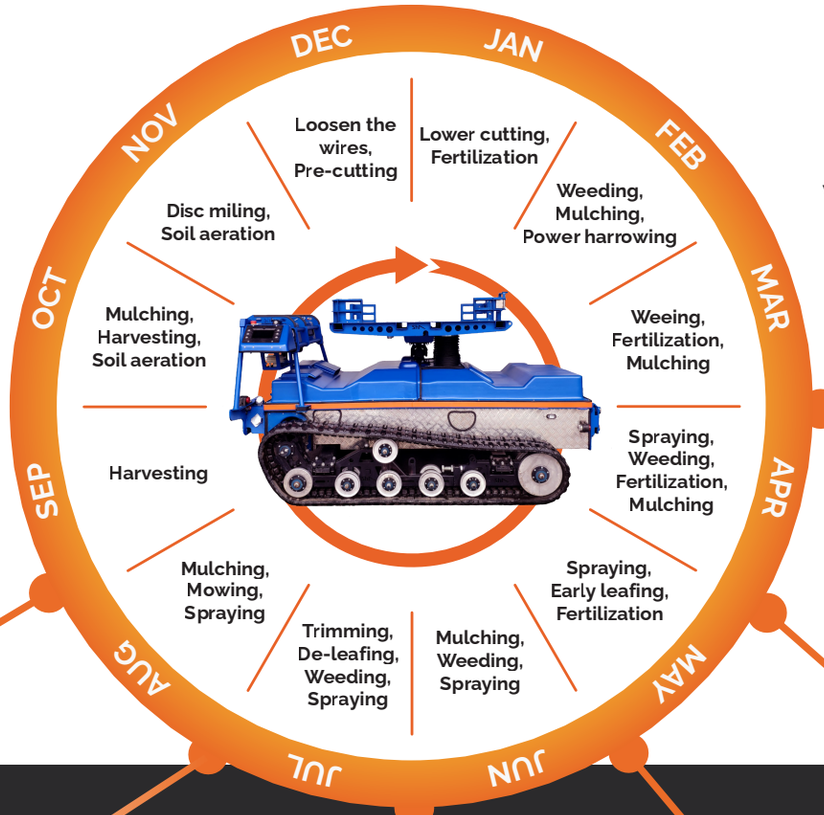
Turbo spraying on both sides of the passage with **DOUBLE-SIDED SPRAYER**

HARVESTING

Autonomous fruit picking by 6 robotic manipulators with **FRUIT PICKER**

Autonomous grape cluster/branches harvesting with 4 robotic manipulators with **GRAPE PICKER**

Base platform conversion into a 8-worker harvesting or plantation service platform/combine with **HARVESTING SET**



Explore Slopehelper's

FULL AGROCYCLE CAPABILITIES

with specialized attachments for every season. Discover how it transforms your vineyard or plantation year-round.

WEED MANAGEMENT & MULCHING

String mulching in root zones and trunk cleaning for mature trees with **SIDE TRIMMER**

String mulching in root zones and trunk cleaning for young and mature trees with **ACTIVE SIDE TRIMMER**

Branches and grass mulching in root zones by horizontal knife flails with **SIDE LAWN MOWER**

Branches and grass mulching in passages by cutting-edge hammer flails with **DRUM MULCHER**

Soft branches and grass mulching in passages by horizontal elliptical knives with **LAWN MOWER**

SOIL PREPARATION & MAINTENANCE

Rotary soil cultivation in root areas with **POWER HARROW**

Soil cultivation in passages using spiked disks with **NEEDLE HARROW**

Application of granular/pellet fertilizers or seed spreading with **FERTILIZER**

Plowing in passages and tilling in root zones with **PLOUGH**

PRUNNING & CANOPY TRIMMING

Rotary disk pruning of grapevine branches with **PRE-PRUNER**

Robotic branch cutting in vineyards and orchards using a scissor manipulator with **PRUNER**

Lateral and top tree cutting with columns' bypass in vineyards and orchards with **HORIZONTAL-VERTICAL CUTTER**

Single-pass all-sided row cutting in vineyards with **U-SHAPE CUTTER**

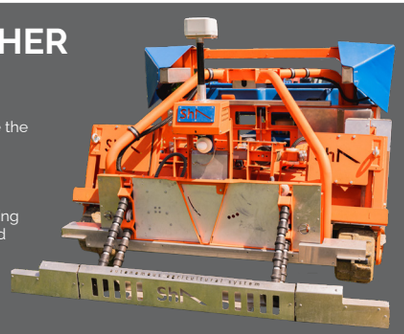
LEAVES & FLOWERS CONTROL

Removing leaves from the grapevine canopy around the grapes with **LEAF REMOVER**

Flower removal in orchards to regulate harvest development with **BLOSSOM THINNER**

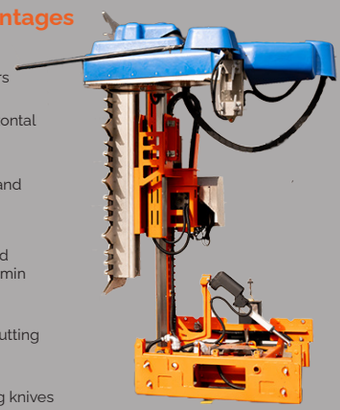
DRUM MULCHER

Advantages



- No need to balance the shaft or hammers
- Possibility of replacing hammers in the field
- Adjustable of drum shaft speed (from 1000 to 2000 rpm)
- Innovative multi-section shaft (noise and vibration reduction)
- Frontal arrangement of the equipment (branches don't get squeezed into ground by the machine)

HV CUTTER | Advantages



- Autonomous operation according to the set parameters
- Perform both vertical and horizontal operations simultaneously
- Automatic detection of pillars and ability to avoid collisions
- Flexible selection of the desired cutting height (max 4200 mm, min 1200 mm)
- Adjustable cutting width and cutting inclination
- Adjustable speed of the cutting knives

U-SHAPE CUTTER

Advantages

- One-pass Row Cutting with Fully Autonomous Operation
- Adjustable Cutting Position for Vineyard Customization
- Vertical Positioning & Row-center Alignment for Slippery Terrain
- Height Adaptation on Slippery Terrain
- Automatic Folding for Row Changing

SPRAYER | Advantages

- Adjustable liquid consumption rate per hectare (minimum 150 L per hectare)
- Spraying quality does not depend on the pressure of sprinkles or the speed of the fan
- The ability to work on slopes up to 42 degrees (due to the adjustable cargo platform)
- High-precision spraying, independent of wind and other external factors
- Autonomous work without an operator
- Adjustable swinging angle and fan elevation (for trees up to 4 m)
- Real time weather-based spray scheduling

HARVESTING SET | Advantages

- Easy installation of an empty harvesting basket
- Automatic unloading of harvest to the harvesting basket
- No need for specialized harvesting or hail net servicing machines No need for a forklift
- Up to 6 (+2 on ground level) No. of workers on shelves
- Four vertical levels for manual fruit collection
- Adjustable extension of the harvesting shelves
- Convenient operation on sloped terrain requirements
- Maximum height of plantation trees 4200 mm
- Cost savings and flexibility
- Significantly reduced labor

PRE-PRUNER | Advantages

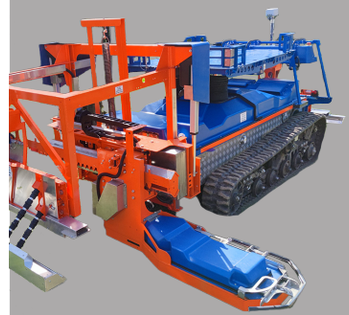
- Autonomous operation without requiring manual control
- Prevention of ropes and pillars damage
- Selectable parameters of branches cutting
- Significantly reduced labor requirements
- Simultaneous pruning of branches on both sides of grapevines

SIDE TRIMMER

Advantages

- Capable of weeding between root areas in every row
- Fast-rotating trimmer head
- Targeted in- row weeding around tree trunks in vineyards and fruit plantations
- Easily attaches to the Slopehelper platform

SIDE LAWN MOWER | Advantages



- Mulches branches and cuts grass both between and around tree roots
- Bypasses tree trunks automatically
- Elliptical rotating blade powered by a robust motor
- Perpendicular movement relative to the row

NEEDLE HARROW | Advantages

- A flat surface after operation and suppressed grass growth
- Prevention of soil integrity or functionality damage
- Prevention of damage to the instrument
- Improved air and water penetration
- Soil cultivation in various agricultural settings

BLOSSOM THINNER

Advantages

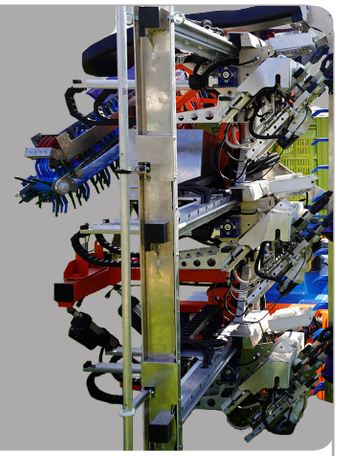
- Efficient and uniform reduction of flowers
- Adjustable Intensity of the thinning process
- Enhanced growth of larger and sweeter fruits
- Autonomous operation
- Rotating Vertical Shaft equipped with ropes

FERTILIZER

Advantages

- Regulation of the spread pattern based on desired results
- Autonomous work without an operator
- Flexible application of the amount and distribution fertilizer
- Distribution of granules or pellets in precise row
- Adjustable fertilizer usage rate
- Electronic control system of the spreading process

FRUIT PICKER



Advantages

- Significantly reduced labor requirements
- Capable of operating at various heights and depths
- Autonomous operation
- Gentle picking of apples avoiding damaging the fruit or the tree
- Fruit ripeness detection

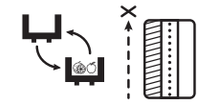
Smarter, Faster, and More Efficient Than Conventional Harvesting

The Fruit Picker revolutionizes orchard harvesting by efficiently collecting fruit along one side of each tree row. Often, the harvested quantity exceeds a standard bin's capacity, requiring strategic unloading. Unlike manual platforms, which swap bins mid-row, **the Slopehelper Fruit Picker completes the row smoothly—full bins are replaced at the end with a forklift, minimizing downtime and maximizing productivity.** With careful planning, growers enjoy **higher efficiency, smarter operations**, and a **faster harvest**.

Bin Capacity Limit

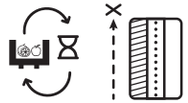
Normally the fruits which can be collected on one side of the tree row doesn't fit into the standard agricultural bin.

End-of-Row Unloading



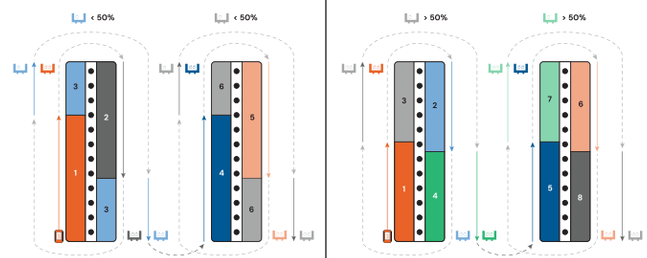
The only option for unloading the full bin is to drive the machine until the end of the passage, where it can be taken out by a fork lift and replaced by an empty one.

Travel Time Consideration



This movement with a full basket will take time and not contribute to the operation, so the strategy must be selected wisely.

Fruitpicker Strategy : The optimized path and smart sequence of operations



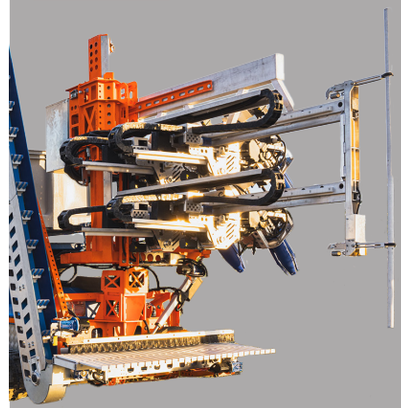
The Fruit Picker overcomes the limitations of traditional harvesting by minimizing idle travel time and optimizing bin unloading.

LEAF REMOVER | Advantages

- Ability to specify the operation distance from the plants
- Effective cutting of vegetation that extends the specified vertical boundary
- Achieving optimal sunlight exposure for grape development
- Efficient removal of excess leaves
- Autonomous operation

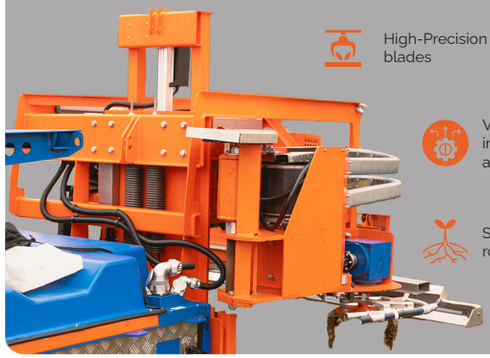
GRAPE PICKER

Advantages



- Autonomous Operation
- Minimizes damage during picking
- Optimizes pruning and harvesting
- Significantly reducing labor needs
- Efficiently collects entire grape branches

POWER HARROW | Advantages



- High-Precision Cultivation with dual blades
- Versatile Functionality in combination with the autonomous vehicle
- Specifically targets the root zones

LAWN MOWER | Advantages

- Capability of cutting small branches
- Adjustable knives rotation speed and grass length after cutting
- Frontal arrangement of the equipment (grass doesn't get squeezed into ground by the machine)
- Detection of obstacles and avoiding damage

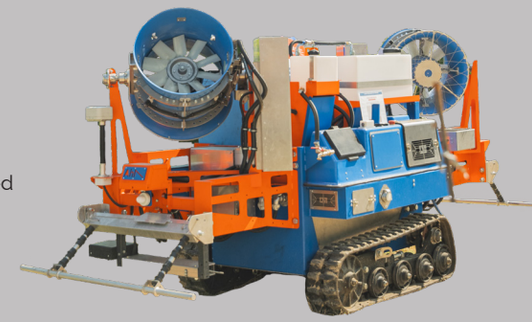
What is AGILEHELPER?

Agilehelper is the smart, cost-efficient robot for small to medium vineyards. It ensures precision, reliable performance, and cuts labor costs.

Agilehelper Robotic System offers two machines:
GRASSFIGHTER and **DOUBLE-SIDED SPRAYER**

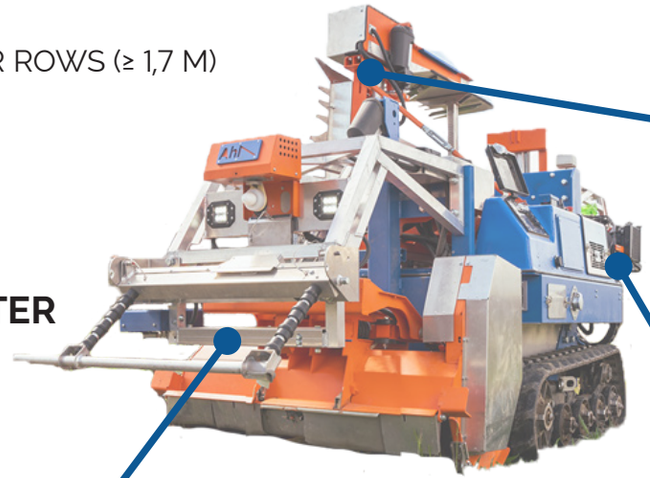
- INTEGRATED TOOLS
- VINEYARDS, BUSHES
- NARROWER ROWS (≥ 1,7 M)

DOUBLE-SIDED SPRAYER | Advantages



- 1 operation - **SPRAYING**
- Flexible spraying between rows
- High spray quality maintained regardless of pressure or fan speed
- Fan elevation and angle adjust for trees up to 4 meters
- Precision Spraying regardless of wind or conditions
- Adjustable Liquid Use with a minimum of 150 liters/ha

GRASSFIGHTER



HV CUTTER | Advantages

- Automatic detection of pillars and ability to avoid collisions
- Perform both vertical and horizontal operations simultaneously
- SPEED Adjustable speed of the cutting knives
- Autonomous operation according to the set parameters
- Adjustable cutting width and cutting inclination

DRUM MULCHER | Advantages

- No need to balance the shaft or hammers
- Frontal arrangement of the equipment (branches don't get squeezed into ground by the machine)
- Possibility of replacing hammers in the field
- Innovative multi-section shaft (noise and vibration reduction)
- SPEED Adjustable of drum shaft speed (from 1000 to 2000 rpm)

POWER HARROW | Advantages

- High-Precision Cultivation with dual blades
- Versatile Functionality in combination with the autonomous vehicle
- Specifically targets the root zones

Technical Specifications - Grassfighter

DIMENSIONS	VALUE
Height	1760 mm
Length	3960 mm
Width	1245 mm
Weight	1800 kg

WORKING DIMENSIONS	VALUE
Working slopes	Up to 38°
Minimum speed	0,5 km/h
Maximum speed	4 km/h
Maximum drive	10 kW

ELECTRIC SYSTEM	VALUE
Battery	48 V (LiFePO)
Battery Capacity	28,7 kWh
Working hours between charging	8–12 h (depending on the type of operation)
Charging time	8–10 h

GENERAL SPECIFICATIONS	VALUE
Control	Onboard computer Remote controller Autonomous Navigation system
Safety system	Electromechanical (additional collision avoidance system based on radio wave scanners)
Caterpillars	200 x 72 x 44
Gearbox stages	2 (1 chain, 1 worm gearbox unit)
Brake system	Band brake (air release)
Additional features	True-autonomous (no need GNSS) High resolution touch sensor

Technical Specifications - Double-sided sprayer

DIMENSIONS	VALUE
Height	1750 mm
Length	3840 mm
Width	1245 mm
Weight	1400 kg

WORKING DIMENSIONS	VALUE
Working slopes	Up to 38°
Minimum speed	0,5 km/h
Maximum speed	4 km/h
Maximum drive	10 kW

ELECTRIC SYSTEM	VALUE
Battery	48 V (LiFePO)
Battery Capacity	28,7 kWh
Working hours between charging	8–12 h (depending on the type of operation)
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PEK AGROBOTS

Listening to growers' needs to deliver solutions that respect the earth and people

AGILEHELPER

SLOPEHELPER

PeK Agrobots outperform grower expectations: They have increased performance, reduced labor and operational costs, and eliminated field emissions.

With labour in short supply, healthy food in high demand, and climate change at critical levels, **PeK Agrobots has a very practical answer:** autonomous, zero-emission machinery that keeps plantations clean, healthy, and productive.

Founded on commitment, innovation, and responsibility, we design visionary, dependable, and ecologically sensitive solutions.

With PeK Agrobots, agriculture enters a more sustainable future: decreasing drudgery at the workplace, improving working conditions, and maintaining the natural environment intact.

Our mission goes beyond technology; it's about empowering farmers towards embracing a smarter, greener future. We guarantee that every PeK Agrobot is built with an assurance of balanced ecosystems, thriving agricultural communities, precision engineering, and continuous innovation to respect nature.

PeK Agrobots redefine modern farming by merging intelligence, autonomy, and sustainability; it takes challenges as an opportunity for growth, efficiency, and being in tune with the planet.

Transform your business — cut costs 3x and end labor shortages!

Switch to robotics with less investment than traditional equipment!

Sustainability made easy! No extra investment needed!


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