



Shi SLOPEHELPER U-Shape Cutter

Single-pass all-sided row cutting in vineyards

The Slopehelper U-Shape Cutter is an advanced frame-style pruning system designed for efficient, single-pass vineyard branch cutting. This rear-hinged attachment features a U-shaped (portal) frame, allowing it to fully enclose the vineyard row, trimming branches on all sides simultaneously.

Equipped with three high-performance cutting decks, the U-Shape Cutter ensures precise and uniform pruning, significantly reducing labor costs and operational time. By completing an entire row in one seamless passage, this innovative pruning system enhances efficiency, promotes vineyard health, and optimizes overall productivity, making it an essential tool for modern vineyard management.

100% Autonomous | 100% Electric

Features & Benefits



One-Pass Row Cutting with Fully Autonomous Operation

Traditional vineyard pruning requires highly skilled tractor drivers to maintain precise row alignment within the cutter portal. Any deviation can cause vineyard damage, uneven cuts, or crop loss, making the process labor-intensive and error-prone.

The Slopehelper U-Shape Cutter revolutionizes pruning with fully autonomous operation, eliminating the need for manual control. Its advanced stabilization system automatically adjusts frame position, row alignment, and cutting deck inclination, ensuring precise and damage-free pruning.

By integrating real-time terrain adaptation and autonomous guidance, the Slopehelper U-Shape Cutter delivers top-level precision, completing vineyard row cutting in a single pass with maximum efficiency and zero risk to the vines.



Adjustable Cutting Position for Vineyard Customization

The Slopehelper U-Shape Cutter features a fully adjustable cutting position, enabling vineyard owners to customize the cutting height according to their specific needs. This wide adjustment range ensures optimal pruning precision, accommodating different vine structures, growth patterns, and pruning techniques.

By adapting to various vineyard layouts, the system provides greater flexibility for growers, ensuring that each vineyard receives the ideal pruning treatment, whether for low-trained vines, high trellises, or unique plantation configurations.



Pyramidal Shape Cutting & Canopy Thickness Adjustment

The Slopehelper U-Shape Cutter offers full customization of pruning angles and canopy width, allowing growers to precisely shape vineyard rows to meet their specific requirements.

The vertical cutting decks can be installed at a variable angle and adjustable distance from the row, providing the flexibility to:

- Create a wider or narrower canopy, depending on vine growth density and light exposure needs.
- Shape the vine canopy into a pyramidal form, optimizing solar penetration for improved grape ripening.

This versatile adjustment system enables growers to fine-tune vineyard architecture, ensuring better airflow, uniform growth, and higher-quality fruit production.





Height Adaptation on Slippery Terrain

The **Slopehelper U-Shape Cutter** is equipped with a **hinged system** that ensures **consistent maintenance of the pre-set cutting height**, even when operating on **slippery or uneven terrain**.

This **adaptive mechanism** dynamically adjusts to **slope inclinations**, allowing the instrument to maintain **precise cutting positioning** regardless of ground conditions. By **continuously adapting** to terrain variations, the **U-Shape Cutter guarantees uniform and effective pruning**, minimizing manual corrections and ensuring **optimal performance across all vineyard landscapes**.



Emergency Stop System for Cutting Deck Jamming

The **Slopehelper U-Shape Cutter** is equipped with a **dedicated emergency stop system** to prevent damage in the event of **cutting deck jamming**.

A **special mechanical fuse** protects the **frame with cutting decks**, ensuring that if an **obstruction**—such as **loose vineyard wiring** or **unmaintained plantation debris**—gets jammed in the disks, the fuse **immediately disengages the frame**, allowing it to move freely and avoid excessive force.

At the same time, a **sensor detects abnormal movement** and **automatically stops the Base Platform**, preventing further damage to the instrument.

This **intelligent safety mechanism** ensures continuous protection, prolongs the instrument's lifespan, and **minimizes the risk of unexpected breakdowns** in the field.



Vertical Positioning & Row-Center Alignment for Slippery Terrain

When operating on **slippery surfaces** or **traversing slopes**, maintaining **precise alignment** of the **cutting decks** with **tree trunks** is essential for **accurate pruning**. The **Slopehelper U-Shape Cutter** is equipped with an **advanced vertical positioning system** that continuously **monitors the instrument's inclination**, ensuring that the **cutting decks remain perfectly aligned** with vineyard rows, even in **challenging terrain conditions**.

To further enhance **accuracy**, the **U-Shape Cutter** features an **independent positioning system** that ensures the **cutting decks remain symmetrically centered** in the passage. This system **automatically adjusts the frame's position**, compensating for any **variations in the Base Platform's autonomous movement trajectory**, preventing **misalignment** and **optimizing pruning efficiency**.

This **dual stabilization technology** guarantees **precise, uniform pruning**, eliminating errors caused by **terrain shifts** or **machine drift**, and ensuring **consistent cutting quality** across all **vineyard conditions**.



Automatic Folding for Row Changing

The **Slopehelper U-Shape Cutter** operates as a **side-mounted instrument**, meaning it extends alongside the **Base Platform** during pruning. To ensure **smooth row transitions**, the instrument features an **automatic folding mechanism**, which **retracts the cutting frame** before moving to the next row.

This **folding system** prevents potential **jamming** or interference with **vineyard structures**, such as **posts, trellises, or wires**, ensuring **safe** and **efficient maneuverability** during row changes. By **eliminating obstacles** and reducing **downtime**, the system enhances **workflow efficiency**, making **vineyard operations seamless** and **uninterrupted**.



Technical Specifications

DIMENSIONS

VALUE

Height	2150 mm
Length	2400 mm
Width	1700 mm
Weight	720 kg

WORKING DIMENSIONS

VALUE

Cutting length (Vertical blade)	1500 mm
Cutting length (Horizontal blade)	92 mm
Min. passage width	400 mm
Max. passage width	900 mm
Max. canopy apex angle	30°

GENERAL SPECIFICATIONS

VALUE

Compatibility	SH.056 Slopehelper
Drive method	V-belt
Motor	Brush-less motor - BLDC

DISK SPECIFICATIONS

VALUE

Material of blades	High-grade steel
Number of blades	10 pcs.

