

The Spraying Evolution **OPTIMUS**

CLICK & SPRAY



The Spraying Evolution

The Diffusers

VARIABLE SPRAY ANGLE

Narrow angle spraying: to increase speed and distance of reach.

Wide angle spraying: to increase the air flow volume.

ENHANCED FLOW

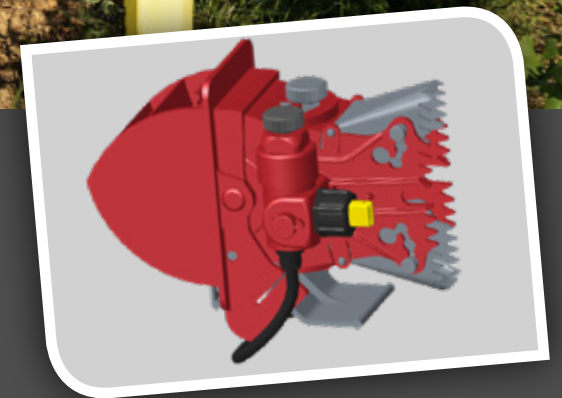
Internal anti-turbulence blades for a uniform distribution of air inside the diffuser.

ADJUSTABLE DIRECTION

The diffusers are adjustable 15° up/down for an efficient airflow direction.

DUAL SPRAY TECHNIQUE

Hydropneumatic (nozzles) or Pneumatic (air lips) (Page 5).



Diffuser S 1 Nozzle

**DIFFUSED MULTISPEED FLOW**

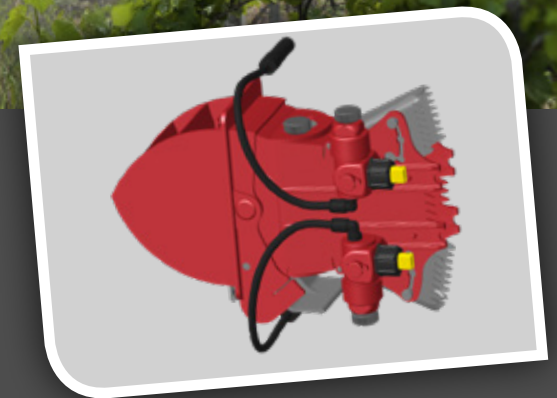
Teethed flaps to create turbulence and avoid screening effect.

EASY CLEANING

Fully detachable to access all corners for cleaning.

ADJUSTABILITY

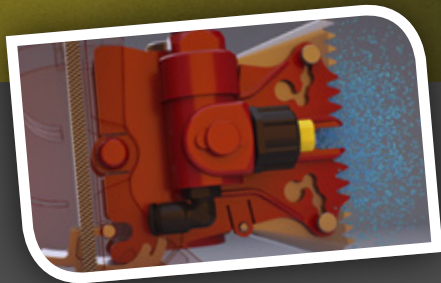
Internal rotating valve that enables to partially or totally close the airflow.



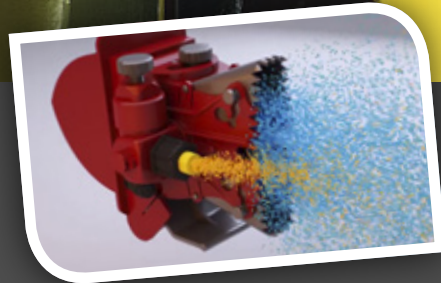
Diffuser M² Nozzles

The Spraying Evolution

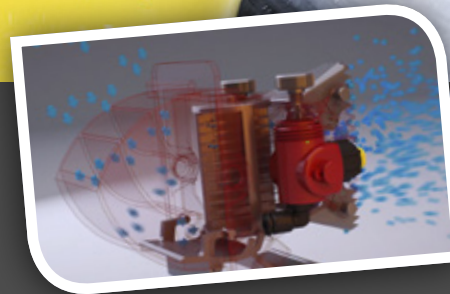
The Diffusers



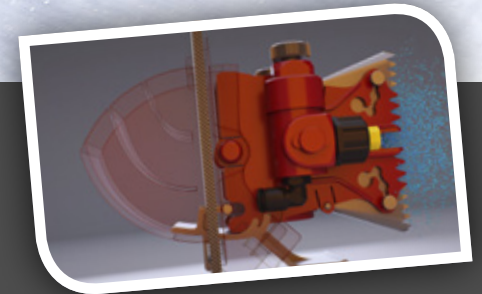
Optimus air outlet, beside the nozzle, compensates the forward speed.



The air is the transport media that carries the droplets to the target's centre.



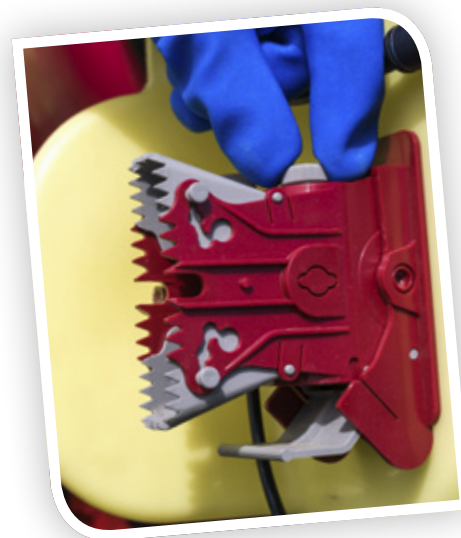
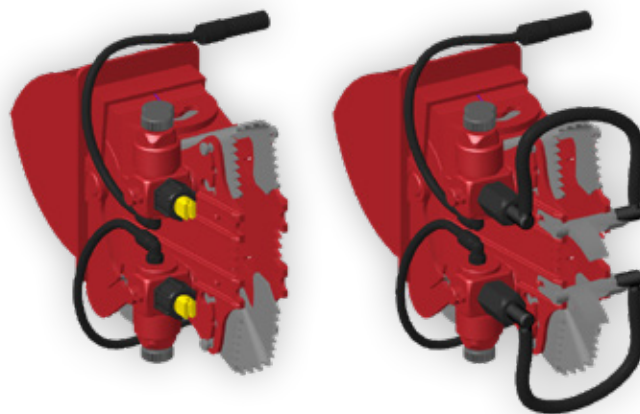
The airflow enters the outlet balanced and with no turbulence due to the anti-turbulence blades.



Firmly fitted into the polyethylene droplet.



HYDROPNEUMATIC & PNEUMATIC DIFFUSERS



Easy adjustable outlet: when is needed to reduce the air stream, loosen the bolt, and slide to the left.

Pull gently the red cassette walls to loosen the grey flap and adjust, to any of three positions available, accordingly to the shape of the tree.

OP35 provides a perfect shape adjustment even for the most difficult-shaped bushes, vines, blackberry or raspberry trees, amongst others.

The OP35 dropleg allows also to adjust the different modules in several positions to cover the whole tree's shape.



A close-up photograph of a red and yellow spraying device. The device features a red main body with a yellow tank on the left. A black hose is connected to the side. The front of the device has a white, serrated diffuser. The background is a blurred green field under a blue sky.

The Spraying Evolution

One spraying device for all

OP15 / OP35 / OP55

The OP15, OP35 and OP55 systems use the same application technology from the OPTIMUS project developed by Hardi in Spain.

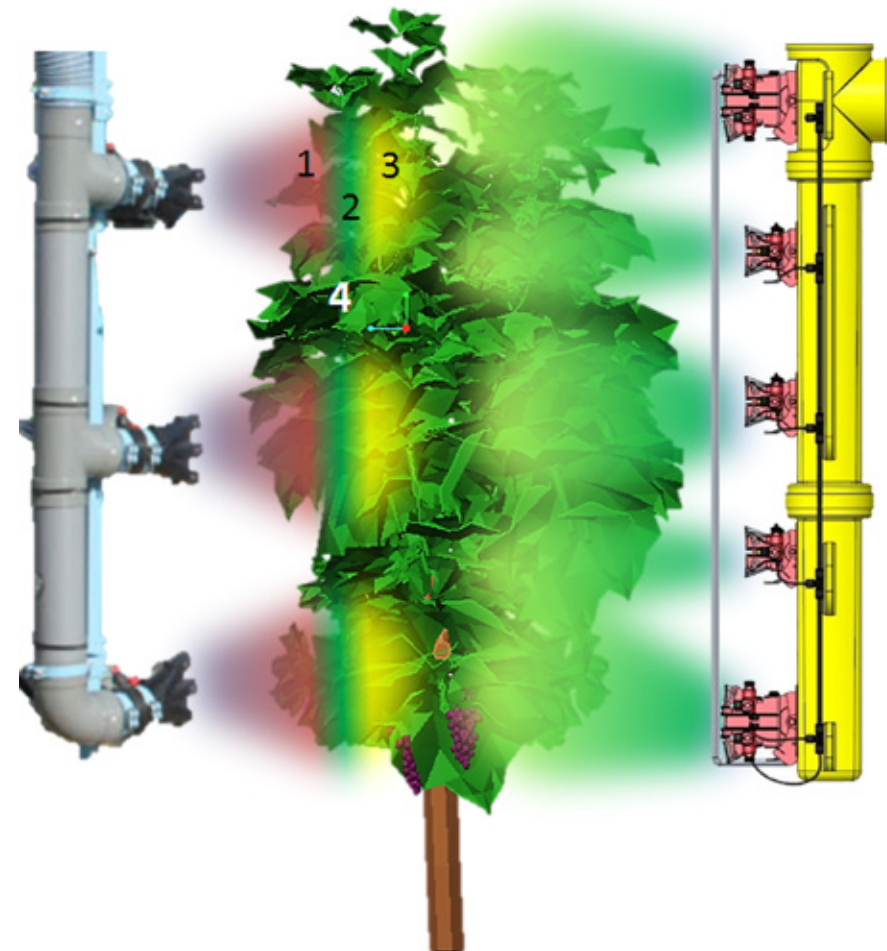
It is based on same spraying device/diffuser for both hydro-pneumatic and pneumatic spraying, just changing small accessories. The main difference between OP15, OP35 and OP55 is the dropleg or panel and the additional air streams that drive the droplets to the targeted plant and contain part of the drift.

- ▶ OP15 1 air stream, straight dropleg, bumper for outlet protection.
- ▶ OP35 3 air streams, adjustable dropleg, outlet integrated on dropleg's shape.
- ▶ OP55 5 air streams, with drift recovery system.



OPTIMUS 15 (SAVE 15%)

- ▶ Larger diameters
- ▶ More diffusers
- ▶ High flow
- ▶ Diffused air flow
- ▶ Adjustable angle



1. Areas with overdose (50% more than the average)
2. Ideal deposition and penetration zone
3. Insufficient dose zone (50% lower than the average)
4. Zone without dose. Untreated streaks on vegetation

The Spraying Evolution **Fixed DROPLEGS**

OP 15 ON BOXER BOOM





OP 15 ON ATLAS BOOM



The Spraying Evolution

Modular DROPLEGS

OP 35

The system OP35 on a modular dropleg, with the spraying device well protected behind the knock proof polyethylene wall.





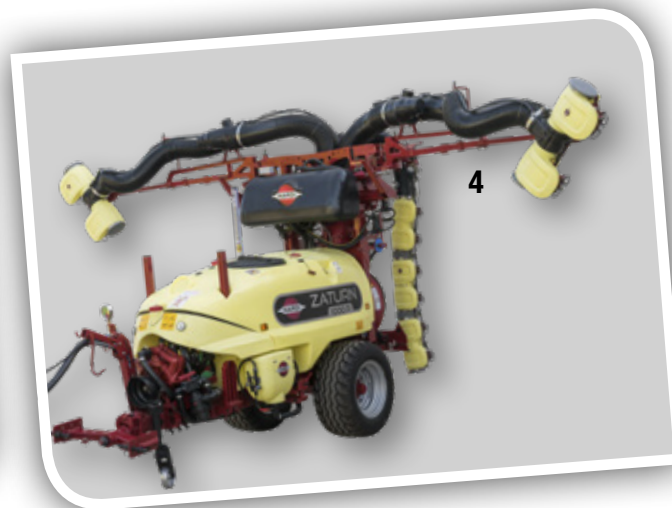
Optimus 35 on Atlas boom



- 1. PROJECTION diffusers outer face
- 2. Counter-Row diffusers (6 faces)
- 3. BOXER telescopic booms.
Hydraulically adjustable
- 4. ATLAS boom (side folded)
designed for quick fold/unfold



Boxer boom



Atlas boom



Optimus 35 on Cronos Rider boom







OPTIMUS 35

- ▶ Projection Spray
- ▶ ATLAS boom
- ▶ Transport position

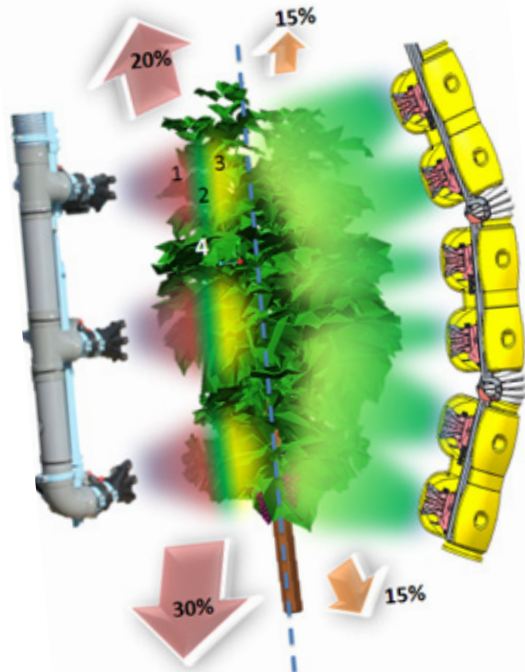




AIR DIFFUSERS



OPTIMUS 35, Night spraying



OPTIMUS 35 (SAVE UP TO 35%)

- ▶ Recover up to 15% of drift towards the ground.
- ▶ Recover up to 5% of drift from the back reflux.
- ▶ Reduce the dose by 10% thanks to a better deposition on sensitive areas (centre of the plant, vegetation, clusters...).
- ▶ Adapt the geometry to the shape of the vegetation.

The Spraying Evolution

The DROPLEGS

OP55 PANNELS / CRONOS DOUBLE VARIA BOOM 35

5 AIR FLOWS

- **Top:** DRIFT RECOVERY
- **Front:** LEAVES' AGITATION
- **Inner:** SPRAYING
- **Back:** REFLUX RECUPERATION
- **Bottom:** SOIL PROTECTION

5 Advantages

- **ROBUST BOOMS:** Cronos Varia double telescopic boom
- **AIR FLOW:** Air hoses and connections with larger diameters
- **PRECISION:** 6 diffusers per panel.
- **MATERIALS:** Polyethylene panels, polyurethane diffusers, fluid system with Push-In, no metal parts that can be oxidized.
- **OPTIMUS DIFFUSERS:** Angle and depth adjustment by configurable flaps for optimal treatment, DIFFUSED FLOW, easy disassembly and repair, easy cleaning of interior parts, independent FLUID and AIR locking for each diffuser.

35% OF POSSIBLE SAVINGS OF CHEMICAL PRODUCT

- Versus any machine from other manufacturers
- Versus any of our previous solutions

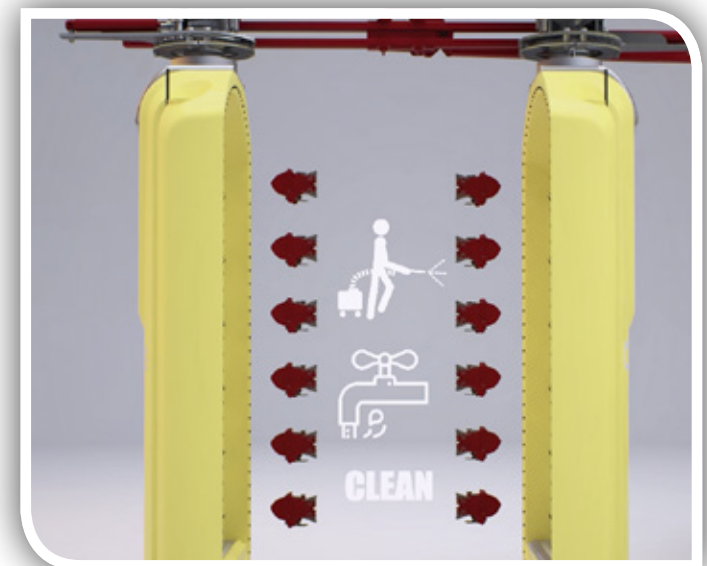




The recovering panels OP55 adjustable $\pm 15^\circ$.



The tunnels protect in windy conditions



The modern design, with the daily use in mind. Easy to hose out



**Juan Esteve: Masters of Science – Plant Science, California State University – Fresno
Viticulture Technical Director, Raimat Winery (Codorníu Group), Lleida-Spain**

Last summer we started to work with Hardi's brand new Optimus system and it has been a very positive experience. The main reason is that we have been able to recover 50% of the drift in the beginning of the season, percentage that has decreased proportionally

to the growth of the vegetation, reaching an estimated 20% in total for the season.

The application has been, by far, much better than with a standard machine. It made a big difference that we were able to treat in windy conditions that here normally come after

the rain, when the mildew pressure is much higher.

The efficacy of the machine is much higher and the coverage is much better than with any other machine. It has been a very positive experience for us.





The Spraying Evolution **The DROPLEGS**

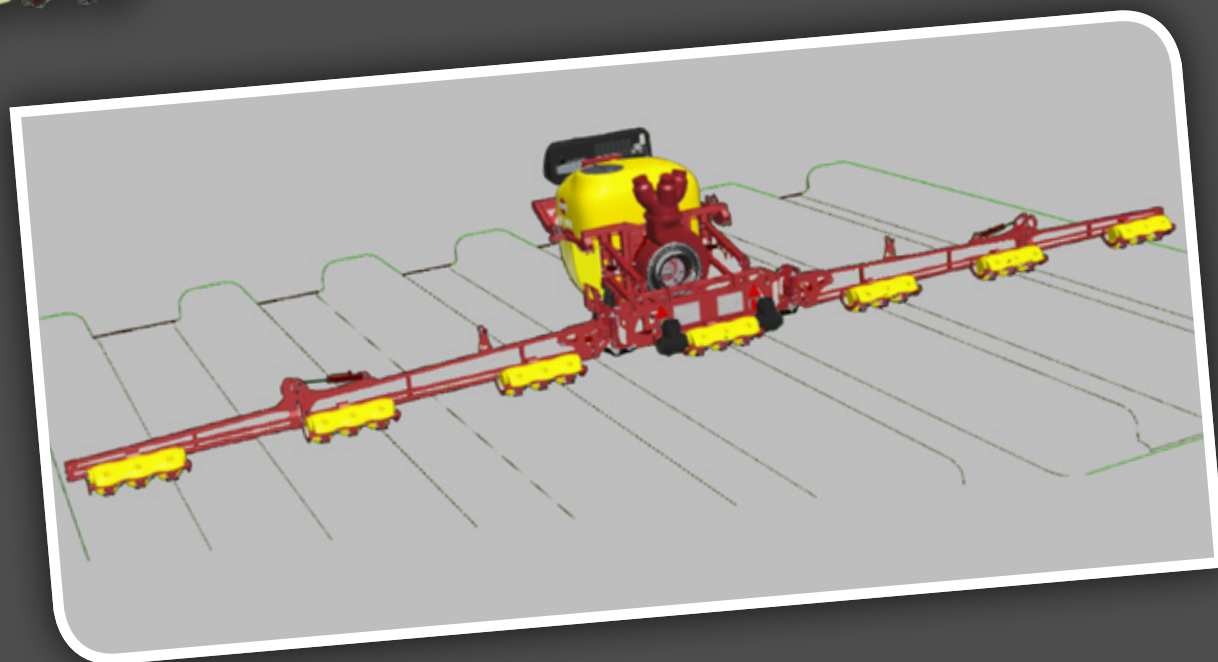
OPTIMUS RAIL OP35



The Optimus application system is as well offered to horticulture, strawberries, salads etc. OP35 mounted on our hydraulic boom Cronos Rail is offered from 6m to 12m with several configuration options.

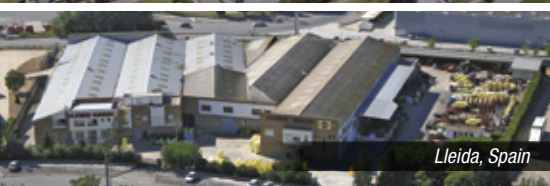


The OP35 diffusers are adjustable in 3 different angles to reach efficiently the targeted plant and horizontally along the boom.





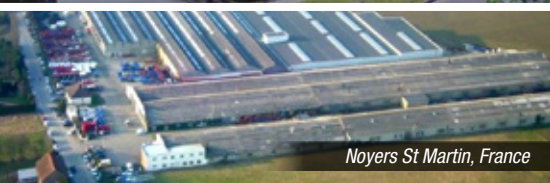
Nørre Alslev, Denmark



Lleida, Spain



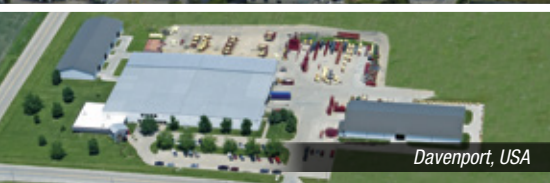
Savigny, France



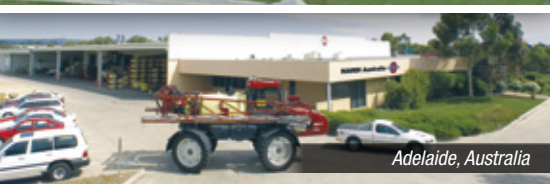
Noyers St Martin, France



Beaurainville, France



Davenport, USA



Adelaide, Australia

HARDI

The Sprayer

HARDI INTERNATIONAL A/S

is an international group whose objective is to satisfy the user's requirements for quality products, which ensure efficient, timely and precise application of crop protection products. Our world-wide distribution and sales networks comprise importers, agents and sales subsidiaries in more than 100 countries. These include Sweden, Norway, Denmark, France, Spain, North America, Germany, Australia, China and emerging market countries such as Russia and the CIS countries.

Since 1957, HARDI has responded to the ever-increasing demands for efficient and precise plant protection. HARDI, therefore, remains the trendsetter for application of crop protection products. To achieve this position, continued developments and innovation are essential. HARDI is committed to the long-term future of plant protection.

Testing procedures

Sprayers leaving HARDI INTERNATIONAL A/S are tested according to the strictest quality standards.

Our staff responsible for final testing are accredited to test and document national approvals and standards from Germany (BBA/JKI), the UK (NSTS), China (CCC) and Denmark, where HARDI also is approved to inspect sprayers.

This ensures that the highest quality sprayers are delivered to farmers.



Superb surface treatment

The high-technology surface treatment consists of 13 treatments, including pre-treatment and powder-coat painting of all major components.

Together with the Delta/Magni treatment of nuts, bolts and other fasteners, we supply products with high corrosion protection.



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