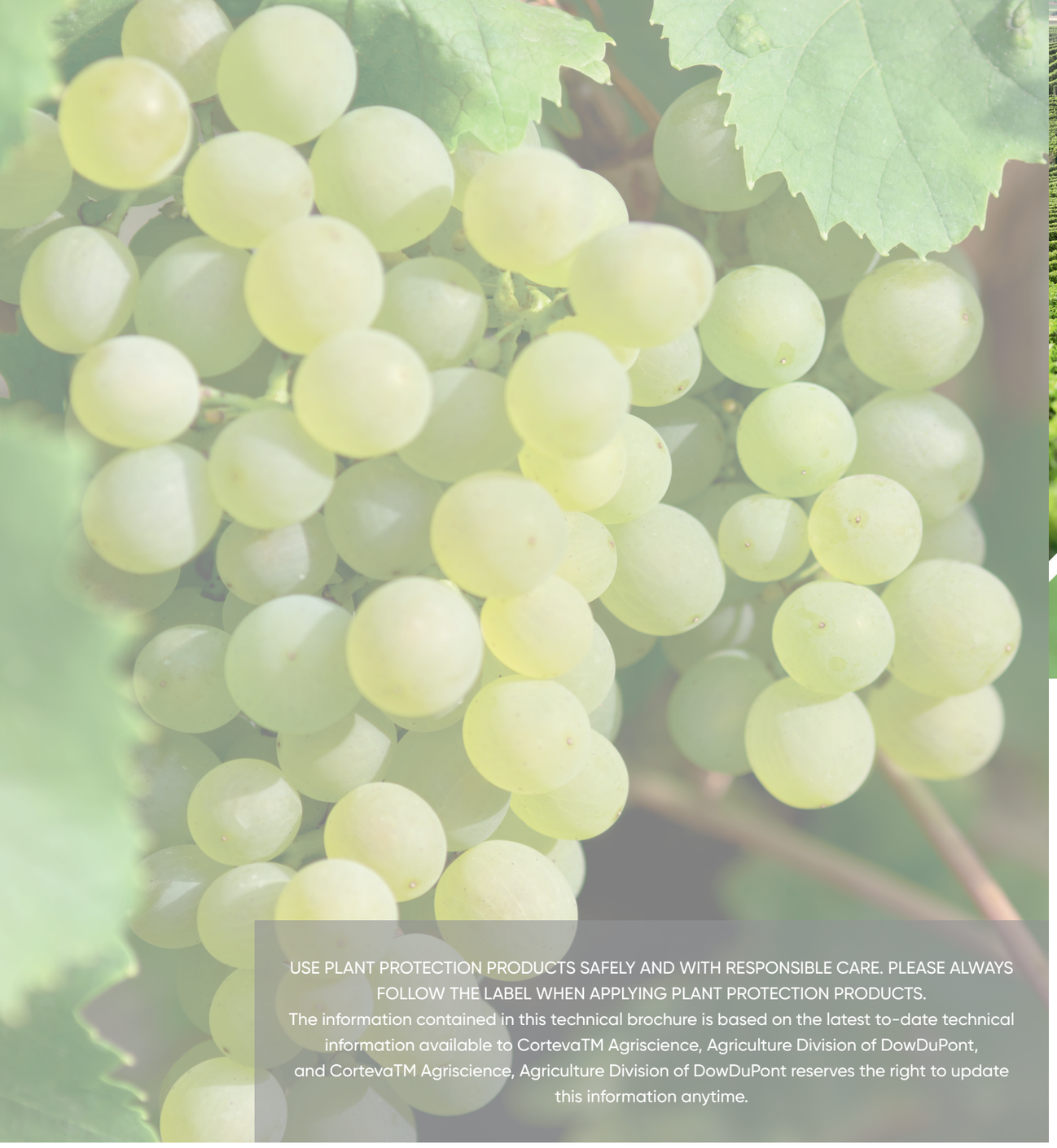

USE PLANT PROTECTION PRODUCTS SAFELY AND WITH RESPONSIBLE CARE. PLEASE ALWAYS FOLLOW THE LABEL WHEN APPLYING PLANT PROTECTION PRODUCTS.
The information contained in this technical brochure is based on the latest to-date technical information available to CortevaTM Agriscience, Agriculture Division of DowDuPont, and CortevaTM Agriscience, Agriculture Division of DowDuPont reserves the right to update this information anytime.

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ZORVEC™
Vinabel®

FUNGICIDE

THIS CHANGES EVERYTHING

BETTER CROP MANAGEMENT FOR BETTER BUSINESS.

Zorvec™ Vinabel® provides an unmatched combination of consistency and control of downy mildew that can be used every season to help achieve a better crop, even under challenging conditions.

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Zorvec™ Vinabel® at a glance

Zorvec™ Vinabel® is based on Zorvec® active fungicide which is the first member of a novel class of fungicides to control diseases caused by oomycete pathogens. Zorvec offers an unmatched combination of consistency and longer-lasting disease control, helping you yield healthier, more uniform grapes for better business.

Zorvec affects a novel target site with a completely new biochemical Mode of Action and has no cross-resistance with existing fungicides. It produces multiple effects on the pathogen's life cycle for better efficacy and length of control. Zorvec protects treated leaves as they grow and expand, including leaves that are less than 20% of their final size at the time of application.

For these reasons, Zorvec is a crop protection technology with the potential to provide many benefits to growers, including lower operational costs and overall improved farm management efficiency.

Active substance	**Zorvec® ISO common name: oxathiapiprolin Chemical class: piperidinyl thiazole isoxazoline**	**Zoxamide**
Mode of Action (MoA)	**OSBPI (Oxysterol binding protein inhibitor)**	**Benzamides and thiazole carboxamides**
FRAC classification	**Group 49 (F9)**	**Group 22 (B3)**
Formulation	**Suspo Emulsion (SE) containing 40g a.i./L Zorvec® and 300g a.i./L zoxamide**	
Application rate and disease spectrum	**0.5L/ha for downy mildew (Plasmopara viticola) control in grapes 2 applications per season from BBCH 15 to BBCH 79**	
Application method	**Foliar application**	

Target crops and diseases

Zorvec™ Vinabel® will be registered for use on wine grapes and table grapes. Zorvec Vinabel controls downy mildew in grapes *(Plasmopara viticola)* at low dose rate per hectare.

Zorvec® ranking on grapes

Zorvec® vs competing products at commercial rates

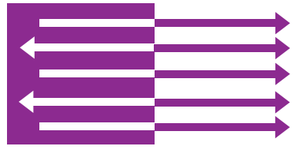
Active ingredient	Rainfastness	Multiple effects on the pathogen's life cycle		Translaminar activity	Systemic
		Preventative	Curative*		
Zorvec®	+++	+++	++	+++	++
Fluopicolide + fosetyl-Al	not tested by DuPont at this time	++	–	+	+
Cyazofamid + disodium phosphonate	++	++	++	–	–

*Zorvec® will be recommended in a preventative manner.
S: Systemic activity
T: Translaminar activity

Source: Ratings for Zorvec® based on internal data (2012-2014). For competing products based on Euroblight rating (2012).

Key attributes and benefits of Zorvec™ Vinabel®

NO CROSS RESISTANCE with any current fungicides



- Provides growers with a new tool to fight downy mildew
- Ensures better efficacy and length of conttol of the overall programme

RAINFAST

- Allows for flexibility when weather causes a delay in the application
- Reduces the need for re-sprays and unscheduled applications

PROTECTION OF **new growth**

- Systemic movement to new and emerging leaves
- Essential for maximising leaf protection and yield when the crop is established

Consistent performance compared to competitors in the field

Zorvec™ Vinabel® offers outstanding protection of established and new plant growth for better crop establishment, healthier plants and a more profitable harvest. It helps to eliminate the spread of disease for higher quality and reduced blemishes.

Untreated

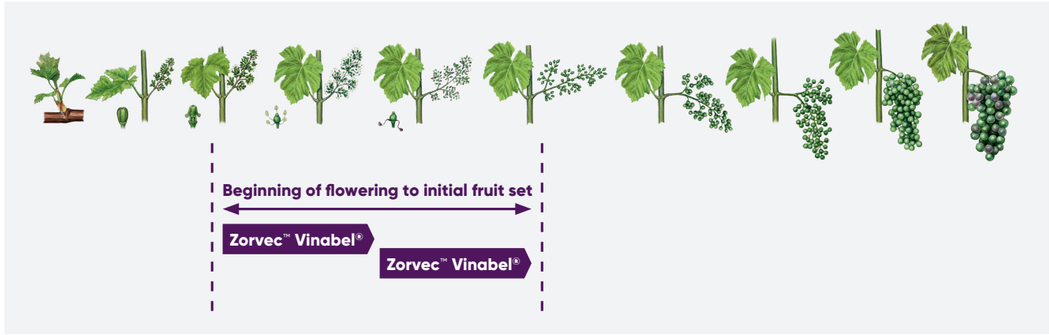
Cyazofamid + disodium phosphonate

Fluopicolide + fosetyl-aluminium

Zorvec™ Vinabel®

Source: DuPont, France (2015)

Technical positioning



Zorvec™ Vinabel® is recommended in a block of two preventive applications at an interval of 10 to 14 days. This block of two applications can provide 28 days of protection to the crop at its most vulnerable stage. No further application is recommended after fruit set.

Resistance Management

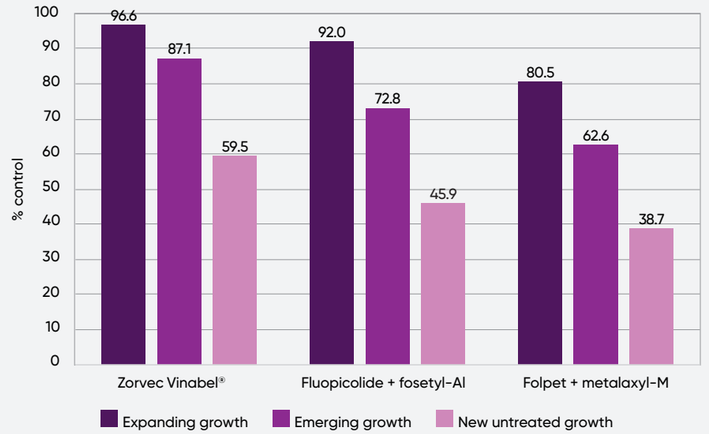
The following table summarises the recommendations of DowDuPont for proactive resistance management.

Strategy	Tactics
Limit exposure	**1. Limit the number of applications to 2 maximum per season and rotate with other modes of action for the rest of the spray programme.** **2. Prefer block applications to alternation.** **3. Apply preventively.** **4. Always follow the recommended spray interval.**
Slow pathogen growth	**1. Follow prophylactic practices as much as possible.**
Contain the resistant isolates **- Reduce survival** **- Reduce spread**	**1. Follow Zorvec™ Vinabel® with a highly effective, preferably curative product.** **2. Use preferably from beginning of flowering up to initial fruit setting.** **3. Do not use in nursery production.**

Secure foliage protection to ensure the best harvest

Zorvec™ Vinabel® offers outstanding protection of established and new plant growth for better crop establishment, healthier plants and a more profitable harvest. It helps to eliminate the spread of disease for higher quality and reduced blemishes. The leaves appear more uniform for better consistency, yield and quality.

Zorvec™ Vinabel® protects new leaf growth



Expanding growth refers to leaves that were 20-80% of final size at time of application.

Emerging growth refers to leaves that were only 5-20% of final size at time of application.

New untreated growth refers to new leaves not present at application.

Excellent control on expanding and emerging new growth following Zorvec™ Vinabel® applications.

% infection in untreated:
53% in expanding growth, 73% in emerging growth, 40% in new untreated growth

Systemic movement

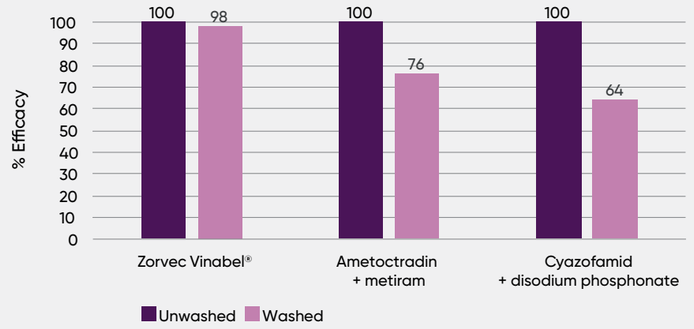
In the following trial, the upper side of the leaf was treated while the underside was inoculated with the pathogen and rated. As these photos show, the translaminar movement of Zorvec Vinabel protects the underside of the leaves. Its translaminar and xylem systemic movement enables uniform coverage of sprayed foliage and protection from wash-off by rain.

Zorvec™ Vinabel® | Cyazofamid + disodium phosphonate | Fluopicolide + fosetyl-Al | Ametoctradin + metiram

Whole plant studies, DuPont European Research and Development Center, France (2012-2015)

Outstanding rainfastness for better crop management

Zorvec™ Vinabel® is quickly absorbed on and within the plant epicuticular waxy layer for superior rainfastness just 20 minutes after application. This helps growers to reduce the need for re-sprays due to rain after or during the application so that larger areas can be covered. They can also take advantage of tighter application windows when the weather is uncooperative.



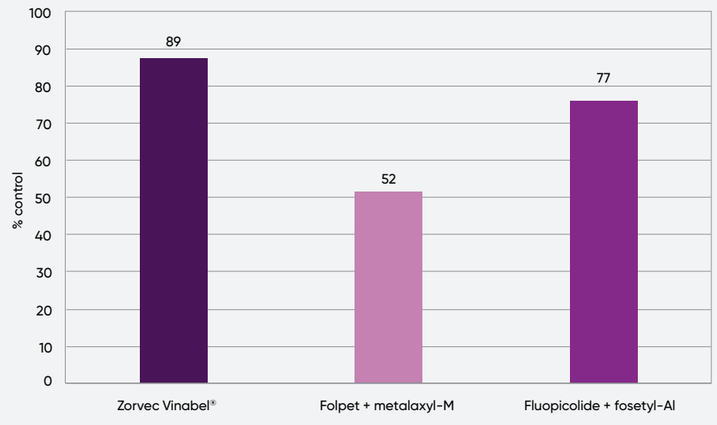
Grape downy mildew control following a simulated rain event of 100mm over 4 hours starting 20 minutes after application

Source: DuPont European Research and Development Center, France (2015)

Excellent re-distribution for better business

Zorvec™ Vinabel® redistributes from treated canopy to protect untreated flowers and bunches. This ensure the best coverage and the best protection at the critical stages of the crop. This gives more peace of mind to growers to cope with other activities on the vineyard.

Zorvec™ Vinabel® re-distributes from treated canopy to protect untreated flowers or bunches



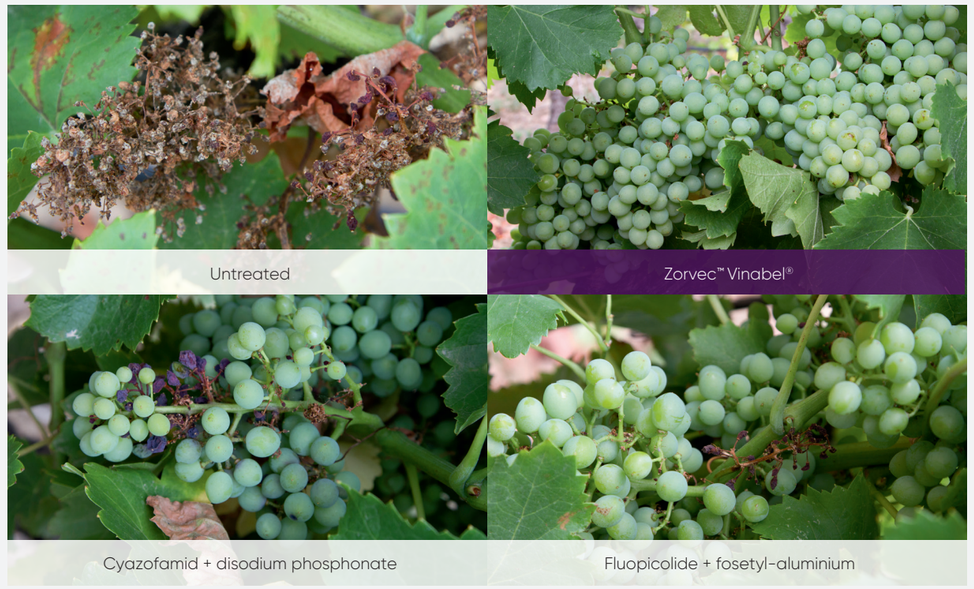
In this trial, plastic bags were covering flowers during application. The efficacy of the products is evaluated on bunches.

Source: DuPont European Resarch and Development Center field trial, France (2015)

One trial with 40% severity in untreated.

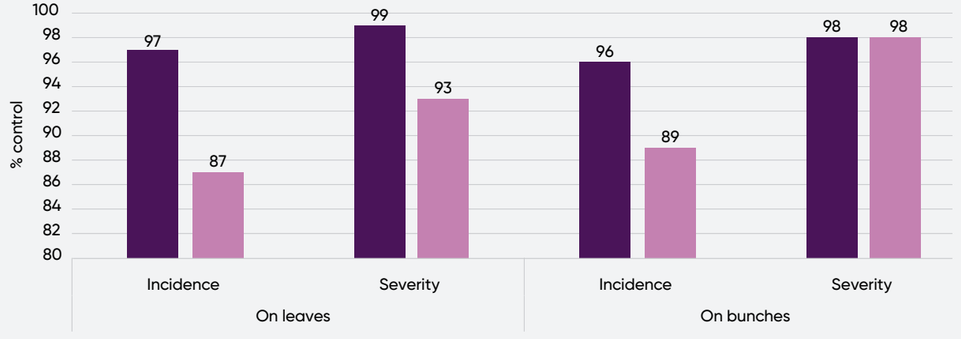
Zorvec™ Vinabel® provides excellent ef cacy against downy mildew even under high disease pressure

The following trial shows the programme with 2 applications of Vinabel at flowering compared to current standard programmes.



Source: DuPont, France (2016)

Zorvec™ Vinabel® can consistently provide outstanding control



Positioning trials with 2 applications of Zorvec Vinabel at flowering.
Untreated control leaves: 52% incidence and 15% severity
Untreated control bunches: 50% incidence and 20% severity.

Source: DuPont, average of 6 trials in Italy (2016)