

Grape growers in the East face intense pressure from several plant pathogens throughout the growing season. Regalia® is a new product that provides control of Powdery Mildew, Botrytis Bunch Rot, Phomopsis, and Black Rot in grapes. Growers get a broad spectrum of disease control with one powerful product.



The development of fungicide-resistant pathogens is also a constant challenge in vineyards. New Regalia has a unique mode of action that assists in managing fungicide-resistant strains. Strobilurin and DMI chemistries have a known resistance risk, but the risk is extremely low with Regalia. Regalia can be used with all major fungicide chemistries including strobilurins, DMIs, quinoxifen, and sulfur (see Compatibility Chart).

Grape Diseases Controlled by Regalia:

**Powdery Mildew • Botrytis Bunch Rot
Phomopsis Fruit Rot • Black Rot**

Powdery Mildew

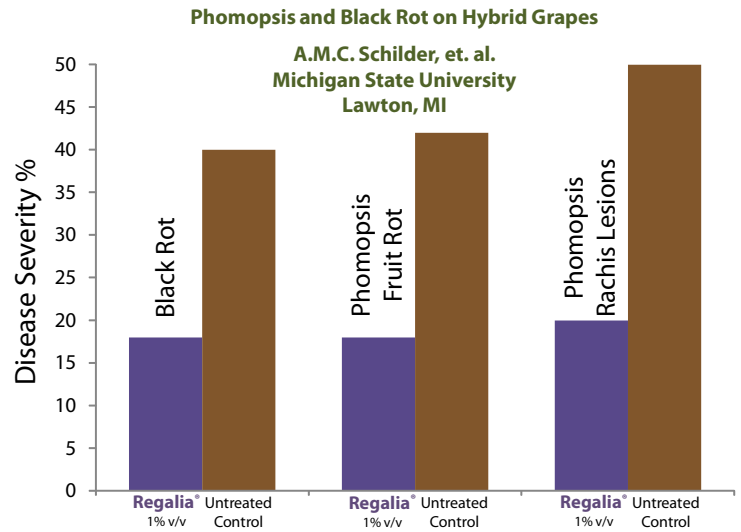
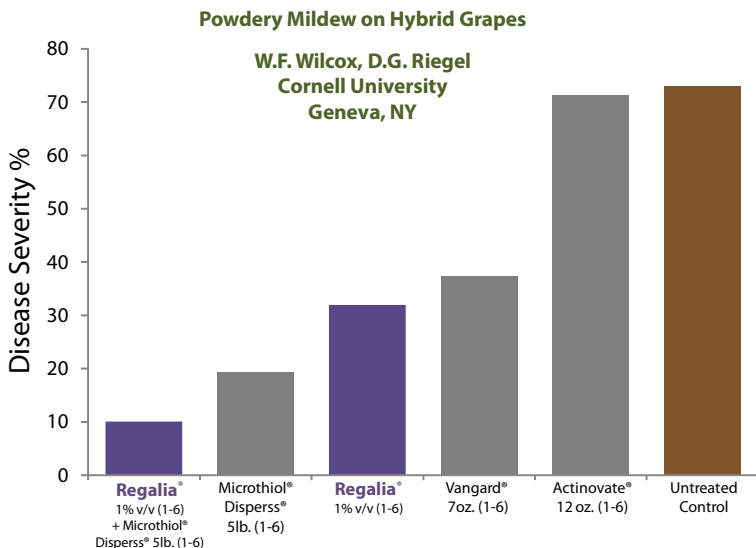
A recent university trial in New York proves that Regalia plus sulfur is more effective than sulfur alone in treating powdery mildew. In the trial, Powdery Mildew severity was reduced 86% by Regalia plus sulfur on hybrid grapes. Unlike oils, Regalia can be safely used with sulfur.

How Regalia Works

When treated with Regalia, the defense systems of grape vines are 'switched on' to protect against attacking diseases. Research proves that plants treated with Regalia produce and accumulate elevated levels of specialized proteins and other compounds known to inhibit fungal and bacterial diseases. Regalia induces a plant to produce phytoalexins, cell strengtheners, antioxidants, phenolics, and PR proteins, which are all known inhibitors of plant pathogens.

Phomopsis Fruit Rot and Black Rot

Rachis infection by Phomopsis is the most common cause of disease loss on Concord and Niagara grapes in the Northeast. University trials prove that Regalia reduces the severity of Phomopsis and Black Rot, with a significant reduction in Phomopsis infection on the rachis and fruit in programs using Regalia.



- Treatments applied every 2 weeks for a total of 6 applications.
- Treatments applied in 50 gal/A (pre-bloom) and 100 gal/A of water (post-bloom).

- Treatments applied every 10 days for a total of 8 applications.
- Treatments applied in 30 gal/A (pre-bloom) and 50 gal/A of water (post-bloom).

Compatibility Chart- Common Regalia Tank Mix Partners

Regalia is shown to be compatible with strobilurins such as Pristine®, Abound®, and Flint®, DMIs such as Rally® [Nova®], and Elite®, and many other types of pesticide chemistry including sulfur and copper. There are limitations to using many

strobilurins and DMIs (i.e. number of applications or amount per acre), but there are no limitations on Regalia. The pre-harvest interval (PHI) for other fungicides can be long, but Regalia has a PHI of 0 days, so grapes can be protected until harvest.

Brand Name	PHI	Max/Acre/ Season (# Apps.)	Family Group	FRAC	Resistance
Regalia®	0	No Restrictions	Extract of <i>Reynoutria Sachalinensis</i>	P	Low
Rally® 40WSP [Nova®]	14	1.5 lbs	Demethylation Inhibitor	3	Medium
Elite® 45WP	14	2 lbs	Demethylation Inhibitor	3	Medium
Rubigan® E.C.	21	19 fl. oz.	Demethylation Inhibitor	3	Medium
Pristine®	14	69 oz. (3 apps)	SDMI, Strobilurin (Qol)	7, 11	Medium, High
Abound®	14	92.3 fl. oz.	Strobilurin (Qol)	11	High
Sovran®	14	25.6 oz. (4 apps)	Strobilurin (Qol)	11	High
Flint®	14	24 oz. (6 apps)	Strobilurin (Qol)	11	High
Dithane® DF	66	24 lbs.	Dithiocarbamate	M3	Low

Regalia Best Use Recommendations

Powdery Mildew, Phomopsis Fruit Rot & Black Rot- Begin applications at 3-5 inch shoot development. When disease pressure is low or prior to the onset of conditions favorable to the development of disease, apply Regalia at 2 qts per 100 gal of water at a 7-14 day interval. In moderate to high disease pressure situations, apply Regalia at 2 qts per 100 gal of water in alternation with a labeled rate of DMI, strobilurin or quinoxyfen fungicide. If disease is observed in the field prior to application, Regalia should be tank mixed with a systemic fungicide. Always apply Regalia in sufficient water using proper equipment to obtain maximum coverage of upper and lower leaf surfaces and continue applications until veraison.

Botrytis Bunch Rot- Begin applications at early bloom with subsequent applications at berry touch, veraison, and pre-harvest. Do not exceed 10 days between applications. When disease pressure is low and conditions are not favorable for disease development, apply Regalia at 2 qts per 100 gal of water. When disease pressure is high or conditions are conducive to disease development, alternate Regalia with Vanguard® or Scala™ or tank mix Regalia at 1-4 qts per 100 gal with Vanguard or Scala.

Can Be Used in Conventional and Organic Production

For organic production, combinations of Regalia at 1-2 qts per 50 gal of water plus labeled rates of NOP compliant or OMRI listed copper fungicides will provide broad spectrum control of most foliar diseases on grapes.



CAN BE USED IN ORGANIC PRODUCTION



If compatibility with another product is unknown, a jar test should be conducted.

- Re-entry interval (REI) of 4 hours.
- Rainfast in 1 hour.
- Pre-harvest interval (PHI) of 0 days.



www.MarroneBio.com/Regalia

To control disease with powerful Regalia, contact your local retailer, or call:

Brian Anderson, Midwest Region, 616-299-8155

Jay Osborne, Eastern Region, 239-207-7168

David Warman, Director of Sales, 336-202-3433

Tim Johnson, Ph.D., Product Dev. Mgr., 570-441-8775

Always read and follow label directions. Regalia is a registered trademark of Marrone Bio Innovations, Inc. Rally, Nova, and Dithane DF are registered trademarks of Dow AgroSciences, LLC. Actinovate is a registered trademark of Natural Industries, Inc. Rubigan is a registered trademark of Gowan Company. Vanguard and Abound are registered trademarks of Syngenta Crop Protection, Inc. Pristine and Sovran are registered trademarks of BASF Ag Products. Flint, Scala, and Elite are registered trademarks of Bayer CropScience. Microthiol Dispers is a registered trademark of United Phosphorus, Inc. © April 2010 Marrone Bio Innovations, Inc.