



## A Powerful Fungicide for Disease Control on Grapes

Grape growers face intense pressure from several plant pathogens throughout the growing season. Regalia® provides control of **Powdery Mildew**, **Botrytis Bunch Rot** and **Summer Bunch Rot (Sour 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. Regalia has a unique mode of action that reduces development of fungicide resistance. Strobilurin and DMI chemistries are known to have a high risk of resistance, but this risk is extremely low with Regalia. Regalia can be used with all major fungicide chemistries including strobilurins, DMIs, quinoxifen, and sulfur (see Compatibility Chart on back).

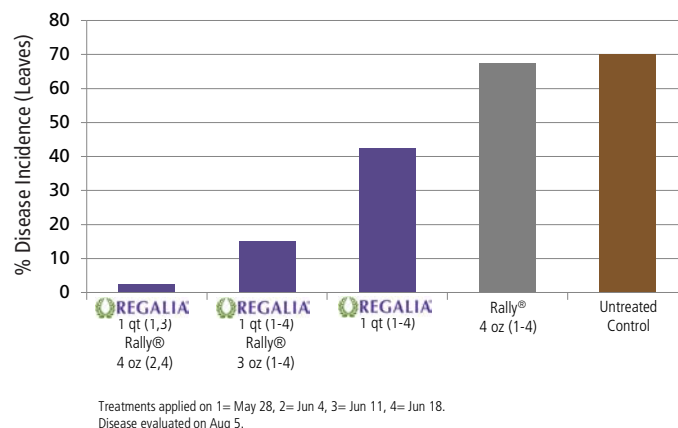
### HOW REGALIA WORKS

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.



### Powdery Mildew on Thompson Seedles (*Erysiphe necator*)

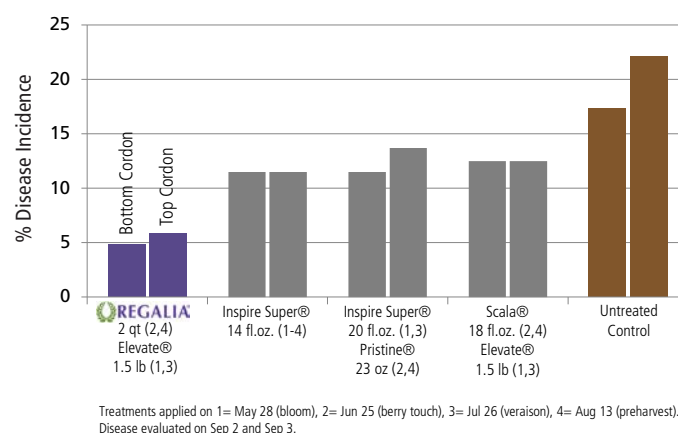
Bio Research, Arroyo Grande, CA



## Excellent early and mid-season disease control with zero-day PHI

### Summer Bunch Rot (Sour Rot) on Pinot Noir

N. Halbrendt, H. Ngugi, Pennsylvania State University, Biglerville, PA



### FEATURES

- Broad-spectrum fungal and bacterial disease control
- Complex mode of action
- Rainfast in 1 hour
- 4-hour REI / 0-day PHI
- Tolerance exempt
- Approved for field and greenhouse applications
- NOP compliant and OMRI approved
- For ground and aerial applications
- Approved for foliar and soil applications

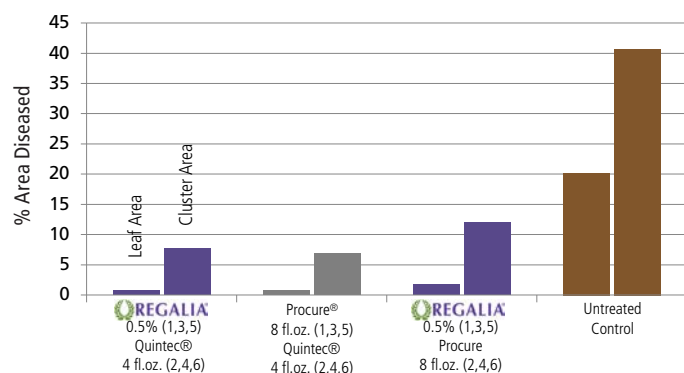
# Powdery Mildew

## CONVENTIONAL PRODUCTION

Regalia® improves standard IPM programs to control Powdery Mildew. Commonly, low labeled rates of conventional fungicides can be tank mixed or alternated with Regalia for improved control. For example, field trials on Chardonnay prove that excellent control of Powdery Mildew is obtained by tank mixing low rates of Regalia plus low rates of Rally® (myclobutanil). Additional trials on Thompson Seedless prove that tank mixing or alternating Regalia with Rally is more effective than using Rally alone. And, university trials on Riesling show that alternating Regalia with low rates of Quintec® (quinoxifen) is also effective at controlling Powdery Mildew.

### Powdery Mildew on Riesling (*Erysiphe necator*)

University Field Trial, Benton County, WA



Treatments applied on 1=Jun 1, 2= Jun 10, 3= Jun 23, 4= Jul 7, 5= Jul 21, 6= Aug 6. Disease evaluated on Aug 18.

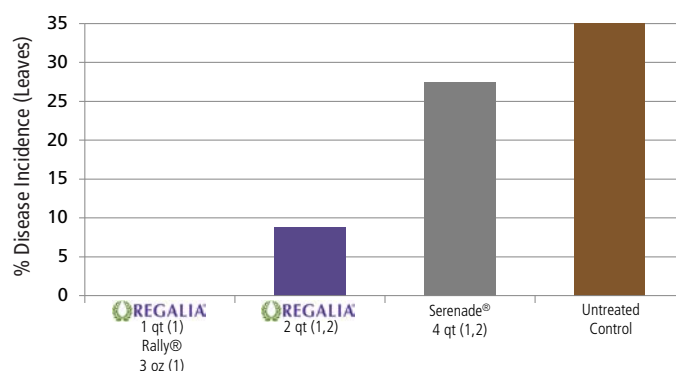


## SUSTAINABLE AND ORGANIC PRODUCTION

Field trials performed in the California Central Coast on Chardonnay prove that Regalia is more effective than leading organic fungicides at controlling Powdery Mildew. Regalia is **NOP** compliant and **OMRI** approved for use in organic production. Regalia is also recognized for use by many sustainable viticulture and enology programs including **LIVE (Low Input Viticulture and Enology)** in Oregon, and the **Lodi Rules for Sustainable Winegrowing** in the California San Joaquin Valley.

### Powdery Mildew on Chardonnay (*Erysiphe necator*)

Pacific Ag Research, Arroyo Grande, CA

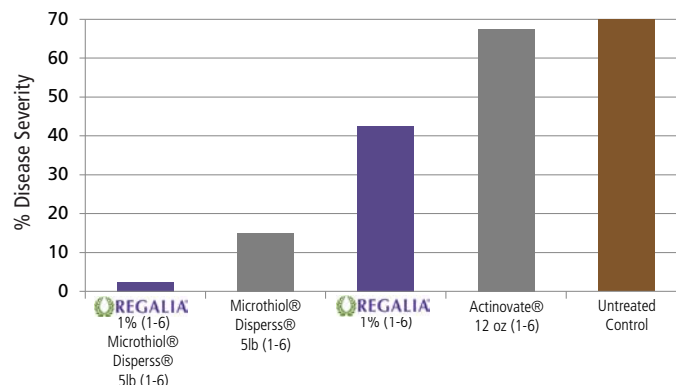


Treatments applied on 1= May 20, 2= May 31. Disease evaluated on Jun 2.

Regalia offers excellent early and mid-season control of Powdery Mildew.

### Powdery Mildew on Rosette Hybrid (*Erysiphe necator*)

W.F. Wilcox, D.G. Riegel, Cornell University, Geneva, NY



Treatments applied on 1= Jun 16 (pre-bloom), 2= Jul 1 (post-bloom), 3= Jul 15, 4= Jul 28, 5= Aug 13, 6= Aug 25. Disease evaluated on Oct 23.

# Botrytis Bunch Rot and Summer Bunch Rot (Sour Rot)

## CONVENTIONAL PRODUCTION

Field trials show that alternating or tank mixing Regalia with conventional fungicides results in better control than just using conventional fungicides alone. University field trials performed on Pinot Noir and Chardonnay prove that alternating Regalia with Elevate® (fenhexamid) provides excellent control of Botrytis Bunch Rot. Other trials on Pinot Noir demonstrate that alternating Regalia with Elevate also results in effective control of Summer Bunch Rot (Sour Rot).

## Regalia provides effective Botrytis Bunch Rot control with a zero-day PHI.

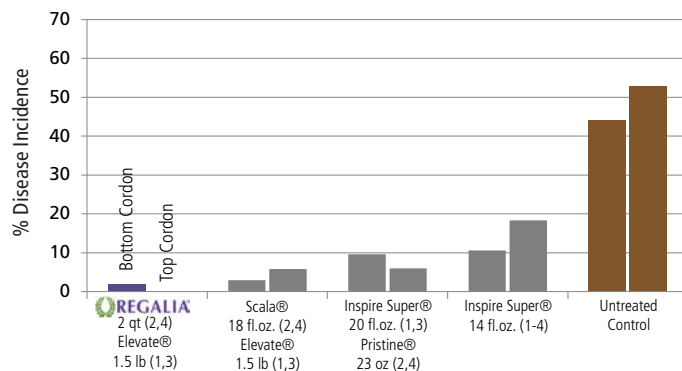
## SUSTAINABLE AND ORGANIC PRODUCTION

Regalia is as effective as many synthetic fungicides used in conventional production systems at controlling Botrytis Bunch Rot. A field trial in California on Zinfandel proved that applying Regalia every two weeks from mid-August to mid-September reduced Botrytis over 80%. Use Regalia in an IPM program with other sustainable and organic fungicides for superior Botrytis and Summer Bunch Rot control.



## Botrytis on Chardonnay (*Botrytis cinerea*)

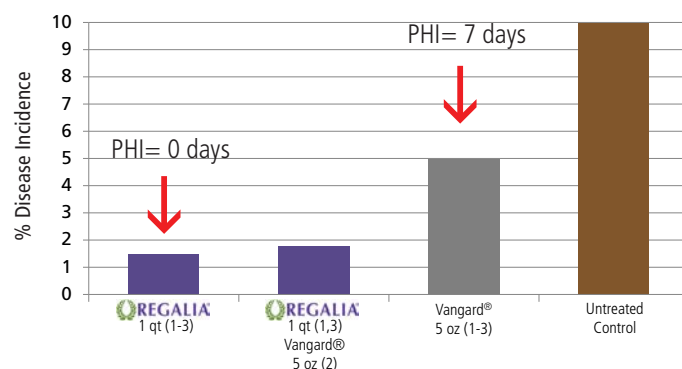
N. Halbrendt, H. Ngugi, Pennsylvania State University, Biglerville, PA



Treatments applied on 1= May 28 (bloom), 2= Jun 25 (berry touch), 3= Jul 26 (veraison), 4= Aug 13 (preharvest). Disease evaluated on Sep 2 and Sep 3.

## Botrytis on Zinfandel (*Botrytis cinerea*)

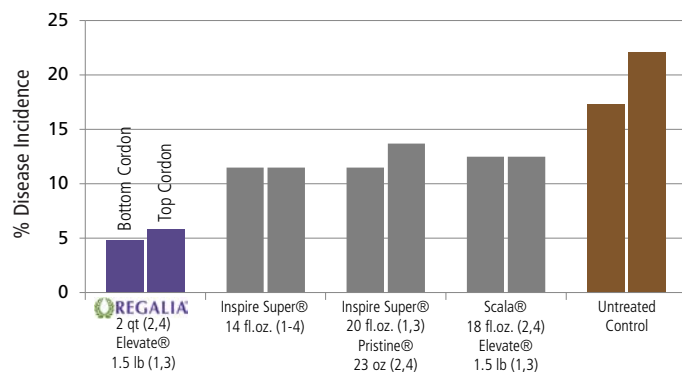
Merced, CA



Treatments applied on 1= Aug 13, 2= Sep 4, 3= Sep 16. Disease evaluated on Sep 14, Oct 2, Oct 8. All treatments applied with a surfactant.

## Summer Bunch Rot (Sour Rot) on Pinot Noir

N. Halbrendt, H. Ngugi, Pennsylvania State University, Biglerville, PA



Treatments applied on 1= May 28 (bloom), 2= Jun 25 (berry touch), 3= Jul 26 (veraison), 4= Aug 13 (preharvest). Disease evaluated on Sep 2 and Sep 3.

## LABELED DISEASES


- Powdery Mildew
- Botrytis Bunch Rot
- Summer Bunch Rot (Sour Rot)
- Anthracnose
- Black Rot
- Downy Mildew
- Eutypa
- Leaf Blight
- Phomopsis Fruit Rot
- Ripe Rot
- Sour Rot

## COMPATIBILITY AND RESISTANCE MANAGEMENT

Regalia® is active against Powdery Mildew, Botrytis Bunch Rot and Summer Bunch Rot (Sour Rot) and is compatible with many commonly used fungicides such as Pristine®, Flint®, Rally®, Elevate® and Quintec®. While the pre-harvest interval (PHI) of other fungicides can be as high 7 - 14 days, Regalia has a PHI of 0-days, so growers can control disease until harvest. Some types of fungicides are known to have a very high resistance risk, but this risk is extremely low with Regalia (see chart below). If compatibility with another product is unknown, a jar test should be conducted.

## BEST USE RECOMMENDATIONS

For best results, begin applying Regalia prior to visible disease symptoms or when disease is first noted. In low disease pressure situations, apply 1 - 2 quarts of Regalia per acre in rotation with other fungicides. Under high pressure situations, apply Regalia at 1 - 4 quarts per acre in a tank mix with another fungicide labeled for the targeted disease. Repeat applications at 7 - 14 day intervals with shorter intervals under higher pressure situations. For Botrytis, do not exceed 10 days between applications and begin applications at early bloom with subsequent applications at berry touch, veraison, and pre-harvest.

Product	Active Ingredient	Powdery Mildew	Botrytis Bunch Rot	Summer Bunch Rot	Resistance Risk	PHI (days)
 <b>REGALIA</b>	Extract of <i>Reynoutria Sachalinensis</i>	◆	◆	◆	Low	0
PRISTINE®	Boscalid + Pyraclostrobin	◆	◆	◆	High	14
FLINT®	Trifloxystrobin	◆	◆		High	14
VANGARD®	Cyprodinil	◆	◆		Medium	7
ELEVATE®	Fenhexamid	◆	◆		Low-Med	0
QUINTEC®	Quinoxifen	◆			Medium	14
RALLY®	Myclobutanil	◆			Medium	14
SULFUR	Sulfur	◆			Low	0

\* Table reflects approved applications on grapes in California.

## CAN BE USED IN CONVENTIONAL AND ORGANIC PRODUCTION

For organic production, Regalia can be used in a rotational or tank mix program with other NOP compliant products such as copper, organic stylet-oil, and other products to provide broad spectrum control of most foliar and fruit diseases.

Always read and follow label directions.

FOR ADDITIONAL INFORMATION, CONTACT YOUR LOCAL RETAILER  
OR CONTACT MARRONE BIO INNOVATIONS:

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