



## Broad-Spectrum Disease Control for Tomatoes and Peppers

### CONTROLS DISEASE AND IMPROVES YIELD

Regalia® offers a unique mode of action that provides control of fungal and bacterial diseases on tomatoes and peppers. In addition, independent field trials show that adding Regalia to standard programs not only controls disease, but also improves yield. In one study, bell peppers treated with Regalia yielded 608 bushels per acre, compared to 474 bushels without Regalia (28% increase in production).

### HOW REGALIA WORKS

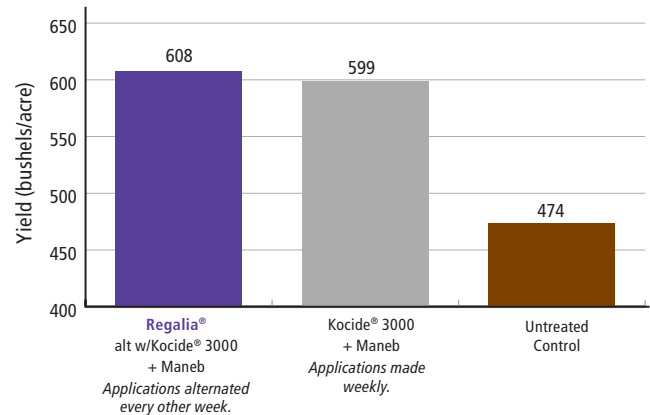
When treated with Regalia, the defense systems of crops are 'switched on' to protect against attacking diseases. Research proves that plants treated with Regalia produce and accumulate elevated levels of specialized proteins and other compounds known to inhibit fungal and bacterial diseases. Regalia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

### PARTNER IN RESISTANCE MANAGEMENT

There is a known resistance risk to many commonly used fungicides, but there is a very low risk of resistance with Regalia. Regalia is an ideal component of resistance management programs, and is shown to be compatible with many other types of pesticide chemistry including copper, dithio-carbamate, and strobilurin fungicides.

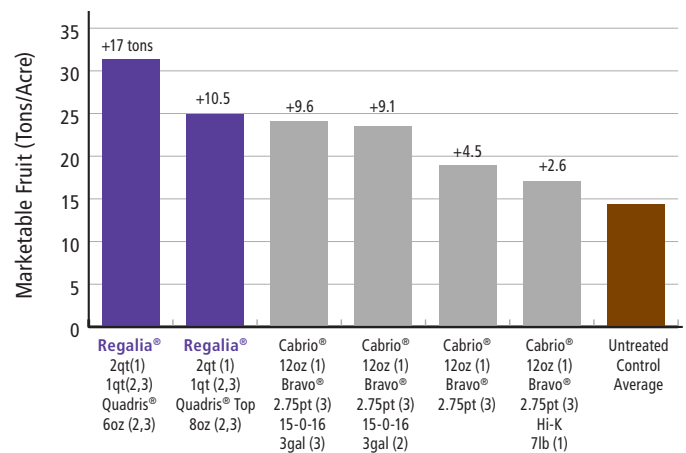
### Bell Pepper Yield

Agri-Technologies, North Carolina



### Processing Tomato Yield

Dixon, CA



Treatments applied on: 1= Aug 16, 2= Sep 8, 3= Sep 27.  
All programs included: Leverage® 3.8oz (1) and Agri-Mek®SC 3oz (1). Regalia programs included Synapse® 3oz (2,3) and Syl-Tac® 4oz (1,2,3). Cabrio programs included Synapse® 3oz (3) and Syl-Tac® 4oz (1,3).  
Harvest evaluated on Oct 20, 2011.

### 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

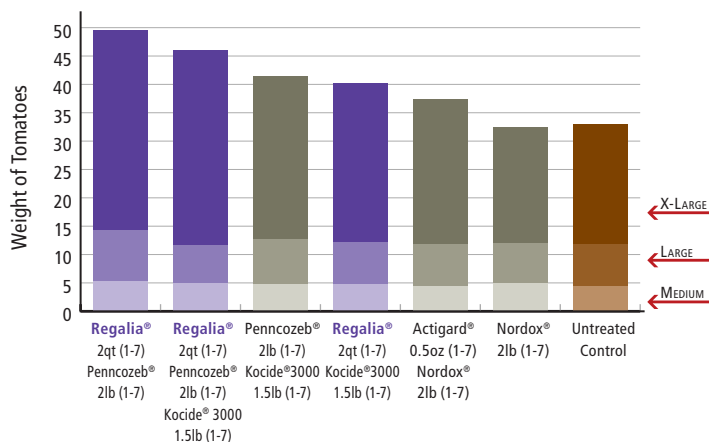


## REGALIA CONTROLS BACTERIAL DISEASES

University and independent field trials have proved that IPM programs with Regalia provide superior control of bacterial spot (*Xanthomonas* sp.). There are several known races of bacterial spot, and proper management is essential to prevent the development of resistant strains. Copper has been used to control bacterial spot for years, but copper resistant strains have been found. Regalia provides a unique, complex mode of action, and improves the effectiveness of both copper and mancozeb control programs.

### Bacterial Spot on Tomatoes

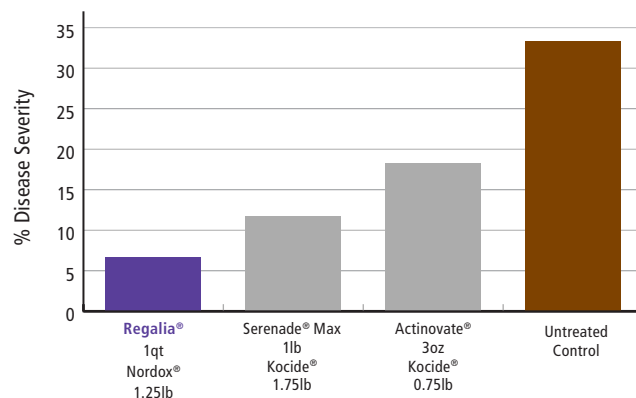
G. Vallad, University of Florida, Wimauma, FL



Treatments applied on 1= Apr 13, 2= Apr 21, 3= Apr 28, 4= May 5, 5= May 12, 6= May 19, 7= May 25.  
Yields based on a single harvest on Jun 7, 2011.

### Bacterial Spot on Tomato

P. Roberts, R. Sytsma, University of Florida, Immokalee, FL

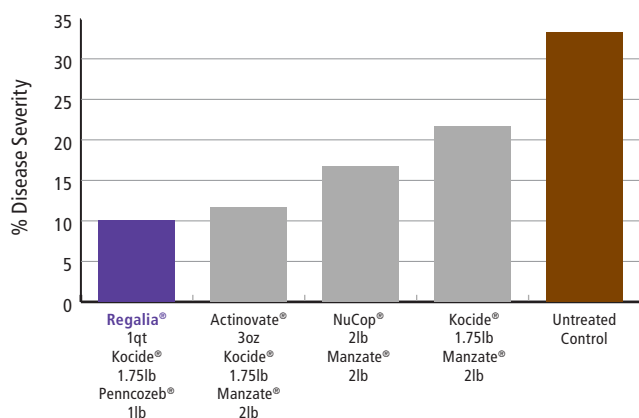


Treatments applied 10 times on the following dates: Oct 4, Oct 11, Oct 18, Oct 25, Nov 1, Nov 8, Nov 15, Nov 23, Nov 30, Dec 6.  
Disease evaluated on Dec 8, 2011 (final observation date).



### Bacterial Spot on Tomato

P. Roberts, R. Sytsma, University of Florida, Immokalee, FL



Treatments applied 10 times on the following dates: Oct 4, Oct 11, Oct 18, Oct 25, Nov 1, Nov 8, Nov 15, Nov 23, Nov 30, Dec 6.  
Disease evaluated on Dec 8, 2011 (final observation date).

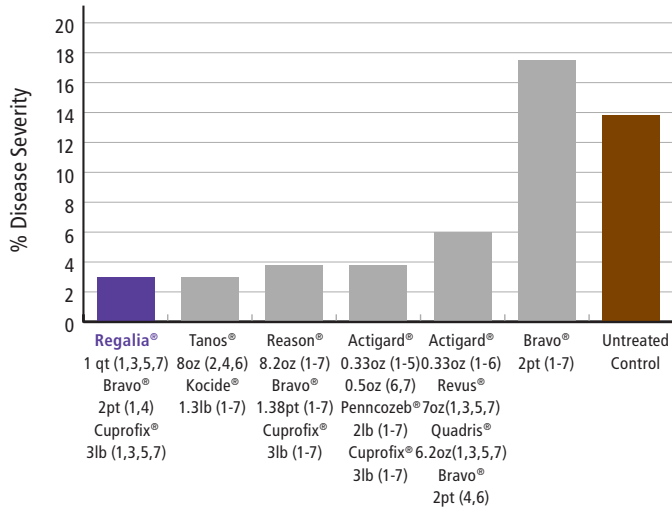
**REGALIA ADDRESSES A RANGE OF FUNGAL DISEASES**

Regalia provides a broad spectrum of fungal disease control. University trials prove that 1 quart of Regalia combined with low rates of copper and mancozeb controls Late Blight (*Phytophthora infestans*) better than high rates of copper, mancozeb, and chlorothalonil. Other field research proves that alternating low rates of Regalia with copper and

mancozeb is equal to weekly applications of copper and mancozeb. Regalia is also an effective component in Early Blight (*Alternaria solani*) and Target Spot (*Corynespora cassiicola*) control programs. Field trials show that Regalia programs control Early Blight and Target Spot better than other standard grower programs.

**Target Spot and Early Blight on Tomato**

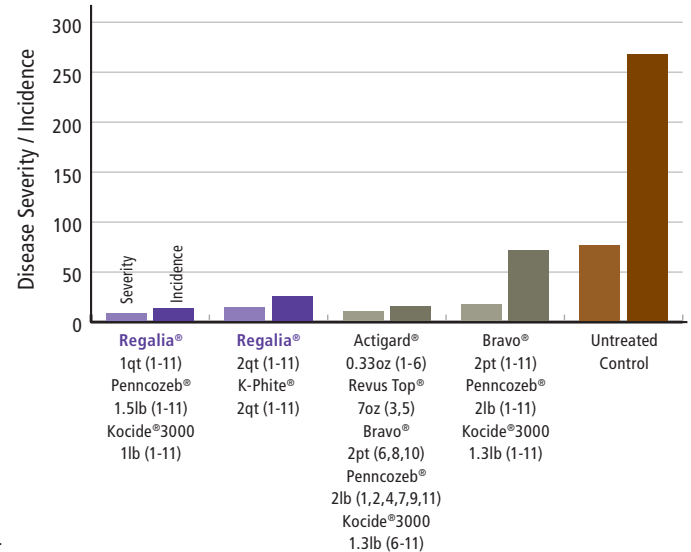
G. Vallad, University of Florida, Balm, FL



Treatments applied on 1= Sep17, 2= Sep 25, 3= Oct 2, 4= Oct 9, 5= Oct 15, 6= Oct 23, 7= Oct 30. Disease evaluated on Nov 5, 2009. Target spot consisted of ~75% of the disease pressure.

**Late Blight on Tomato**

P. Roberts, et. al., University of Florida/IFAS, Immokalee, FL



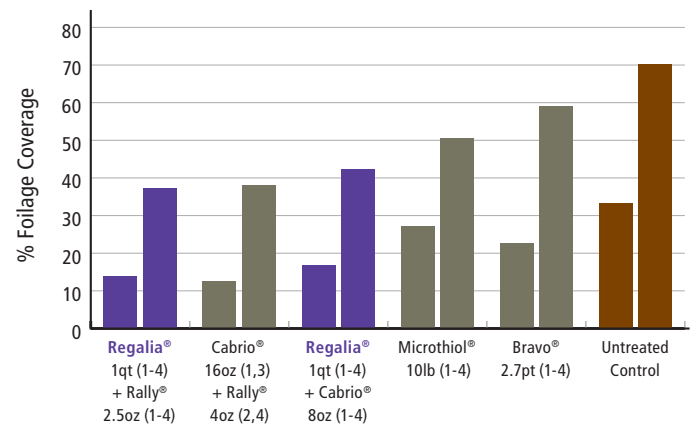
Treatments applied on 1= Feb 4, 2= Feb 9, 3= Feb 16, 4= Feb 23, 5= Mar 2, 6= Mar 9, 7= Mar 16, 8= Mar23, 9= Mar 30, 10= Apr 6, 11= Apr 13. Treatments applied in 66 gal/A. Disease incidence evaluated on Apr 19. Disease severity evaluated on Apr 26, 2010. Disease Incidence = Mean lesion count per plot.

**REGALIA CONTROLS POWDERY MILDEW**

Regalia provides effective and economical control of powdery mildew. University research in California shows that Regalia provides excellent control of powdery mildew when alternated with low rates of pyraclostrobin or myclobutanil. Field trials also prove that Regalia tank mixed with low rates of pyraclostrobin or myclobutanil are as effective as high rates of these fungicides combined.

**Powdery Mildew on Tomato**

T. Turini, et. al., University of California  
Fresno County, California



Treatments applied on 1= Jul 22, 2= Jul 31, 3= Aug12, 4= Aug 21. Disease evaluated on Aug 7 and Aug 22, 2009.



## LABELLED CROPS


- Tomato
- Pepper

## LABELLED DISEASES

- Bacterial Spot
- Late Blight
- Early Blight
- Target Spot
- Gray Mold
- Powdery Mildew

## COMPATIBILITY

Regalia is an ideal component of resistance management programs, and is shown to be compatible with many other types of pesticide chemistry. In addition, Regalia features a zero-day pre-harvest interval (PHI), so tomatoes and peppers can be protected right up to the day of harvest.

Product	Group	Bacterial Spot	Late Blight	Early Blight	Target Spot	Powdery Mildew	PHI	FRAC	Resistance Risk
 <b>REGALIA</b>	Plant Host Inducer	◆	◆	◆	◆	◆	0	P	Low
TANOS®	Quinone outside Inhibitor Cyanoacetamideoxime	◆	◆	◆	◆		3	11 27	High
RALLY®	Demethylation Inhibitors					◆	90	3	Medium
MANCOZEB	Dithio-Carbamates	◆	◆	◆			5	M3	Low
ACTIGARD®	Quinone inside Inhibitor	◆					14	21	Unknown
CABRIO®	Strobilurins (QoI)		◆	◆	◆	◆	14	11	High
AGRIPHAGE™	None	◆					0	none	Unknown
COPPER HYDROXIDE	Inorganic	◆	◆	◆			0	M1	Low
QUADRIS®	Strobilurins (QoI)		◆	◆	◆	◆	0	11	High
CHLOROTHALONIL	Chloronitriles		◆	◆	◆		0	M5	Low

## BEST USE RECOMMENDATIONS

For best results, use Regalia as a preventive treatment. For maximum disease control, begin applications at the first sign of disease pressure. Apply at 7–10-day intervals to protect new growth. Additional treatments are recommended depending on weather and disease pressure.

Apply at a rate of 1–2 quarts in 50–100 gallons of water per acre in a tank mix or rotational program with other registered fungicides. For stand-alone use to control Bacterial Spot, apply 1–2 quarts of Regalia per 50 gallons of water.

## CAN BE USED IN CONVENTIONAL AND ORGANIC PRODUCTION

For organic production, combinations of Regalia at 1–2 quarts per 50 gallons of water plus labeled rates of NOP-compliant or OMRI-listed copper fungicides will provide broad-spectrum control of most foliar diseases on tomatoes and peppers.



CAN BE USED IN ORGANIC PRODUCTION



Always read and follow label directions.

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

Phone 530-750-2800 • Toll Free 877-664-4476 • Email [regalia@marronebio.com](mailto:regalia@marronebio.com)



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