



Bacterial & Fungal Disease Control for Tomatoes & Peppers

Broad Spectrum Disease Control

Bacterial Spot is a perennial threat to tomato and pepper production throughout the Eastern U.S., where conditions are favorable for the disease. Regalia® offers growers an effective new tool to protect crops against Bacterial Spot and other diseases including Late Blight, Early Blight, Target Spot, Powdery Mildew, and Gray Mold. With Regalia, growers get a broad spectrum of bacterial and fungal disease control in just one product.

Tomato & Pepper Diseases Controlled by Regalia:

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

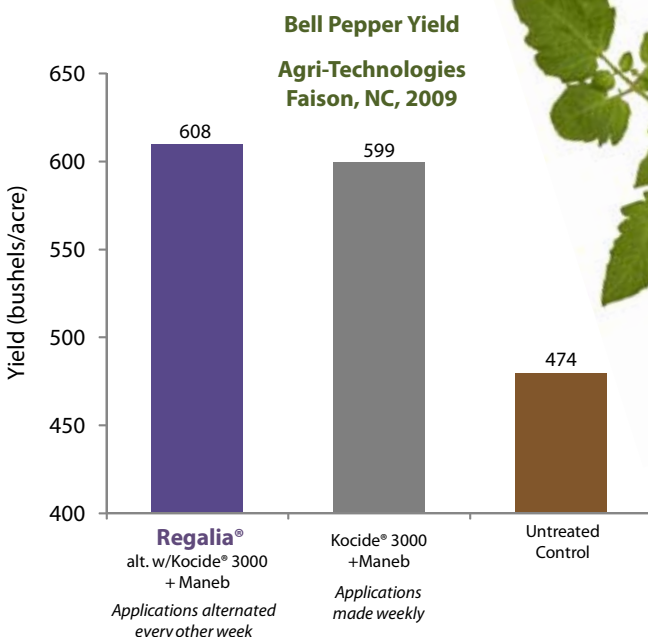


How Regalia Works

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.

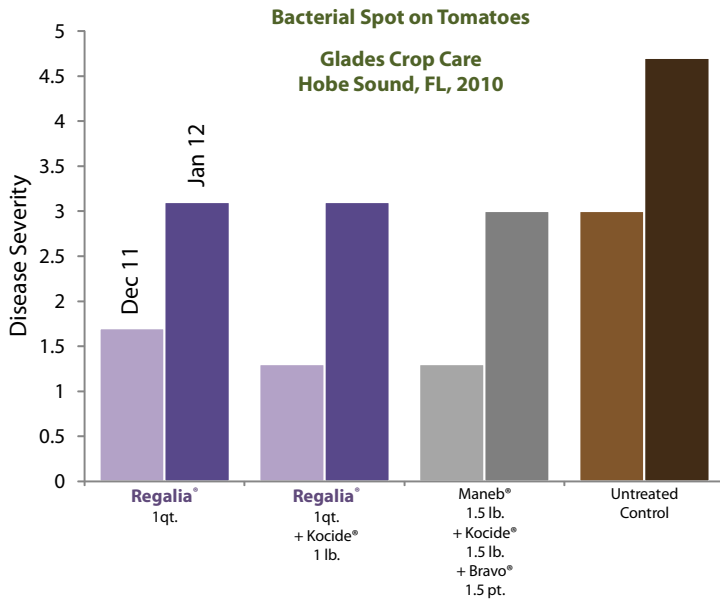
Controls Disease and Improves Yield

Independent field trials show that adding Regalia to standard programs controls disease and improves yield. Bell peppers treated with Regalia programs yielded 608 bushels per acre, compared to 474 bushels without Regalia (28% increase in production).

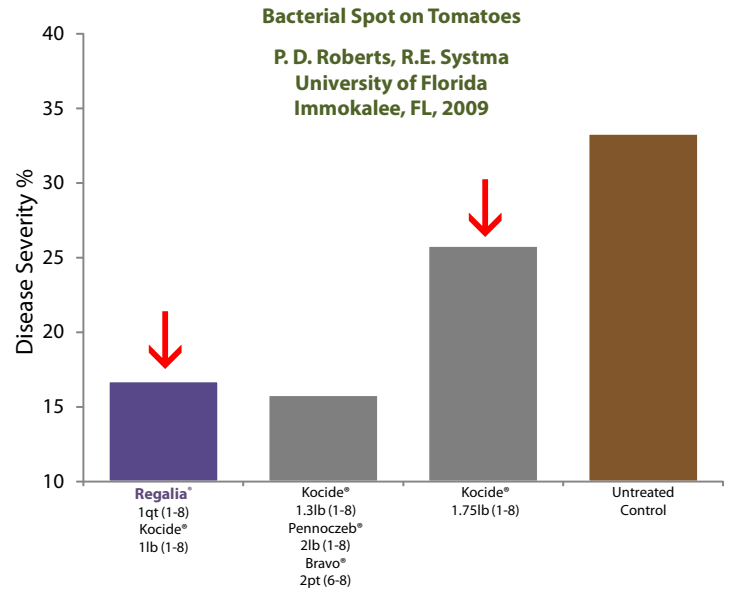


Features of Regalia:

- Activity Against Both Bacterial and Fungal Diseases
- New Tool for Resistance Management
- Re-Entry Interval (REI) = 4 hours
- Pre-Harvest Interval (PHI) = 0 days
- Rainfast in 1 hour
- Labeled for Greenhouse Use



- Treatments applied Nov 20, Nov 27, Dec 4, Dec 9, Dec 16, Dec 23, Dec 30, Jan 8.
 - Disease evaluated on Dec 11 and Jan 12.
 - Treatments applied in 47 gal water per acre.

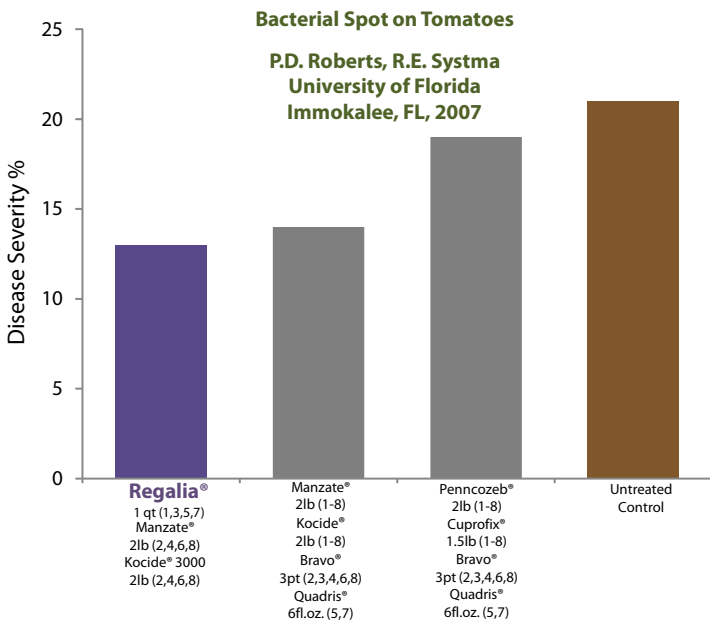


- Treatments applied 1= Sept 28, 2= Oct 5, 3= Oct 12, 4= Oct 19, 5= Oct 26, 6= Nov 2, 7= Nov 9, 8= Nov 16.
 - Disease evaluated on Nov 23.
 - Applied in 60 gal water per acre.

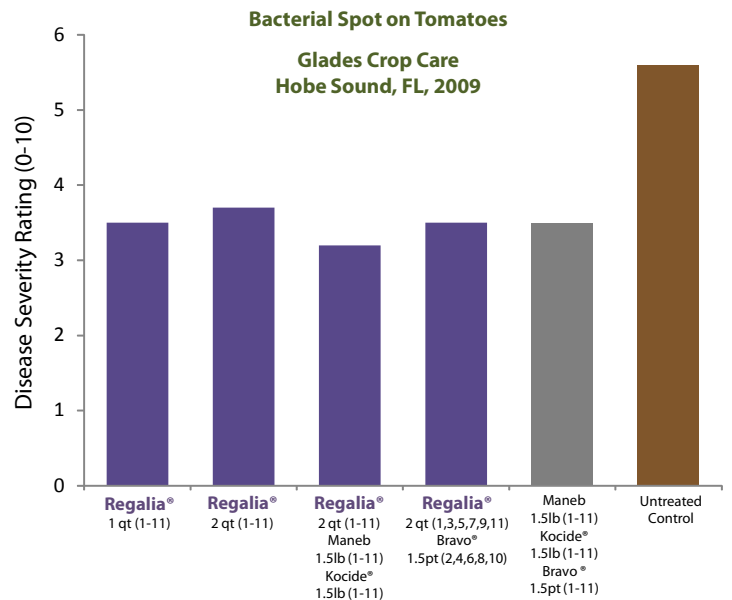
Bacterial Diseases - Bacterial Spot

University and independent field trials have repeatedly proved that IPM programs with Regalia provide superior control of Bacterial Spot (*Xanthomonas* sp.). In a recent Florida field trial, 1 quart of Regalia combined with low rates of copper controlled Bacterial Spot as well as higher rates of copper, mancozeb, and chlorothalonil combined. There are several known races of Bacterial Spot, and proper management is essential

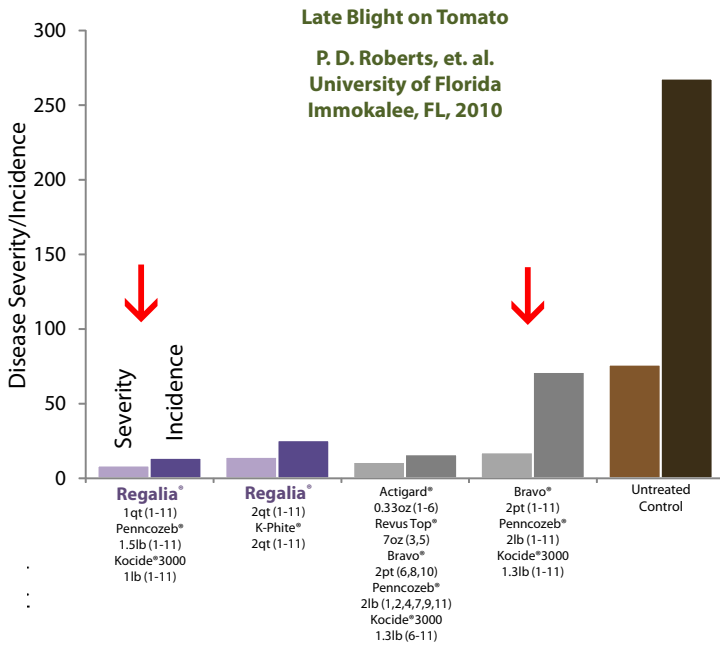
to prevent the development of resistant strains. Copper has been used to control Bacterial Spot for years, but copper resistant strains have been found. Regalia provides a unique, new mode of action, and improves the effectiveness of both copper and mancozeb control programs.



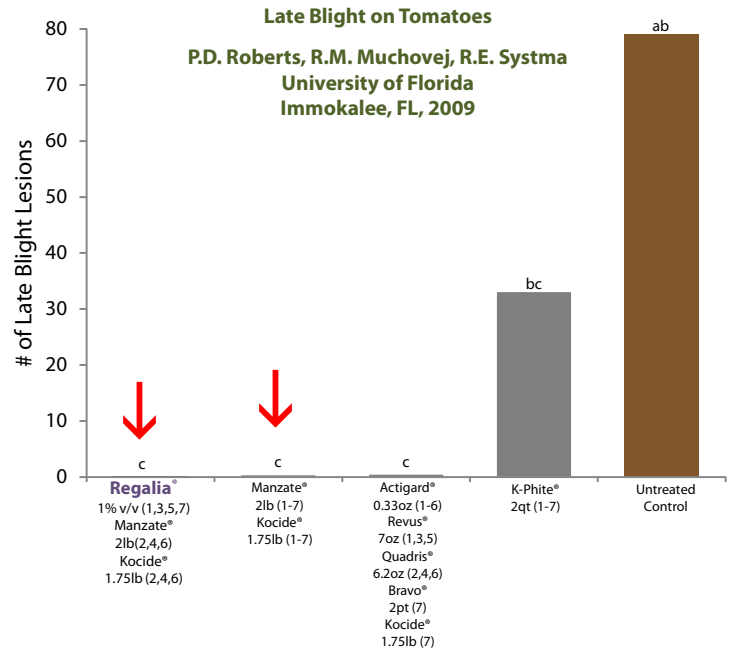
- Treatments applied 1= Sep 11, 2= Sep 18, 3= Sep 25, 4= Oct 2, 5= Oct 9, 6= Oct 16, 7= Oct 23, 8= Oct 30.
 - Disease evaluated on Nov 2.
 - Treatments applied in 66 gal water per acre.



- Treatments applied 1= Dec 19, 2= Dec 24, 3= Jan 2, 4= Jan 9, 5= Jan 16, 6= Jan 22, 7= Jan 29, 8= Feb 6, 9= Feb 12, 10= Feb 19, 11= Feb 26.
 - Disease evaluated on Mar 4.
 - Treatments applied in 42-56 gal water per acre.

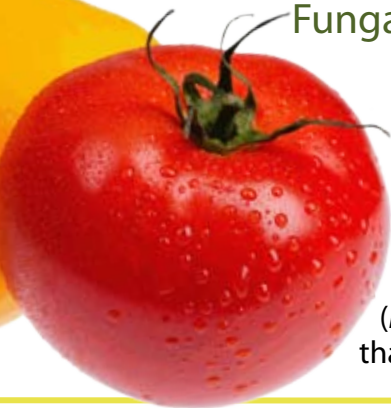


- Treatments applied 1= Feb 4, 2= Feb 9, 3= Feb 16, 4= Feb 23, 5= Mar 2, 6= Mar 9, 7= Mar 16, 8= Mar23, 9= Mar 30, 10= Apr 6, 11= Apr 13.
- Treatments applied in 66 gal water per acre.
- Disease incidence evaluated on Apr 19. Disease severity evaluated on Apr 26.



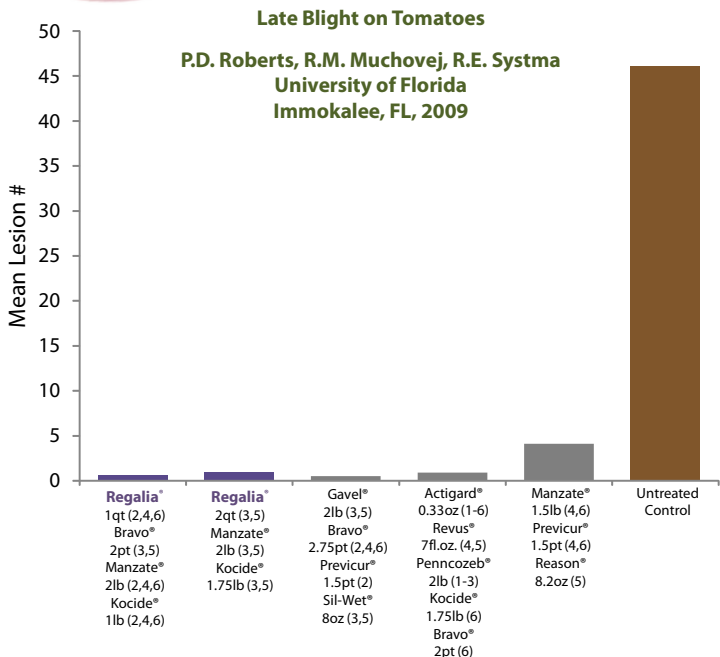
- Treatments applied 1= Apr 2, 2= Apr 8, 3= Apr 15, 4= Apr 22, 5= Apr 29, 6= May 6, 7= May 13.
- Disease evaluated on May 26.
- Treatments applied in 74 gal of water per acre.

Fungal Diseases - Late Blight, Early Blight, and Target Spot

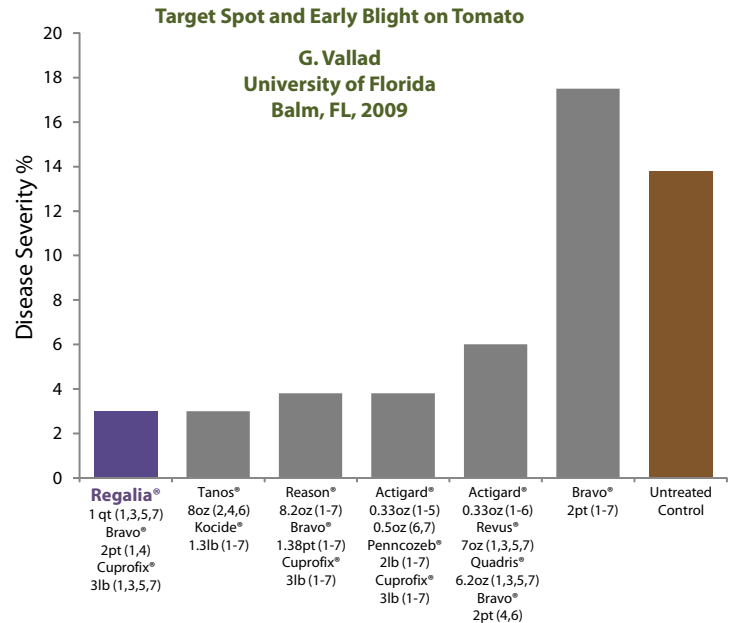


Regalia provides a broad spectrum of fungal disease control. University trials in 2010 prove that 1 quart of Regalia combined with low rates of copper and mancozeb controls Late Blight (*Phytophthora infestans*) better than high rates of copper,

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.



- Treatments applied 1= Mar 26, 2= Apr 1, 3= Apr 7, 4= Apr 15, 5= Apr 22, 6= Apr 29
- Disease evaluated on May 4.
- Treatments applied in 74 gal water per acre.



- 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.
- Target spot consisted of ~75% of the disease pressure.



Compatibility Chart - Common Regalia Tank Mix Partners

There is a known resistance risk to many commonly used fungicides but there is a very low risk of resistance with Regalia (see chart below). 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. The pre-harvest interval (PHI) for other fungicides can be long (i.e. 14 days), but Regalia has a PHI of 0 days, so tomatoes and peppers can be protected until harvest.

Product Name	Group	Bacterial Spot	Late Blight	Early Blight	Target Spot	PHI	FRAC	Resistance Risk
Regalia®	Plant Host Inducer	✓	✓	✓	✓	0	P	Low
Tanos®	Quinone outside Inhibitor Cyanoacetamideoxime	✓	✓	✓	✓	3	11 27	High
Mancozeb	Dithio-Carbamates	✓	✓	✓		5	M3	Low
Actigard®	Quinone inside Inhibitor	✓				14	21	Unknown
AgriPhage™	None	✓				0	None	Unknown
Copper hydroxide	Inorganic	✓	✓	✓		0	M1	Low
Quadris®	Quinone outside Inhibitor		✓	✓	✓	0	11	High
Chlorothalonil	Chloronitriles		✓	✓	✓	0	M5	Low

Regalia Best Use Recommendations

For best results, use Regalia as a preventative 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 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.



CAN BE USED IN ORGANIC PRODUCTION



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

For more information about the disease control power of Regalia, contact your local retailer or call:

Jay Osborne, Eastern Reg. Sales Rep., 239-207-7168
 Patrick Clark, NE and Midwest Sales Rep., 215-490-3981
 David Warman, Director of Sales, 336-202-3433



www.MarroneBio.com/Regalia