

Managing Tomato Bacterial Diseases? Biopesticides Could Help.

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Are you using copper to protect your tomatoes from bacterial diseases? Research from Cornell suggests that you could replace some of those copper applications with a biopesticide.

Preventing bacterial diseases on your tomatoes starts with good integrated pest management practices.

- $\geq$  3-year rotation out of tomatoes and peppers
- Clean seed or disease-free transplants
- [Heat treat](#) seed (unless it is pelleted or treated)
- Good sanitation in transplant production facility (e.g., new flats or sanitize between uses, sanitize greenhouse after each season)
- Inspect transplants and destroy any with symptoms of bacterial disease
- Do not work in tomatoes (e.g., tie, prune) when leaves are wet
- Either sanitize tomato stakes between growing seasons, or use new stakes each year (preferred)
- If you have an outbreak, till in plant debris quickly.

If you are doing all of these things and still need some extra protection from bacterial diseases (e.g., in a wet growing season), pesticides might also be in your IPM toolbox.

In New York, we're fortunate that so far few bacterial isolates have been found to be resistant to copper. Copper resistance is a major problem in the southern U.S. and we'd certainly like to preserve its efficacy here in NY. Some people are also understandably concerned about the environmental impacts of using a lot of copper on their farms.

Cornell vegetable research programs led by Chris Smart and Meg McGrath have been testing products against our three bacterial diseases – spot (*Xanthomonas*), [speck](#) (*Pseudomonas*) and [canker](#) (*Clavibacter*) for a number of years. So far, two products – Double Nickel LC (1 qt/A recommended) and LifeGard (4.5 oz/100 gal water) – have been rising to the top. When comparing these products alone to alternating either with copper, both worked better as replacements for some copper sprays than alone. Some research trials only included the biopesticide by itself, but the Double Nickel label states that it should be applied only tank mixed or rotated with copper-based fungicides.

Double Nickel alone (one year of data in Geneva) was as good as copper against bacterial spot. Double Nickel alone (two years of data in Geneva) and LifeGard alternated with copper (one year on Long Island) were as good as copper against bacterial speck. While neither product is registered (legal) for use against tomato canker, in research trials in Geneva, Double Nickel (one year) and LifeGard (two years) alternated with copper controlled canker as well as copper alone. So if you are replacing some copper sprays with either Double Nickel or LifeGard, you'll likely notice some incidental bacterial canker protection, too.

New to using biopesticides? The New York State IPM Program has a new resource to help. [Biopesticide profiles](#) (scroll to bottom of page) for Double Nickel, LifeGard, and seven other products provide information on tank mix compatibility, shelf life, and other practical tips.

Changes in pesticide registrations occur constantly and human errors are possible. Read the label before applying any pesticide. The label is the law. No endorsement of companies is made or implied.



Bacterial canker lesions on tomato fruit

Alt text: Green tomato fruit held in a white person's hand with four black and brown spots, each surrounded by a white halo



On tomatoes bacterial speck and spot both look like small black spots which may develop yellow halos around them as the lesions age.

Alt text: Two pictures of tomato leaves showing small brown specks, and larger specks or groups of specks surrounded by yellow margins

## Biopesticide Profiles

<a href="#">Actinovate (pdf)</a> →	<a href="#">Contans WG (pdf)</a> →	<a href="#">Double Nickel (pdf)</a> →
<a href="#">LifeGard (pdf)</a> →	<a href="#">Regalia (pdf)</a> →	<a href="#">Serifel (pdf)</a> →
<a href="#">Stargus (pdf)</a> →	<a href="#">Theia (pdf)</a> →	<a href="#">Timorex ACT (pdf)</a> →

Follow the link in the text and scroll to the bottom of the page to find these biopesticide profiles from the NYSIPM program.

Alt text: Screen shot of a website section entitled Biopesticide Profiles. PDFs of these profiles are available for Actinovate, Contans WG, Double Nickel, LifeGard, Regalia, Serifel, Stargus, Theia, and Timorex ACT