

Quantifying benefits of biofungicides in white mold management using novel disease detection methods –

Year 1 Summary

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Project goals

- Quantify efficacy and economic impacts of biofungicides for white mold
- Evaluate utility of NDVI sensors for measuring plant health and detecting disease early

White mold treatments

White mold trials are being conducted in ENY and WNY.

2018 – Double Nickel (2 qts/A), Cueva (4 qt/A), Non-treated control

2019 – Double Nickel (2 qts/A) and Contans (2 lbs/A), alone or together

2020 – Double Nickel (2 qts/A) and Contans (2 lbs/A), alone or together, with or without reduced tillage

Crop

2018 – Snap beans

2019 – Snap beans, to be determined

2020 – to be determined

Biofungicide modes of action (based on product labels and information provided by the project registrants)

Product	Active ingredient	Eats pathogen	Makes antimicrobial compounds	Grows on plant, excludes pathogen	Induces plant resistance	Promotes plant growth/stress tolerance
Contans	<i>Paraconiothyrium minitans</i> strain CON/M/91-08; formerly <i>Coniothyrium minitans</i>	X				
Double Nickel	<i>Bacillus amyloliquefaciens</i> strain D747		X	X	X	X

The following information was collected from product labels and information provided by project registrants:

Product name	Active ingredient	FRAC	Where to apply	When to apply	Temperature tolerance in field
Contans	<i>Paraconiothyrium minitans</i> strain CON/M/91-08 (formerly <i>Coniothyrium minitans</i>)	none	Soil	Apply to soil (or crop residue) in fall 1-3 days before incorporating into top 2" of soil <u>OR</u> before 0.5-1" rain/irrigation; Spring application is also possible, but 90 days required to destroy sclerotia	Preferred soil temperature: 59-77 °F (tolerates 41-86 °F); sufficient soil moisture essential
Double Nickel	<i>Bacillus amyloliquefaciens</i> strain D747	44	Foliage, soil, pre-plant dip	Any time	Any temperatures typical of NY growing season

Product name	Rainfastness	UV tolerance	Tank mix compatibility	How to store	Shelf life
Contans	NA; rain can help move spores into soil after application	Sensitive to UV light and drying out; incorporate into sufficiently moist soil	Do not tank mix with fungicides (or use within 7 days of application); do not tank mix with fertilizers; tank mix compatible with many herbicides (check with supplier/ manufacturer); when tank mixing with herbicides, do not allow to sit in the tank > 4 hrs	Cool dry place, at or below 39 °F; apply as soon after delivery as possible, or store frozen	2 years if stored <39 °F
Double Nickel	Once dry, similar rainfastness to other pesticides	7 days on foliage	Do not tank mix with antibiotics, peracetic acids, or hydrogen peroxides; generally biologically compatible with fertilizers, insecticides, herbicides, and fungicides. Avoid silicon spreaders.	Store at room temperature, away from extreme heat	Dry formulations can be stored for 2 years, 3 years if stored away from extreme heat

Things to know about all of these products

- Apply preventatively
- Use as part of IPM strategy (including other pesticides)
- Mix only what you need; don't leave in spray tank overnight
- Don't expose to excessive heat when storing (see details above)
- 0 day PHI, 4 hr REI
- When tank mixing, follow label instructions for all products. Check with company rep if you have questions. Do a "jar test" if you are mixing two products for the first time to check for physical compatibility.

The information on this handout is not meant to be a substitute for reading the label. Always read and follow all pesticide labels.