

Reducing damping off in winter high tunnel spinach

UMass Extension Vegetable Program

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Rationale:

The UMass Extension Vegetable Program has been conducting trials for the past 4 winters aimed at finding varieties of spinach that perform well in New England winter production systems and have resistance to the very damaging spinach downy mildew pathogen. This year we will be studying another major disease challenge for winter spinach producers, damping off, which kills seedlings, causing uneven germination and poor stands. Damping off can be caused by several soil-borne fungal and fungal-like pathogens. We will investigate two techniques for reducing damping off symptoms—seed priming and cover cropping—used together and individually.



Spinach downy mildew sporulation.

Photo: G. Higgins

Studies have shown that incorporating buckwheat residues 3 weeks before planting can reduce damping off caused by *Rhizoctonia solani*, and seed priming can speed up germination considerably, giving damping off pathogens less time to infect and kill seedlings.

Goal:

The overall goal of our spinach research program is to increase yield and profitability of winter greens production. To that end, we worked with 3 farms last winter to create winter spinach enterprise budgets. We will present these financial reports today and will be working with farms to track improvements in yield, quality, and profitability over the next winter season. ***If you are a winter spinach producer who would like to implement some new practices and monitor changes in their yield and profitability, please get in touch after the tour!***

Materials & Methods:

Treatments

- Unprimed seed, no buckwheat
- Primed seed, no buckwheat
- Unprimed seed, buckwheat
- Primed seed, buckwheat

Buckwheat will be seeded in late-July and incorporated in mid- to late-September. Spinach will be direct seeded in early October and evaluated weekly for pre- and post-emergent damping off.

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