FACT SHEET ABOUT USE OF PREDATORY MITES FOR PEST CONTROL

A LIGHTER TOUCH

Vegetables NEW ZEALAND Inc

Biological control of spinach crown mite

Spinach crown mite (*Tyrophagus similis*) attacks young leaves and infests the root zone, causing curling and severe marketability loss.

Combining two commercially available biocontrol agents (BCAs)—*Neoseiulus cucumeris* on the foliage and *Stratiolaelaps scimitus* in the soil—delivers, dual-zone effective pest control.



No predators



With predators

How predator mites work

Predator species	Target zone and target stages	Key practical advantage
Neoseiulus cucumeris (Foliage predatory mite)	• Foliage and leaf crown • Highly effective on young larvae and nymphs	Cuts leaf pest pressure threefold within two weeks; rapidly halts leaf distortion and curling.
Stratiolaelaps scimitus (Soil predatory mite)	• Root zone and soil surface • Broad appetite across all stages (including adults)	Achieves near-complete (2.5×) suppression in rhizosphere soil; eliminates pest reservoir.

Practical recommendations for growers

Combine foliar and soil releases: Neither predator crosses zones effectively—*N. cucumeris* stays in the canopy while *S. scimitus* remains in the soil. Releasing both together provides maximum crop protection, yielding healthier baby-leaf spinach. Growers should discuss suitable release programmes with their biocontrol supplier or crop adviser and monitor results under their own growing conditions.

Introduce BCAs early at low pest densities: Both beneficial species display a Type II functional response, meaning their predation rate is highest per pest when mite numbers are still low. Preventive releases at early establishment prevent outbreaks far better than reactive rescue treatments.

Action thresholds and monitoring: Crop marketability declines with cumulative mite exposure. Trial data shows that a 20% loss in marketable leaves occurs at ~190 mite days (equivalent to 190 mites for one day or 19 mites per day for 10 consecutive days, for example), and a 30% loss occurs at ~260 mite days (equivalent to 130 mites per day over two days, or 26 mites per day over 10 days, for example). Take action before reaching these exposure milestones to avoid marketable crop losses.

Impact of warm weather conditions: Outdoor trials demonstrated that spinach crown mite populations collapsed within 19 days under summer conditions. High summer temperatures and exposure to outdoor conditions naturally limit spinach crown mite development and survival. Biological control is therefore likely to be most effective under cooler conditions or in protected greenhouse environments.

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Disclaimer: Every effort has been taken to provide accurate information in this resource but ALT and Vegetables NZ disclaim all liability in relation to the information it contains.