

An ideal amount of Molybdenum on a Mehlich 3 soil test (such as from Logan Labs) is 0.5 to 1ppm. In practice Derek uses a soil drench of 5g Sodium Molybdate (a good source with 39% Mo) per 1,000 sq ft. at the start of the season or approximately ½ oz Sodium Molybdate per 30'x96' tunnel. If you plan to add compost to the tunnel in fall, you might consider mixing trace nutrients in with the compost application. Like many trace nutrients, great care must be taken when applying micronutrients to your land. If at all possible, find a source of Mo that is pelletized, contained within a blend of other micronutrients, or a liquid form such as those from Peaceful Valley Farm Supply or Advancing Eco Agriculture. Adding micronutrients is most effective when you add a carbon source (humates, compost, etc...) to minimize the potential of negative impacts to yourself and the land.

Developing a Cold Hardy Greens Seed Mix

Laughing Dog Farm, Gill, MA

Danny Botkin at Laughing Dog Farm is developing unique, cold hardy seed mixes for winter growing. He mixes, scatters and germinates a wide variety of green varieties (beet, kale, asian greens, annual herbs, lettuces etc...) in his high tunnels, and then proceeds to save seed from the mix, selecting for an even hardier, better tasting, and best seed-producing mix over time. The mix can be harvested multiple times and is used in salads or as a braising mix. He prefers this style of greens mix to growing one single variety of green. Seeds from his own mixes are saved and new seed is acquired and exchanged at seed swaps in the local community to continue to add regional diversity to his evolving seed mixes. The goal is to continue to have a regionally-adapted, hardy greens mix that produces excellent-tasting greens throughout the winter and be a radical participant in saving and producing seed on the farm. Danny mixes this strategy of broadcasting seeds with the more traditional method of starting seeds in trays for maximizing winter growing potential in his two permaculture-inspired high tunnels.



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High Tunnel Hacks: Unique Tips and Strategies for Successful Production

Creative Management Strategies for Successful Overwintering Production

A Pick-Your-Own Share for Winter Greens

Tangerini's Spring Street Farm, Millis, MA

Tangerini's Spring Street Farm has a unique way to distribute their winter greens: a pick-your-own winter greens share offered to their Summer CSA members. The high tunnel is planted with a beautiful array of greens (such as lettuce, kale, spinach, arugula, asian greens). The CSA members are given instructions on how much to pick (example: pick 2 full bags) and are sent a short YouTube video ahead of time with specific instructions for how best to harvest the greens. Members are instructed to harvest the greens by progressively moving along the beds, picking up and moving flag markers to indicate where the next member should pick. The CSA members love having flexibility on when and what to pick. This share pairs well with a more traditional farmstand-style CSA of deep winter storage vegetables.



Steaming Away the Weeds

Wishing Stone Farm, Compton, RI

Liz and Skip Paul at Wishing Stone Farm in Little Compton, RI have been growing in tunnels for over 12 years. They have over 15 high tunnel structures with their main structures ranging in size from 30' x 96' to 34' x 150'. Chickweed was one of their biggest weed pressures which required a new management approach.

They were able to find a 1960's model steam weeder left over from the cut flower industry in Canada. The steamer's boiler is mounted on a trailer that can be pulled by a truck or tractor. It takes about 3 hours to get up to temperature before it is used to inject superheated steam onto the surface of the bed to kill any weeds or weed seeds. Wishing Stone Farm targets September 20th to have old tomatoes plants removed and the beds rototilled, shaped and fertilized for winter growing. Then by September 28th, the steamer is rolled through the tunnels, followed by direct seeding of various greens. Once the greens are seeded, much care is given not to disturb the soil as chickweed responds readily to soil disturbance.

If needed, Wishing Stone Farm uses a BCS power harrow to skim the first ¼ inch of the soil to minimize new weed growth. Chickweed still emerges but at a more manageable rate. Although initially a big investment, (about \$10, while a new model costs about \$18k), the steamer has dramatically increased efficiency and minimized labor costs in winter greens production. Skip reports that Paul and Sandy Arnold in New York are also experimenting with steam weeder— including a system that would steam 3-4 inches deeper in the soil resulting in longer-lasting weed prevention for summer growing.



Welded Rebar for DIY Caterpillar Tunnels

Simple Gifts, Amherst, MA

Jeremy Barker-Plotkin at Simple Gifts farm in Amherst, MA uses caterpillar tunnels for extending the season and supporting summer crops like tomatoes and cucumbers. He uses a simple but elegant solution for a DIY caterpillar tunnel: a hook welded onto a post of rebar. The rebar is pounded into the ground with the hook opening facing downward. The metal conduit hoops (already bent) are fitted on top the rebar to form the structure of the caterpillar tunnel. The hooks on the side of the rebar make it easy to lash the plastic skin of the caterpillar tunnel in place. Making the "rebar with hook" posts is also an excellent first welding project for new hires, says Jeremy.

For more information on the wide range of uses of caterpillar tunnels check out the presentation from Ted Blomgren from UVM for ideas on how to use them: https://www.uvm.edu/vtvegandberry/Tunnel_Conference_2012/BlomgrenCaterpillarTunnels.pdf



Molybdenum and Aphids on Winter Greens

Brix Bounty Farm, Dartmouth, MA



Aphids are not uncommon on winter greens in late winter and early spring in many high tunnels. Lesser known, however, is that aphid outbreaks in February or March are often a response to high nitrate levels in the plants. One way to manage the nitrates (and consequently the aphids) is the nutrient Molybdenum. Molybdenum (Mo) is a soil trace nutrient needed in very small amounts, and it is also key for the nitrate reductase enzyme helping to lower nitrates in soils and in your plants, especially in winter growing.



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