

ASK THE EXPERT

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Soil solarization to manage diseases

Problem: Would soil solarization work against nematodes and soil-borne diseases on a small, field-grown/container nursery? (North Carolina)

Solution: Soil solarization is a simple and apparently effective alternative way to manage soil-related pests.

In solarization, radiant heat, the lethal agent from the sun, is held in the soil under a polyethylene mulch or tarp. The temperature rises, and kills many pests and weeds to depths of 6-8 inches.

Here are some diseases and nematodes controlled by solarization:

Disease	Crop
verticillium wilt.....	tomato, potato, eggplant cotton, strawberry
fusarium wilt.....	tomato, melon, onion, cotton
pink root rot.....	onion
Southern stem rot.....	peanut
rhizoctonia seedling disease.....	potato, onion, bean (sore shin/damping off)
crown gall.....	walnut
phytophthora root rot.....	ornamentals
nematodes.....	various crops (lesion, root knot, reniform, cyst, sting, ring, stubby root and dagger)

—Source: Auburn University

Solarization will not eradicate the problem, but it will help reduce the pest numbers in the top 6-8 inches of soil. Also, it will not be able to protect the treated site for the next year, or any new weed seeds entering the area.

Here's how it's done:

- 1) Prepare the soil with proper cultivation and moisture.
- 2) Use two layers of thin plastic sheeting separated by a thin layer of air which will increase soil temperature.
- 3) Use a clear, ultraviolet-stabilized plastic tarp (polyethylene or polyvinyl chloride) or sheeting 0.5-4 millimeters thick. Bury the edges to a depth of 5-6 inches for a good seal.
- 4) After solarizing for 6-8 weeks, the treated area can be used for planting and/or placing beneficial biological agents such as fungi, bacteria or nematodes. These are antagonistic agents to some soil pests. For some soils, less solarization time is needed.

Experiments in crabgrass control

Problem: Can we skip the pre-emergence application of Pre-M, applying it instead with Acclaim during the second round in the spring after the crabgrass has germinated? (Pennsylvania)

Solution: The conventional method of crabgrass management is to apply pre-emergents before crabgrass germinates. In your area it would be before May 15 in an average year.

It is possible to skip the first-round application of Pre-M. But during the second round, monitor for young crabgrass seedlings. Herbicides such as Acclaim or Dimension can be effective as early post-emergence crabgrass control products. These work best if

applied when crabgrass has germinated and prior to the two-leaf stage of development. As the crabgrass matures, the performance of these post-emergence products may decrease.

Hoechst-Roussel Agri-Vet Co. literature says that Pre-M [2.5 lb./1000 sq. ft.] plus Acclaim [10 oz./1000 sq. ft.] would provide 96 percent crabgrass control as compared to Pre-M alone (84 percent), Pre-M [2.5 lb.] plus Acclaim [1.67 lb.] (88 percent), or 15 oz. of Acclaim alone (84 percent).

According to Hoechst-Roussel literature, the combination treatment of Pre-M plus Acclaim during the second round after crabgrass germination would also have economical benefits.

If you are seriously considering this option, try using a small section of your market and get comfortable with the early post-emergence crabgrass management strategy. The idea looks good.

Besides Pre-M, other pre-emergence products are Betasan, Dacthal, Dimension, Barricade and Ronstar.

Managing black-tailed deer

Problem: Black-tailed deer cause severe browsing damage to Douglas fir. We have used Deer-Away Big Game Repellent material in the past, with some luck. We have heard of a new product, Ro-pel, for deer problems. How good are these materials? (Oregon)

Solution: Biologists at Olympia's Forest Animal Damage Research Station recently found that Deer-Away BGR-P—36 percent inedible egg solid in powder form—is more effective than Deer-Away Liquid product. These products have been used in the past for black-tailed deer problems.

Ro-pel is a bitter liquid repellent, newly-marketed in the Pacific Northwest with limited information concerning results.

In the past, deer repellent products were recommended for new growth immediately after budbreak. However, Olympia scientists found that black-tailed deer problems on Douglas fir can be better accomplished when the Deer-Away BGR-P was applied before budbreak. They got better results when 12-inch plastic flags were tied to seedlings just below the terminal bud and then dusting the material onto wet seedlings with Deer Away BGR-P.

In other tests, a yellow, blue or red ribbon around the Douglas fir before applying Deer-Away maximized repellency.

When Ro-pel was used, there is potential to cause burning of dormant needles suggesting that the product could be phytotoxic to new growth on Douglas fir.

Try on a limited scale at first, and read and follow label instructions.

(*ED. NOTE: Refer to the February, 1993 LM for more on deer control.)

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Mail questions to "Ask the Expert," LANDSCAPE MANAGEMENT, 7500 Old Oak Blvd., Cleveland, OH 44130. Please allow two to three months for an answer to appear in the magazine.