

USING BENEFICIAL NEMATODES FOR LANDSCAPE PEST CONTROL

You may have noticed new pest control products on store shelves lately. The products are based on “beneficial nematodes.” What are “beneficial nematodes” and why would we suggest that you use them in your landscape pest management programs? Most people, if they have heard about nematodes at all, believe them to cause plant disease, such as the root knot nematodes. In fact, most nematodes are either free-living or plant pathogens. A small number actually attack insects, specifically insects that live in the soil.

Nematodes are very small, almost microscopic, worm-like animals. Beneficial nematodes are strictly insect pathogens; they will **not** harm plants, other animals, or people. They are so safe, in fact, the EPA has exempted them from its usual pesticide registration process.

Beneficial nematodes occur naturally in most soils. The problem is that our landscape soils generally do not harbor enough of them to effectively control soil-dwelling insect pests.

Black Vine Weevil, Strawberry Root Weevil, and White Grubs, are the primary pests controlled by these nematodes. Several companies have methods for culturing and packaging beneficial nematodes. Nematodes can be purchased at larger lawn and garden stores and retail nursery outlets. The cost is around \$15 for a package to cover about 150 square feet.

Lifecycle of beneficial nematodes. Free-living, infective-stage nematodes move through the soil and locate a host insect. The infective-stage enters the insect’s body through natural body openings and penetrates into the host’s blood system. In the blood system, nematodes release a special bacterium that rapidly multiplies, killing the host insect in 24 to 48 hours by infection. The nematode then continues development on host tissue and bacteria, passing through several generations inside the host’s cadaver. Eventually new infective-stage nematodes leave the host to begin the cycle again.

Applying beneficial nematodes is simple, but package instructions must be followed closely for optimum results. Nematodes can be applied through any type of irrigation equipment. Most home gardeners use a watering can or small garden sprayer. Nematodes are killed by certain pesticides, especially those intended for control of plant pathogenic nematodes, so avoid those during mixing and application. To be most effective, nematode applications should be combined with the proper control methods targeted at the adult beetles.

Bear in mind that beneficial nematodes are only effective against soil-dwelling larvae or “grubs,” and to a lesser extent, pupae. Applications are best done in the fall while the soil is still fairly warm (above 55° F) and fall rains have begun. Timing is very important. If you apply too early, the soil may be dry and nematodes will die (unless you can irrigate the area); if you apply too late, the soil may be cold and the nematodes won’t be effective. Nematodes can also be used in the spring, but here the timing is trickier because you must wait until the soil around the roots has warmed to 55° F or higher.

We are often asked if nematodes will persist in the soil through the winter to kill insects the following spring. The answer is no. But the good news is that if you do a thorough job of control, you probably won’t have the pests back, at least for a few years!

We have received some reports recently of nurseries that recommend against fall applications of nematodes. This is absolutely incorrect. We contacted the largest maker of nematode products (BioSys) and their representative was alarmed to learn that some nurseries have not been using nematodes in the fall. They stated, and we wholeheartedly agree, that fall is the best time to apply nematodes for root weevil control, as long as the soil is moist and above 55° F.

Prepared by Ross Penhalegon, OSU/Lane County Extension Service Horticulture Faculty, revised December 2005.

Oregon State University Extension Service offers educational programs, activities, and materials--without regard to race, color, religion national origin, sex, sexual orientation, age, marital status, disability, and disabled veteran or Vietnam-era veteran status--as required by Title VI of the Civil Rights Act of 1964, Title IX of the Education Amendments of 1972, and Section 504 of the Rehabilitation Act of 1973. Oregon State University Extension Service is an Equal Opportunity Employer.