Can You Dig It?

By Schann Nelson
OSU Master Gardener

Now is the time for all good gardeners to come to the aid of the garden. Eliminate undesirable bugs, slugs and weeds now and save time later. The goal is to limit reproduction as much as possible.

My experimental and commercial bait test for yellow jackets has so far been completely unproductive. Neither the commercial bait nor the apple juice concentrate I put out in early May has caught anything but a few flies. This is what I remember from using commercial bait last year. It simply did not work well until much later in the season. I sure would like to find a bait that would attract the giant queens that have overwintered as soon as they appear. It may just be too cold yet in this unseasonable year.

Slugs hatch from small translucent eggs into tiny, but voracious, mobile adults that can devastate very young plants as they emerge. I've even had cucumber plants (and delphiniums) eaten down below the soil surface by slugs too small to see. By the time the critters are big enough to lay an obvious slime trail, you have big problems. My Master Gardner's giant book lists the following controls: copper barriers, diatomaceous earth, eliminating hiding places, hand picking, and trapping. Copper is expensive and a mature slug can lift itself over the barrier (and then lay eggs inside!). Diatomaceous earth (the ground remains of microscopic plankton) creates a sharp surface that slugs don't like, but only when it's thick enough and DRY. Alternatives to buying diatomaceous earth include pretty much anything that creates a sharp surface including wood chips and bark, ashes, sand, crushed shells, etc. All of these will decrease the hospitality of your ground to mollusks (slugs & snails) at least temporarily. Ashes should be used with care since they will affect the pH of the soil, making it less acidic, which may be a good thing for vegetables. However, it's easy to apply ashes too heavily and go too far making nutrients unavailable.

Eliminating hiding places falls into that category of garden treatments that might work in much of the country, but is pretty much impossible here. If you live surrounded by pavement and your yard is the only green oasis around, you can use this type of control. We live in the sea of green and I expect the slugs do their part to keep it from drowning us all completely. Slow as they are, they can travel easily for most of the year from yard to forest to yard for surprising distances.

Handpicking is GROSS though I have a friend who made himself a slug stabber (a piece of wire wrapped securely around a sick leaving a prong on one end) so that he could stab the invaders without bending and fling them out into the highway (which kind of sounds like fun, especially if they've just eaten an entire row of emerging marigolds). Finally, many people swear by trapping, particularly with beer. A recycled pint plastic container with an entrance hole in the side works well. Leave the cover on (to keep out the vertebrates in your neighborhood) and fill with beer or bait up to the depth of the hole. Remove dead slugs as needed and rebait. The old folk remedy of covering slugs with salt, may not actually kill them, surely creates unnecessary suffering, and will poison your soil.

Two microorganisms are very effective at keeping pest populations controlled, the bacteria *Bacillus thuringiensis* (Bt) and beneficial nematodes. Bt affects a narrow range of insects leaving our good bugs alone AND is nontoxic to humans, plants, other animals (including fish) and has no environmental impact. Though the subject of great controversy whenever it is sprayed over large (especially urban or suburban neighborhoods) areas I think this is a knee-jerk reaction to spraying. While it is true that large scale application of chemical insecticides in the past has caused both long and short term damage, it really is true that Bt affects only targeted insects. It must be ingested (eaten) by the targeted insect. It is effective for only a short time, as it breaks down in sunlight and within a couple of days even if overcast. It is true that people who have trouble breathing air with a high particulate count may experience some difficulty, but this is easily controlled by wearing a mask or staying inside. The sight of an entire landscape denuded by gypsy moths or tent caterpillars seems more undesirable than this effective control, even on a large scale. In the home garden Bt is very effective against cabbage moths, mosquitoes and fungus gnats.

Diagnosing plant problems is a vast, difficult and necessary job. A control applied for slugs will not affect weevils or vice versa, and the damage these two very different organisms cause can be confused if not studied carefully. Both will attack the edges of leaves but slugs normally do not affect the woody shrubs that root weevils prefer. Slugs can cause a lot of damage in a very short period of time whereas you may not notice root weevil damage on your rhodies until it has been going on for months. You can usually see slugs somewhere (like up inside a head of cabbage) and nematodes are microscopic.

At the time I took the MG course only a few types of Bt were marketed, but there has been a lot of development in this area of Integrated Pest Management (IPM), particularly for commercial operations. I just received a 50-page catalogue from Arbico Organics chock full of biological controls of all kinds (and Dr. Buglady!). I'm sure a simple web search would yield lots of other sources. Arbico's catalogue has a good two page article about nematodes, which are microscopic non-segmented roundworms found in soil throughout the world. Only beneficial nematodes are marketed as controls. Other species cause root lesions, destroy root tissue, inject growth-regulating hormones to create galls, or stunt growth by killing root meristems. Arbico's article says that nematodes will control all kinds of insect pests including caterpillars, fungus gnats, flea beetles, webworms, fly larvae, ants, roaches, termites and more! Nematodes are easily applied by hose end sprayer or watering can.

According to Arbico and contrary to the MG info I have, nematodes CAN be applied anytime the soil is warm and wet (spring and fall). Control begins in 3–7 days and reaches its maximum in 2–4 weeks. Maximum control is achieved by using two applications spaced a week or two apart. Because they are microscopic, nematodes don't move far from where you put them, but *Heterorhabditis* will continue to move through the soil until they find a host insect.

Unfortunately, biological controls like nematodes are not cheap! Arbico sells a garden-size combo to treat 6,400 square feet with 20 million nematodes (*Steinernematid/Heterorhabditis* mix) for $87.95. For control of termites, Arbico recommends one farm-size package for treating a mere 40 linear feet of foundation (100 million nematodes) at a cost of $148.95. Territorial Seed will ship you 1 million nematodes for $25.50 that they say covers up to 3000 square feet. It may be worth it though to be able to control these destructive pests in a way that is safe for children and pets.

Photo shows extensive damage caused by root weevils to salal. It was successfully treated with nematodes as you can see on newer growth at the end of the branch.

Church Directory

Nehalem Valley Bible Church
Gary Taylor, Pastor
Grant & North Streets, Vernonia
503 429-5378
Sunday School 10:00 a.m.
Morning Worship 11:00 a.m.
Nursery available
Wednesday Service 7:00 p.m.

Vernonia Foursquare Church
Carl Pense, Pastor
850 Madison Avenue, Vernonia
503 429-1103
Sunday Worship Service: 10:30 a.m.
Children's Sunday School

Church of Jesus Christ of Latter Day Saints
Marc Farmer, Branch President
1350 E. Knott Street, Vernonia
503 429-7151
Sacrament Meeting, Sunday 10 a.m.
Sunday School & Primary 11:20 a.m.
Relief Society, Priesthood and
Young Women, Sunday 12:10 p.m.

Seventh Day Adventist
2nd Ave. and Nehalem St., Vernonia
503 429-8301
Morning Worship, 11:00 a.m.
Bible Study 9:15 a.m.

Assembly of God
Wayne and Maureene Marr
662 Jefferson Ave., Vernonia,
503 429-0373
Sunday School 9:45 a.m.
Morning Worship 11:00 a.m

Vernonia Christian Church
Sam Hough, Evangelist
410 North Street, Vernonia
503 429-6522
Sunday School 9:45 a.m.
Morning Worship 11:00 a.m.
Every Wednesday:
Ladies' Bible Study 9:30 a.m.
Ladies' Worship 10:00 a.m.
Children's Choir 3:00 p.m.
Family Bible Study 7:00 p.m.

First Baptist Church
359 "A" Street, Vernonia
503 429-5190
Sunday School 9:45 a.m.
Sunday Worship Service 11:00 a.m.
Wednesday Prayer Meeting 7:00 p.m.

St. Mary's Catholic Church
Rev. Luan Tran, Administrator
960 Missouri Avenue, Vernonia
503 429-8841
Mass Sunday 12:00 Noon
Religious Educ. Sunday 10:30 a.m.

Vernonia Community Church
Grant Williams, Pastor
957 State Avenue, Vernonia
503 429-6790
Sunday Breakfast 9:00 a.m.
Morning Worship 9:45 a.m.
Children and Nursery 10:00 a.m.
Youth Group 6:00 p.m.
Preschool Mon. & Wed. 9:00 a.m.
Wednesday Prayer 6:00 p.m.
Friday Adult Volleyball 7:00 p.m.