THE GARDEN SYMPHYLAN: ITS BIOLOGY AND CONTROL

The garden symphylan, *Scutigera immaculata*, is an occasional pest of greenhouses, home gardens, and some commercial crops throughout Washington. The garden symphylan is worldwide in distribution. In Washington, it has been detected in every county west of the Cascade Mountains. It is in these counties that it has been the most serious. East of the Cascades, it has been reported in Spokane, Klickitat, Yakima, Benton, Walla Walla, Franklin, Adams, and Whitman counties. Considerable damage has been done to asparagus in the Yakima Valley.

**Appearance and Biology**

Garden symphylans are fragile, slender, white, and about 1/4 inch long. They have a distinct head with slender antennae, 6 to 12 pairs of legs, depending on age, and a pair of stout tail feelers. They spend their entire lives in the soil and are difficult to find in the soil since they are exceedingly active and quickly disappear when disturbed.

The garden symphylan is not an insect. It is often confused with certain springtails which are insects. Springtails may be distinguished from symphylans by the fact that they have only three pairs of legs, their movement is more sluggish, and certain species have a “spring” that propels them into the air when disturbed. Garden symphylans are closely allied to millipedes and centipedes and are often referred to as “greenhouse or garden centipedes.” They may be separated from centipedes and millipedes by the fact that the latter two animals have at least 15 pairs of legs.

Symphylans live in the soil but do not make definite runways or burrows. Where the soil is sufficiently compact to permit the regular use of cracks and crevices, these may be lined with silk to enable the animals to run quickly along them, but where the soil is loose, the symphylans work their way between the particles. They usually occur in the top 10 to 12 inches, but they may penetrate deeply into the subsoil to escape from unsuitable conditions, making them difficult to control.

Egg laying begins in spring and continues throughout the summer. Masses containing up to 20 eggs are deposited and hatching takes place in about 10 days or more, depending on soil temperature. Garden centipedes or symphylans are fully developed in 45 to 60 days with all life
stages occurring in the soil. During hot, dry weather, they migrate into the subsoil.

Host Plants and Damage

All vegetables, small fruits, and probably most flowers are susceptible to attack by the garden symphylan. Mint in western Washington is sometimes heavily damaged by this pest. Coniferous seedlings in nurseries have been attacked. Cereals and grasses are also hosts to symphylans but little damage has been noted. Attack of this pest usually begins a few days after the plants are set out. With tomatoes, the symphylans injure the older roots and devour the new ones as fast as they develop. The plants wilt in the daytime, the stems become bluish, and the upper leaves turn dark green while the lower leaves turn yellowish. When attack is severe, the plants die. Lettuce may be attacked as early as November and the injury may persist until February or March. The roots may be severed or badly injured by penetrating holes and extensive surface gnawings. Small, corky calluses develop over the injured tissue and these give attacked roots a galled and gnarled appearance.

HOME GARDEN CONTROL

Garden symphylan is rather difficult to control in the home garden. Diazinon is the only material suggested. This material is sometimes found under the name “Spectracide.” Be sure to check label to see if diazinon is registered on the specific crop in question.

Use as a preplant treatment only! Use the following rates per 1,000 square feet of soil:

- 7 1/2 fluid ounces of 4-pound-per-gallon emulsifiable concentrate, or
- 15 fluid ounces of a 2-pound-per-gallon emulsifiable concentrate, or
- 7 ounces of 50 percent wettable powder, or
- 1.6 pounds of 14 percent granular, or
- 11.5 pounds of 2 percent granular.

COMMERCIAL CONTROL

* Parathion: This chemical may be used as a soil treatment prior to planting of many vegetable crops. Check current labels to be certain anticipated uses are registered. Use 5 pounds of actual parathion per acre just before planting. It should be sprayed evenly over the soil and mixed in the upper 4 to 6 inches of soil by rotary tillage or multiple diskig. Incorporation should be done within half an hour after application because parathion disappears rapidly from the soil surface. Do not allow persons or animals on the treated area within 48 hours after treatment.

Parathion is effective in soil for about two weeks following treatment. Therefore, the crop should be planted as soon as possible after treatment so that it will become well rooted by the time the parathion is no longer exerting control over the symphylans.

* Dyfonate: This chemical is registered on field, pop and sweet corn, snap beans, table beets, potatoes, radishes, broccoli, cabbage and cauliflower, strawberries, and mint. Apply 2 pounds of actual Dyfonate per acre. In the case of mint, the chemical should be applied just prior to fall or spring plowing or just before spring growth. Incorporate by harrowing or by sprinkler irrigation.

Incorporate Dyfonate just as soon as possible prior to planting of all other crops by disking or rotary tillage.

Do not apply to mint areas within 14 days of a Sinbar application!

* Fumigation: Fumigants vaporize and diffuse through the soil and kill symphylans. They are more costly and difficult to apply but may be desirable when land is heavily infested. Nearly all crops may be treated by this method.
Western Washington fumigation should be done between mid-July and mid-September. If done earlier or later, the soil may be too cold and wet for good fumigant action. Fumigate in eastern Washington when soils are dry and warm. Summer land fallowing prior to fumigation will result in better fumigation, as it allows plant material in the soil to decompose.

Proper preparation of the soil is essential for good fumigation. The soil temperature should be 40 degrees to 50 degrees F. For good seed germination, soil moisture is required. The soil must be prepared to a good seedbed condition to a depth of about 12 inches. If a hard pan exists below the soil surface, the ground should be subsoiled every 2 to 3 feet in two directions at a depth of 18 to 20 inches. Subsoiling should be done in the summer when the soil is dry so it will fracture well. This allows deeper penetration of the vapors. Telone should be applied at 25 gallons per acre; D-D or Vidden D at 30 gallons per acre. The chemical should be injected to a depth of 8 inches with the chisels set 12 inches apart. Immediately after application, the surface must be compacted by rolling or floating to seal the fumigant in the soil. The soil should not be disturbed for 2 to 3 weeks. Rain or low temperatures may retard movement of the fumigant so that a longer exposure period is required. Disking at the end of the exposure period will help release any fumigant that remains.

* Telone*, Vidden D*, and D-D* mixture are toxic to plants, so planting should not be done until after the fumigant has left the soil. Generally, it is safe to plant crops when the odor of the chemical can no longer be detected in the soil.

*These chemicals are hazardous to handle and should be applied only by experienced commercial growers or licensed applicators.

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Assistance from Washington State University is available to all persons, without regard to race, color, or national origin. Trade names have been used to simplify the presentation of information. No endorsement of products is intended.

Use pesticides with care. Read the label on the container and follow the directions carefully.

Never smoke while applying insecticides and avoid breathing the spray or dust. Wear natural rubber gloves when handling pesticides. Wash hands and face carefully with soap and water after applying. If insecticides are spilled on the skin or clothing, remove contaminated clothing and wash exposed skin areas thoroughly.

Always store pesticides in their original containers, never in fruit jars or soft drink bottles, and be sure that labels remain on the original containers. Keep containers away from food or animal feed and out of the reach of children or irresponsible persons.