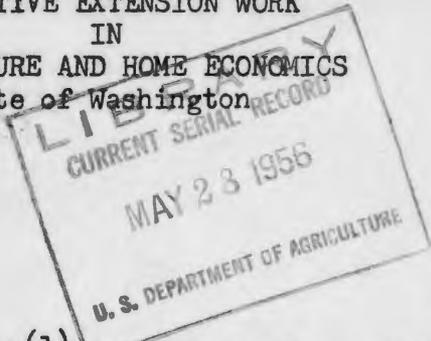


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COOPERATIVE EXTENSION WORK
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Garden Symphylid⁽¹⁾ Control for Commercial
Growers in Washington

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The recommendations for symphylid control are intended only for commercial growers who are familiar with the safe use of parathion. Backyard gardeners, having symphylid damage, should not attempt to use parathion because of its poisonous nature. Instead, hire an experienced pest control operator to apply it for you. Remember, parathion is a deadly poison. Read and follow instructions on the label.

DESCRIPTION

The garden symphylid is a small white centipede-like pest about 1/4 inch in length. It is white, although at times the food in its digestive tract shows through the body wall as a dark colored streak. This pest spends its entire life in the soil, except during moist conditions, when it may be seen on the surface. When disturbed, the symphylid moves swiftly under cover, its "feelers" or antennae being kept constantly in motion.

This creature is neither an insect nor a centipede. It belongs to a primitive group, the Symphyla, which are close relatives of the insects, millipedes, and centipedes. Collembola or springtails, which are often mistaken for symphylids, are shorter and broader, always have 3 pairs of legs, and characteristically move by springing into the air. The centipedes and millipedes can be identified by having many pairs of legs while the symphylid has from 6 to 12 pairs, depending upon the stage of development.

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DESCRIPTION OF DAMAGE

The garden symphylid may attack and damage plants in the following ways:

Seeds: The pests chew through the seed coat, riddling the seed and destroying the plant embryo. This type of injury can cause a serious reduction in stand.

Seedlings: They feed on the roots, eating the root hairs and fine roots. The larger roots may be pitted from feeding. In many instances, all that remains is a skeletal root system, completely devoid of fine roots. Affected plants not killed outright are stunted resulting in a late maturing, low yielding crop of inferior quality.

Root Crops: Crops such as radish, beets, carrots, and turnips, may be rendered unmarketable by symphylids chewing small holes in their skin and tissues.

Other Damage: Parts of plants growing above the soil may be riddled with holes when these parts come in contact with the ground. Crops such as asparagus and celery are made unsaleable due to holes in the stalks and the rusty, corky growths which often develop. Ripened strawberries lying on the ground are damaged by symphylids tunnelling through the fruit.

DISTRIBUTION

The garden symphylid has a world-wide distribution. In Washington, symphylids may be found in any county west of the Cascades. East of the Cascades, it has been reported in Klickitat, Yakima, Benton, Walla Walla, Franklin, Adams, Whitman, and Spokane counties. Symphylids might occur anywhere in Washington.

HOST PLANTS

The garden symphylid is a general feeder, attacking most plants. The following plants are known to be attacked by this pest:

Vegetable Crops: Asparagus, pole beans, bush beans, beets, carrots, cauliflower, celery, corn, cucumbers, lettuce, onions, parsley, peas, potatoes, radish, spinach, and tomatoes.

Small Fruits: Strawberries, and cane fruits.

Field Crops: Mint, mangels, sugar beets, rhubarb, pumpkins, muskmelons, hops, and squash.

Flower Crops and Ornamentals: Aster, carnation, calendula, lily, centaurea, chrysanthemum, gardenia, geranium, gladiolus, pansy, rose, smilax, snapdragon, zinnia, douglas fir, Russian olive, and coniferous seedlings.

Cereals and Grasses: Alfalfa, barley, oats, wheat, and most grasses.

Truck crops, field crops, and small fruits, particularly strawberries, are very susceptible to symphyliid attack. Injury to shrubs may be less evident, although the plants may be weakened and lose vigor. Damage to cereals and grasses is generally not too serious.

LIFE HISTORY

Egg: The symphyliid egg is a small, pearly white spherical body covered with a network of fine ridges. It is just barely visible to the unaided eye. The eggs are laid singly or in clusters in cavities in the soil. The larvae emerge from the eggs in 2 to 3 weeks, depending on the soil temperature.

Larva: Newly emerged larvae resemble springtails except that they have 6 pairs of legs. The larvae moult several times, growing larger and adding an extra pair of legs with each moult until they reach the adult stage.

Adult: The adult has 12 pairs of legs. It lives for at least 4 or 5 years and possibly longer. They are most numerous in the field during the spring and summer months, although adult and larval forms may be found at any time during the year.

CONTROL

Annual crops: Apply parathion just before planting at the rate of 5 lbs. actual ingredient per acre. The parathion should be worked into the top 5 or 6 inches of soil immediately by multiple discings, rototilling or split application methods. In the split application method, 1/2 of the insecticide is applied, then the field is disced and plowed. The rest of the insecticide is applied immediately

and the field is disced at least twice. In applying parathion, the most important consideration is to cover it as soon as possible after application. All insecticides deteriorate rapidly, particularly on warm, sunny days, when left exposed on the soil surface. Organic phosphate types of insecticides, such as parathion, break down more rapidly than the chlorinated hydrocarbon types of insecticides such as DDT and aldrin.

It is essential then that the parathion be covered within an hour and preferably within a half hour after application. When a large acreage is being treated with a sprayer or duster, follow behind with a disc, but be careful to keep out of range of the spray or dust drift. In one-man operations treat and cover one acre at a time, so that the parathion is exposed on the soil surface for a minimum time.

Perennial Crops: At the present time there are no proven methods for treating established plantings. However, there are a number of new materials under test that look promising. Further testing will be necessary before a recommendation can be made. Ground being planted to perennial crops should be treated with parathion at the rate of 5 lbs. actual per acre prior to planting. If possible, parathion should be applied at 5 lbs. per acre early in the fall before the symphyliids migrate to the lower levels. This should be followed by a spring treatment of parathion at 5 lbs. per acre just prior to planting. Successive treatments reduce the surviving symphyliid population so that the chances of reinfestation during the life of the planting is lessened. Since the garden symphyliid's movements are more vertical than lateral, they are not liable to reinfest a field from which they have been eliminated for some time.

Acknowledgment

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