

CHAPTER TWENTY-ONE

Cutworms

Noctuidae

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Insect and hosts

Cutworm larvae feed on the foliage of a large variety of weeds and agricultural crops. Cutworm damage is usually a minor but chronic problem in bareroot nurseries throughout the Pacific Northwest. The cutworm species that damage 1+0 seedlings have not been precisely identified. Susceptible seedlings include Douglas-fir, true fir, pine, hemlock, spruce, and cedar.

Cutworm damage may be confused with:
Damping-off
Fusarium hypocotyl rot

Symptoms

Damage is confined to young, succulent seedlings in the spring. The first sign of damage is cut or chewed needles (Figure 21-1). Then seedlings are clipped off at or near the ground line (Figure 21-2). Sometimes damaged seedlings develop an area of sunken stem tissue around a wound which resembles symptoms of damping-off (Figure 21-3). Other Lepidopteran larvae occasionally cause damage that resembles the feeding of cutworms.

Cutworm damage is frequently diagnosed without finding the insect. Cutworms normally feed at night and hide underground during the day, making them difficult to locate even in seedling beds with obvious damage. A typical cutworm is a dull-

colored, hairless larva, 2 to 50 mm in length (1/16 to 2 inches). Cutworms are generally sluggish if disturbed and often assume a characteristic curled position (Figure 21-4).

Insect biology

Most cutworms that damage young seedlings have similar life cycles. Moths appear in late summer and early fall. Female moths deposit eggs on leafy plants or in the soil, where both eggs and larvae overwinter. Weeds in and around nursery beds provide prime cutworm habitat. In the spring,



Figure 21-1. Chewing on primary needles can be the first sign that cutworms are present in seedbeds.



Figure 21-2. As cutworm damage progresses, clumps of needleless stems appear in seedbeds.



Figure 21-3. Cutworm damage can cause sunken or depressed areas that resemble the symptoms of damping-off.

young larvae move into nursery seedbeds to feed. Cutworm larvae readily move from one site to another; this may explain their appearance even in seedbeds that were fumigated in the fall. Cutworm populations fluctuate greatly. Damage to seedlings can be high one year and nonexistent the next.

Cutworm damage appears:

1+0

Late spring through fall

Loss potential

Cutworm numbers are normally low in bareroot conifer nurseries, and their damage is usually not extensive. Cutworm feeding typically affects only a small portion of 1+0 beds at several locations within a nursery. In some years, however, cutworms are very abundant and widely distributed in seedbeds. Cutworms feed voraciously; a single larva can destroy many seedlings. Cutworm larvae also can be found

on the foliage of older seedlings, but their feeding does not cause significant damage.

Management

CULTURAL

Aggressive weed control eliminates cutworm breeding sites within the nursery.

CHEMICAL

Insecticides such as diazinon and esfenvalerate are effective against cutworms. Beds of 1+0 seedlings should be examined weekly for damage symptoms for 6 to 8 weeks after germination. Areas with cutworm feeding should be marked for treatment. Since these areas are typically small, insecticides can often be applied with a small portable sprayer. Treatments applied in the late afternoon may be most effective because larvae are active only at night. Young, succulent seedlings are sensitive to chemical damage, so it is important to select insecticide formulations with a low risk of phytotoxicity.

Selected references

- Furniss, R.L.; Carolin, V.M. 1977. Western forest insects. Misc. Publ. No. 1339. Washington, DC: U.S. Department of Agriculture, Forest Service.
- Palmer, M.; Nicholls, T. 1981. How to identify and control cutworm damage to conifer seedlings. Leaflet HT-51. U.S. Department of Agriculture, North Central Forest and Range Experiment Station. 5 p.
- Sutherland, J.R.; Shrimpton, G.M.; Sturrock, R.N. 1989. Diseases and insects in British Columbia forest seedling nurseries. FRDA Report, ISSN 0835-0752; 065. 85 p.



Figure 21-4. Typical cutworm larva in a curled position, with pupa. Mature larvae typically are 35 to 45 mm (1-3/8 to 1-7/8 inches) long.