Monitoring techniques:
Soap flush

Detects the following pests:

- Black cutworm larvae
- Sod webworm larvae
- Black turfgrass ataenius adults
- Billbug adults
- Earthworms
- Armyworms
- NOTE: This method will NOT detect white grubs (chafers, black turfgrass ataenius, Japanese beetle, etc) and will NOT detect the larvae (grubs) of billbugs

Black cutworm larvae emerging from thatch following a soap flush

PROCEDURE:

To prepare a soap solution, there are two approaches: for monitoring of small areas, using the watering can solution (#1 below). For monitoring of larger or multiple areas, consider use of the hose-end sprayer method (#2 below).

- Beginning in late Spring, when average air temperatures begin to exceed 55F (13C), keep an eye out for signs of caterpillars: feeding holes (Figure 3), bird activity, or dew trails (by walking over the surface of the turf at night and early morning, cutworms make a visible trail when there is dew). Use signs of early cutworm damage as a trigger date for beginning your caterpillar sampling program. Continue monitoring throughout the spring and summer, until average air temperatures begin to cool off, dropping below 55F (13C).

- Purchase liquid dishwashing soap such as Lemon Joy, Ivory Clear or Ultra Dawn. These have been shown to cause the least damage to turf. Avoid Palmolive liquid dishwashing soap, as this sometimes may cause damage to turf.
- Prepare a solution according to #1 (watering can method) or #2 (hose-end sprayer method) below.
- Apply soap solution (using either a water can, Figure 1, or hose-end sprayer, Figure 2) to an area 1 square yard (0.9 meters squared). A sampling square with these dimensions can easily be assembled from PVC pipe (see Figure 1).
- **Watering can method:** For use when monitoring small areas
- Add 1 oz (two tablespoons) of liquid dishwashing soap to 2 gallons of water (30 ml soap per 7.6 liters of water)
- Apply to a one square yard area, as shown in Figure 1. The turf and thatch should be well drenched with the soap solution until some suds begin to appear.
- Cutworm and armyworm larvae and black turfgrass ataenius adults will surface within 10 minutes. Sod webworm larvae may take up to 15 minutes to surface.

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2) Hose end sprayer method

- Prepare at least one gallon of a solution that contains two parts water to 1 part dishwashing liquid. If you plan to prepare one gallon of solution, you would need 86 oz (2.6 liters) of water and 42 oz (1.3 liters) of dishwashing liquid. It is necessary to dilute the dishwashing liquid in this way BEFORE adding it to a hose-end sprayer because it is too thick for spraying and mixing in its unaltered state.
- Obtain a hose-end sprayer such as the Gilmour Insecticide and Fertilizer sprayer (Figure 2). When using the 2:1 solution of Lemon Joy described above, set the dial of the Gilmour sprayer to 1 tablespoon.
- Apply to a one square yard area, as shown in Figure 2. The turf and thatch should be well drenched with the soap solution until some suds begin to appear.
- Cutworm and armyworm larvae and black turfgrass ataenius adults will surface within 10 minutes. Sod webworm larvae may take up to 15 minutes to surface.

WARNING: Soap solution can damage turf if used at rates higher than specified above

Figure 1. Application of soap solution with a watering can. PVC pipe was used to construct this sampling square.

Figure 2. Application of soap solution with a hose-end sprayer.