WHO HAS BEEN CHEWING through our irrigation tape? A grower contacted us after detecting a large number of irrigation leaks of uncertain origin.

The grower found holes in the tubes where the leaks had occurred. Many of the holes showed frayed edges and were less than 1 millimeter wide (see Figure 1), similar to a prior report of wireworm damage. This occurred with drip tape from multiple manufacturers.

We searched the literature for answers and found that there are just not very many documented cases of drip tape damage from pests in the Pacific Northwest. Thus, we had to widen our search to find instances of these pests causing damage. We also wanted to learn how the pests typically are being handled on those occasions when they are encountered.

Below are the commonly reported culprits, the associated damage from each, and some recommendations or ideas for managing each pest.

You can find additional photos of rodent and insect damage online at www.itrc.org/reports/driptapeguide.htm.

Wireworms
The damage from wireworms (Conoderus exsul) is frayed on the edges and almost perfectly circular, as opposed to damage from other arthropods. This pest has been known to chew through drip tape in Hawaiian sugar cane fields.

Researchers tested the application of dieldrin, an insecticide, and were able to reduce the damage. 1, 5

Fire ants
Ants (including fire ants, Solenopsis geminata) have smaller mandibles than other insects. Consequently, they leave comparatively smaller and more felt-like holes. Ant damage has been observed at the periphery of the emitter orifice in Hawaiian sugar cane fields. The pest can be managed by using emitters with ridges that are smaller than the ant’s head (see Figure 1). This prevents...
Testing the waters

Caterpillars
Caterpillars (such as the legume caterpillar, *Selenisa sueroides*) drill through tubes to find a pupation site in the hollow of the tube. They have damaged PVC “spaghetti” tubing in Florida citrus groves, leaving 2 ½–3-millimeter holes. The best remedy is to remove the host vegetation for these pests if possible. The damage to the tubes has also been reduced experimentally by applying a Teflon coating.2,7

Weevil larvae
The characteristic damage from weevil larvae (such as *Naupactus leucoloma*) is sub-oval in shape, measuring ½–2½ millimeters, and it shows grooves and scratches from the larvae’s symmetrical mouth hooks. Weevil larvae (such as *Naupactus leucoloma*) is sub-oval in shape, measuring ½–2½ millimeters, and it shows grooves and scratches from the larvae’s symmetrical mouth hooks. This damage has been seen in alfalfa aka lucerne fields in Australia. The idea of making the soil too moist for the larvae’s survival has been mentioned for further exploration.4

Crickets
The large mandibles of crickets (Gryllidae family) causes shredded edges that are pointed outwards. Mole crickets and white grubs both leave damage along the

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**Figure 1.** Damage with frayed edges typical from insects (A), potential rodent damage with scratch marks (B), mechanical puncture (C). Photos by C. Alba

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edge of tubing that is V-shaped. It is recommended to remove trash and debris near fields to lessen the presence of this pest.6

Vertebrates
Gophers, rats, mice, squirrels and other rodents can damage drip tape in many places. The resulting holes will be much larger than for the other pests mentioned here. Sometimes the shape of the teeth or jaw will be evident in the damage.

There’s a lower incidence of damage from rats and mice on drip tubes with 15 mil (0.015 inch) thickness than 4 or 8 mil (0.004, 0.008 inch) thickness.6

Caelin Alba was an undergraduate student studying irrigation tape damage, and spotted wing drosophila-Botrytis interactions at the USDA Agricultural Research Service (ARS), Horticultural Crops Research Unit (HCRU), Corvallis, Oregon. Jana Lee is a research entomologist studying pest management in small fruits and ornamentals at the USDA ARS HCRU, Corvallis, Oregon. She can be reached at jana.lee@ars.usda.gov.

References