



CMG GardenNotes #554

Earthworms and Nightcrawlers in the Home Lawn

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Earthworms and nightcrawlers can be considered beneficial in lawns because they aid in the decomposition of turfgrass thatch and grass clippings, which helps to recycle nutrients and organic matter into a lawn's soil. The tunneling and burrowing caused by earthworm activity provides a natural cultivation effect which helps oxygen and water to enter the turf root zone more easily.

Earthworms are sometimes regarded as pests because their burrows and ejected waste material, called castings, can cause a lawn surface to become anywhere from slightly to extremely bumpy. The bumpy, uneven surface can be difficult to mow and walk on. Extreme earthworm activity can sometimes cause lawns to become less dense, especially when earthworms are active in shady parts of the landscape.

Several species of earthworms are found in the U.S. The nightcrawler, *Lumbricus terrestris* Linnaeus, and the red earthworm, *Lumbricus rubellus* Hoffmeister, are the most common larger species. Smaller species belong to the genera *Allobophora* and *Eisenia*. Earthworms are generally found in the top twelve inches to eighteen inches of the soil because this is where food is most abundant. The worm ingests soil and organic matter that is swallowed and ground in the gizzard. The castings are used to line the burrow or are deposited on the lawn's surface, at the burrow's entrance, which causes the lawn's surface to become bumpy. Earthworm activity is greatest when soil is warm and moist, becoming active when soil thaws in the spring. The worms will move deep into the soil if it becomes dry during the summer.

Pesticide Use and Earthworms

Compared to turf pesticides used during the 1930s to the 1970s, those used on lawns today are unlikely to kill, discourage, or otherwise negatively affect earthworm populations. Applications of insecticides, with the goal of reducing or eliminating earthworm activity, will not affect earthworms and are NOT recommended. When used as recommended, label rates, herbicides and fungicides will not adversely affect earthworms in lawns.

Reducing Earthworm Activity in Lumpy Uneven Lawns

In many lawns earthworm activity can cause the surface to become mildly to excessively lumpy and uneven. Where earthworm populations approach nuisance levels, some measures can be taken to discourage activity or to reduce the impact of earthworm activity on surface smoothness.

- Core cultivation of the lawn and spreading of the plugs throughout the lawn may cause some leveling of a severely bumpy surface.
- The use of heavy rollers to flatten the lawn surface can be effective. However, heavy rolling is likely to cause soil compaction and should be followed by core cultivation.
- Topdressing (spreading a thin layer of soil or other material) the bumpy lawn with soil/sand is not recommended as a way of smoothing the surface. Introducing layers of soil that differ from what is already present in the lawn can cause problems for water and air exchange on the lawn's surface. The creation of layers and interfaces on the lawn's surface can result in poor rooting and can complicate lawn irrigation because water uptake can be seriously reduced by soil layering. Applications of compost, on the other hand, can be useful as a temporary aid for smoothing the lawn's surface.
- Earthworms prefer moist soil. Less frequent irrigation, which allows the soil surface to dry out between irrigation events, may reduce surface activity of the earthworms.
- Dethatching mowers, also known as power rakes, can be used to level the earthworm mounds. Adjust the power rake so that the teeth operate low enough to shave off the tops of the worm mounds, but not so low that the crowns and roots of the grass plants are pulled up. It is best to do this early in the spring, before the lawn has begun greening up.
- Applications of sulfur, ammonium sulfate, ammonium chloride, lime, gypsum, or other fertilizers will NOT reduce earthworm activity.
- Lawn care operators may not, by law, apply any pesticide for the purpose of controlling earthworms.
- Employees of Colorado State University may not recommend any pesticide application for the purpose of controlling earthworms in any turf area.

The presence of earthworms in the home lawn is an indicator of a healthy soil environment. Earthworms aid in the breakdown of thatch and other organic matter and create tunnels, which promote water infiltration, oxygen movement, microbial activity, and deeper grass rooting. Rich in nutrients, their castings are a combination of minerals moved from deep in the soil and from their main food sources: grass clippings and thatch. Although the bumpiness caused by earthworm mounds can be annoying, the homeowner should consider the benefits provided to their lawn's health and avoid the temptation to use pesticides to reduce or eliminate earthworm populations in the lawn.

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