



CMG GardenNotes #554

Earthworms and Nightcrawlers in the Home Lawn

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Earthworms and nightcrawlers are considered beneficial 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 that is much more effective than that experienced with mechanical core cultivation/aeration equipment. These tunnels help oxygen and water to enter the turf root zone more easily.

Unfortunately, earthworms are regarded by many homeowners to be pests because their burrows and castings can cause a lawn surface to become anywhere from slightly to extremely bumpy.

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 *Allolobophora* and *Eisenia*. Earthworms are generally found in the top 12" to 18" 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 ejected material (called castings) is used to line the burrow or is deposited at the entrance (on the lawn surface). 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.

Pesticides and Earthworms

Preservation of a healthy earthworm population is important for thatch and compaction management in turfgrass systems. When insect, disease, or weed problems occur and a pesticide application is deemed necessary, it is important to select products that have the least detrimental effect on earthworm populations. Some pesticides can cause severe and long-term reductions in earthworm numbers. Most earthworm species grow slowly, live for several years, and have low reproductive rates. Earthworm populations may take many months or years to

recover following intentional or non-intentional pesticide applications that reduce worm populations.

To reduce detrimental effects of pesticide use on earthworm populations in lawns:

1. Apply pesticides only when needed; eliminate preventive applications whenever possible.
2. Use spot applications of pesticides.
3. Select products that are least injurious to earthworms and do not exceed labeled rates.
4. Avoid pesticide applications when earthworms are near the soil surface (soon after a rain or irrigation).

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.

1. Core cultivation of the lawn and spreading of the plugs throughout the lawn may cause some leveling of a severely bumpy surface.
2. The use of heavy rollers to flatten the lawn surface can be effective. Heavy rolling is likely to cause soil compaction. Heavy rolling should be followed by core cultivation.
3. Topdressing (spreading a thin layer of soil or other material) the bumpy lawn can provide some relief. Appropriate materials might include good quality compost, composted sewage sludge, or soil from an adjacent vegetable garden or flowerbed. Spread ½-1 inch of material on the lawn and rake it into the grass canopy; repeat every 1-2 weeks, until surface is acceptably level. Sand (on a clay soil), peat moss, sawdust, or wood shavings are not good topdressing materials because they will disrupt water movement into the soil and may cause nutrient deficiencies to occur.
4. Earthworms prefer moist soil. Less frequent irrigation that allows the soil surface to dry out between irrigation events may reduce surface activity of the earthworms.
5. 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.
6. Earthworms are generally intolerant of acidic soils ($\text{pH} < 6.0$). On some soils (those in the eastern, Midwest and southern US) the use of sulfur, ammonium sulfate, ammonium chloride, or other acidifying fertilizers can reduce worm activity. However, it important to note that *the pH of most soils in Colorado lawns can NOT be easily acidified by fertilizer application.*

7. Lawn care operators may not apply any pesticide for the purpose of controlling earthworms.
8. Employees of Colorado State University Extension 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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- o For additional information on lawn care, refer to csuturf.colostate.edu.
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