

Earthworms are good for the Soil?
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Have you ever wondered why some farmers are adamant about their earthworm populations? Every year they go out to their fields armed with a shovel and dig holes to count their numbers. What is so important about those little worms?

Earthworms are not native to North America. Europeans inadvertently brought them over in pots and the worms spread throughout the soil. There are over 3,000 species of earthworms, but only a half dozen or so are important to cultivation. The night crawler is the largest and likes soils that are heavy in organic matter, such as lawns and prairies. When the soil is cropped, the common field worm and all its variants become more common. Both these worms are quite active and feed by bringing organic debris from the surface down into their burrows. In a well-populated soil, earthworms can recycle 8,000 pounds of soil per acre per year!

Earthworms create macro pores, which positively affect water infiltration and root growth. Their castings improve microbial growth, nutrient content and soil structure. Earthworm casts contain nitrate, phosphorous, magnesium, potassium and calcium. Earthworms use a lot of water, since they produce 60 percent of their body weight in urine every day. Their urine is nitrogen-rich and provides an excellent fertilizer, easily producing around 50 lbs of N/acre! The organic material bound to earthworms is about one ton/acre. This is released gradually as the worms die in the dry summer, providing a great nutrient reservoir for our plants.

The life of an earthworm is hard. Their bodies are about 70 percent protein; rich food for many predators. Their major enemies are insect-eating birds, like robins. If you watch a robin hunt, it pauses, cocks its head and then hops. The robin's ears can actually hear the earthworm moving underground. The earthworm, although sightless and ear-less, can feel the vibrations of the bird on the surface. It's the deadly game of survival. When you till the ground, the earthworms flee the tiller's vibration--the active earthworms aren't usually chopped by the tiller. However, tilling the soil does reduce the earthworm population; not so much from killing them, but because tilling aerates the soil. Aeration in turn reduces the organic matter that the earthworm uses as food. Adding manure, green manure or compost will help provide food to earthworms and replenish what is lost from tilling.

Soil type can also effect earthworm populations. Clay to loamy soils have less temperature and moisture change and a larger food source than sandier soils; and therefore have higher earthworm populations. The population of adult earthworms is highest in the spring, and decreases in the dry summer months. In the hot dry months of summer, you often don't find many earthworms. In the cooler, wetter fall there is an increase in young worms. To start the spring with a high number of earthworms, it's important to protect the young and the eggs over winter.

Earthworms can freeze solid and still live if the freeze is slow and they don't thaw out and refreeze often. Any form of ground cover, cover crops or residue allows more earthworms to survive the winter. Fields that are plowed and left bare are almost devoid of earthworms in the spring. Luckily, earthworms have a high reproduction rate.

To grow a good earthworm crop, feed the soil. This means maintaining or building your soil organic matter content, keeping some residue on the soil surface (especially over winter), adding manure or

compost, and reducing your tillage. These practices also increase soil structure, diversify soil microbial communities, and sustain long-term productivity of the soil. It's a win-win situation for everyone.

Source: Jodi DeJong-Hughes, University of Minnesota Extension Service cropping specialist.

As always if you have questions about this topic or other horticultural topics feel free to call on me at the Pennington County Extension Office at 605-394-2188 or email to *ricky.abrahamson@sdstate.edu*.