



For Immediate Release

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“Underground Gardening” by Earthworms is Spreading One of the Nation’s Most Irritating Weeds

– *Research shows more than two-thirds of giant ragweed seedlings emerge from earthworm burrows*

(LAWRENCE, Kansas) — Scientists have discovered that “underground gardening” by earthworms is contributing to the spread of giant ragweed, a plant that causes sneezes and sniffles and is one of the nation’s most irritating weeds.

“Earthworms help ragweed thrive by systematically collecting and burying its seeds in their burrows,” said weed ecologist Dr. Emilie Regnier of Ohio State University. “In fact, we’ve found that more than two-thirds of all giant ragweed seedlings emerge from earthworm burrows.”

Though giant ragweed (*Ambrosia trifida*) is best known for the prolific blanket of pollen it produces to plague hay fever sufferers, it also takes a costly toll on crops. Throughout the Midwest, the weed is especially a problem in corn and soybeans, causing yield losses of 50% to 75% when left unchecked.

Scientists have long been mystified by the rapid spread of giant ragweed since it produces relatively few seeds. Now research shows the lowly earthworm is one of the culprits.

In a study funded by the USDA’s Cooperative State Research, Education and Extension Service, Regnier and her fellow scientists examined the impact of earthworms on giant ragweed. The study focused on *Lumbricus terrestris* worms – commonly known as nightcrawlers.

Until now, nightcrawlers have had a stellar reputation among growers since their burrows promote water filtration and their eating habits help make nutrients more available to crops. The worms feed on plant litter they collect from the soil surface and store inside their narrow, underground homes. As the litter softens and decays, it improves the availability of nutrients in the soil. Now, though, it appears there is also a dark side to the earthworm's work.

"Our study shows that nightcrawlers are some of nature's most effective weed farmers," Regnier said. "They actively forage for weed seeds, pull them into their burrows and then 'plant' them under up to several inches of soil."

In fact, researchers found that worms collected and buried more than two-thirds of the seeds dispersed by a stand of giant ragweed. Each burrow examined in the study contained an average of 127 ragweed seeds, or 450 seeds per square foot.

While nightcrawlers collect seeds from other plants as well, giant ragweed is definitely on their preferred list.

"We found the worms collect and bury 10 types of seeds in the same size range," Regnier said. "But they have three special favorites – giant ragweed, bur cucumber (*Sicyos angulatus*) and sunflower (*Helianthus annuus*)."

Lead researchers on the earthworm project include Regnier, weed ecologist Dr. Kent Harrison and entomologist Dr. Clive Edwards, all of Ohio State University.

"Research that helps us understand the accumulation of weed seeds in the soil and how weeds are spread is critical to the development of new, effective management strategies," said Lee Van Wychen, policy director, the Weed Science Society of America. "Giant ragweed should be vigorously controlled in fields and gardens in order to minimize further seed production and protect plant growth and crop yields."

About the Weed Science Society of America

The Weed Science Society of America, a nonprofit professional society, was founded in 1956 to encourage and promote the development of knowledge concerning weeds and their impact on the environment. The Weed Science Society of America promotes research, education and extension outreach activities related to weeds, provides science-based information to the public and policy makers, and fosters awareness of weeds and their impacts on managed and natural ecosystems. For more information, visit www.wssa.net.

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