

IMPACTS OF AN EXOTIC INTRODUCED EARTHWORM ON A NATIVE WEED:
COLLECTION AND BURIAL OF GIANT RAGWEED AMBROSIA TRIFIDA SEEDS
BY LUMBRICUS TERRESTRIS

Abstract

Lumbricus terrestris is an exotic lumbricid earthworm that has been introduced from Europe into the United States. It is well known for its beneficial effects on agricultural crop production. Giant ragweed (Ambrosia trifida), a native U.S. annual plant, has become a major weed of field crops in the U.S., Europe, and Asia. Giant ragweed seeds are deposited on the soil surface and germinate only if they are buried rapidly before they can be preyed upon by birds and mice. We present data to show that L. terrestris earthworms bury giant ragweed seeds preferentially in field crops.

In two field experiments more than 90% of the A. trifida seeds, deposited on the soil surface, were collected and taken into L. terrestris burrows within 20 days of deposition. This compares with less than 10% taken and buried when no L. terrestris were present. By the following spring, more than half of the seeds taken into burrows, emerged as healthy seedlings, after they had been buried at depths down to 10 cm. Although more smaller seeds were taken by L. terrestris than larger seeds, size was not a major factor affecting overall germination success. Thus, foraging and burial of giant ragweed seeds, by introduced L. terrestris populations, seems to be an important mechanism affecting the weeds' successful establishment in agricultural crops.