

# ORGANIC LIVING

By

Robert Rodale

## EARTHWORMS TO THE RESCUE!

Wrestling with a problem of contaminated pulp and paper sludge, a Japanese environmental research firm recently called for reinforcements — earthworms! The wiggly little creatures were found to thrive on paper sludge — cleaning and purifying it as it's digested and passed through their bodies. One million earthworms were promptly airlifted from Osaka to Tokyo to tackle that assignment.

To measure pollution near a busy highway, Fish and Wildlife Service Biologist Charles Gish wielded a shovel and started digging . . . for earthworms. Specimens dug up at various distances from the road were collected, ground up and analyzed for lead, nickel and cadmium content. The nearer the worms were to road traffic, the more heavily they were contaminated with traces of those dangerous metals.

In West Germany, earthworms are protecting apple orchards against fungus diseases which are spread by fallen leaves, bark and broken twigs. Hungry earthworms quickly decompose that debris before fungi can gain a toehold, according to Dr. W. Kennel of Hohenheim University's fruit research station. The worms also drag down into their tunnels twigs of considerable length.

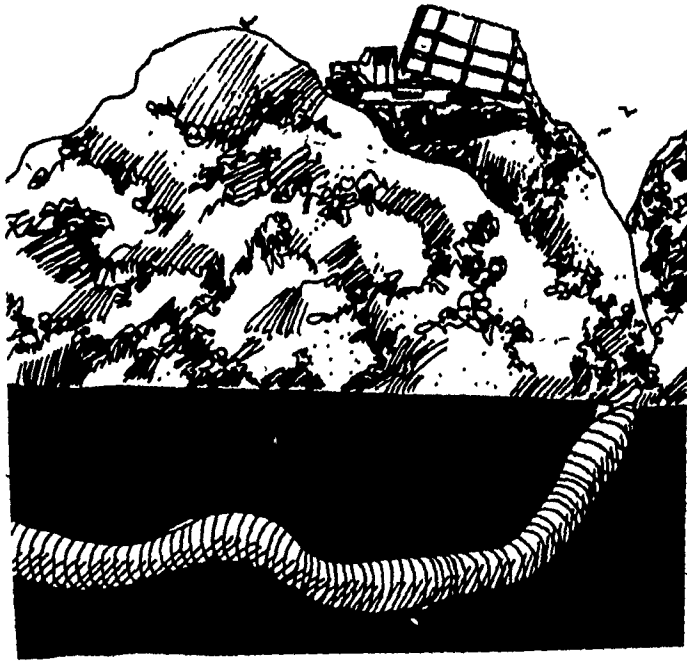
Unfortunately, this biological control method fails when poisonous pesticides are used in the orchards. Sprays kill the worms.

To some enthusiastic researchers, no job is too big for the tiny earthworm. In Ohio, worms have been tested as restorers of desolate strip-mined land. By digesting decaying leaves and then mixing them into the coarse, rocky spoilbanks, earthworms may slowly and laboriously rebuild the topsoil.

Even more grandiose schemes are being proposed. Worms might possibly solve the urban solid waste problem by eating garbage, and excreting high-quality compost. It's been estimated than 100 tons of worms could process the garbage from a community of 75,000 people.

Such startling plans for harnessing the earthworm come as no surprise to organic gardeners and farmers. They have known for years that the eyeless creatures have fantastic power to "move mountains" in their slow but systematic way.

Earthworms are tremendously efficient organisms



because, like fish, they are cold-blooded. They don't have to burn up food energy maintaining their body temperature at a certain level, but adapt their temperature largely to their environment. All their work output goes to moving earth through their efficient digestive system.

Because they digest organic matter (such as rotten leaves and other dead vegetation) and turn it into humus, worms are first-rate soil-builders and compost makers. Their wastes or castings contain nitrates, phosphates and potash that plants need. One worm will produce its own weight in castings every 24 hours.

"Worms have played a more important part in the history of the world than most persons would at first suppose," said Charles Darwin in his classic book on earthworms. "All the vegetable mould (topsoil) over the whole country has passed many times through, and will again pass many times through, the intestinal canals of worms."

Sir Albert Howard, founder of the organic method of agriculture, put it more bluntly: "The earthworm is the gardener's manure factory."

Earthworms aerate and physically mix the soil as they

burrow. Their tunnels keep the ground well-ventilated, and make it easier for rain to penetrate. Also, the worms' dead bodies furnish a considerable amount of nitrogen fertilizer. That's not insignificant if you realize that one acre of rich farmland fertilized with manure often contains more than a million worms at any one time.

Earthworms can be intensively bred indoors or outdoors in boxes or shallow pits. They multiply rapidly. One mature worm will beget more than 150 worms each year.

You can order "starters" from an earthworm hatchery. Some large breeder operations have well over 50,000 square feet of worm beds.

Many people with small homesteads are getting into the earthworm business on a part-time basis. "The worm business won't make anyone rich, but it's a good, honest way to make some money," says Steve Dubie, who runs Steve's Worm Farm in Rogue River, Oregon.

"For the first couple of years," he says, "our customers were fishermen and bait outlets interested only in night crawlers. But this changed. Now our customers include farmers, gardeners, orchardists . . ."

With a capital outlay of \$150 for breeder worms and some lumber, a backyard "earthworm farmer" can raise \$5,000 worth of worms.

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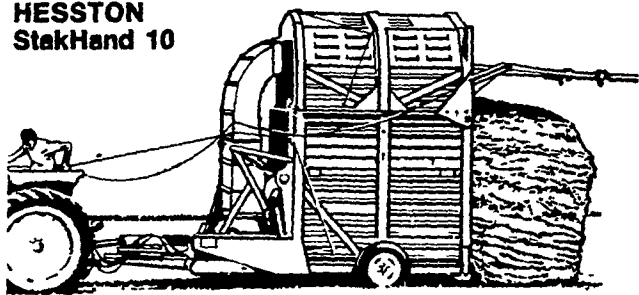
Earthworms are just one part of any good soil-building program. The keys to fertility are clearly explained in the 48-page guide, "Best Ways to Improve Your Soil." You can get a copy by sending fifty cents to Robert Rodale, Organic Living, in care of this newspaper. Be sure to ask for the booklet by name, and please allow three or four weeks for delivery.

(Note: Nutritionists and other medical scientists may or may not agree with the assertions made by Mr. Rodale. The views expressed herein are those of the columnist and do not necessarily reflect the opinions of this newspaper.)

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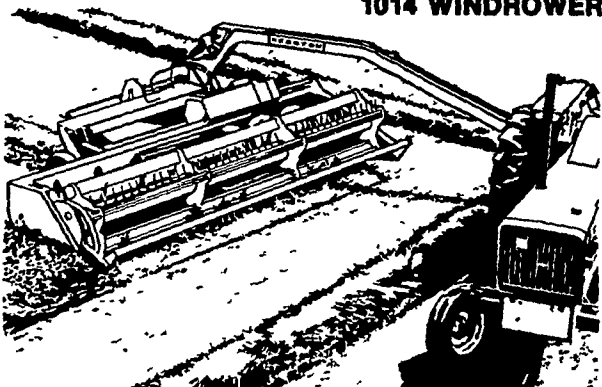
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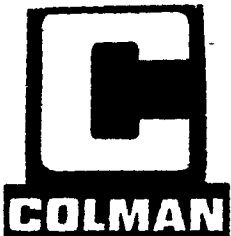
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