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Harnessing The Earthworm
By SIR ALBERT HOWARD, C.I.E.
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AN important labour-saving discovery in the preparation of high-quality compost has just been made by Mr. J. I. Rodale, the Editor of *Organic Gardening*, at his farm near Emmaus, Pennsylvania, U.S.A. It consists in using a culture of the hybrid earthworm, originally created by the late Dr. Oliver on his experimental farm at Los Angeles, for completing the breaking down of a compost heap after the first phase of intense fermentation is over. The earthworms work downwards through the mass and quickly convert it into first-grade compost ready for distribution on the land. Two advantages are thus secured: (1) all turning of the heap is unnecessary; (2) the compost consists of ready made food materials of the very highest quality for the crop. Much labour is thereby saved: there is none of that delay which now occurs between the application of ordinary compost to the soil and its utilization by the crop.

Dr. Oliver's Hybrid Earthworm

In 1927 Dr. Oliver's attempts to combine the character of the manure worm (known everywhere as the brandling) with those of the ordinary orchard worm were made. He wished to include the characteristics of these two species in a new type. The brandling always works near the surface and deposits its castings not on the ground but near the root zones. The orchard worm, on the other hand, deposits a good deal of its castings on the surface and burrows deeply. These two species were placed in a special soil mixture made up of one-third soil, one-third vegetable humus, and one-third decayed animal matter. The worms having copulated, the egg capsules were extricated from the soil and placed in a separate container. After hatching and when the stage of maturity was approached, the weaker types were discarded and about a thousand hybrids were selected. These mated and produced fertile eggs.

After five years' intensive work on these lines a satisfactory cross was obtained which Dr. Oliver christened *Soilution*. It proved to be a prolific breeder and an active type which never deposited its castings above the surface. Most, if not all, the earthworm farms in the U.S.A. now breed and distribute this hybrid type.

Mr. Rodale has also sent me details of two of these earthworm farms which specialize in cultures of these *Soilution* worms. They are: (1) The California Earthworm Farms, 6164 North Figueroa Street, Los Angeles, California, and (2) The Ohio Earthworm Farm, Fox and Warner Lanes, Worthington, Ohio.

What is needed in this country is a full-scale demonstration of these hybrid types as labour savers in compost making, followed by the establishment of an up-to-date earthworm farm for the production of these animals for the growing army of compost gardeners and farmers in Great Britain and Eire. It would then be possible to prepare earthworm casts on a colossal scale and to provide our crops with the perfect organic manure.

Earthworms and Sheet-Composting

The conversion of the compost heap into worm casts is only one item of the work the earthworm can do. There remains the important section of sheet-composting, where a suitable mixture of vegetable and animal wastes is converted into humus between two crops in the soil itself. For this purpose we need a soil teeming with earthworms and ample food for these creatures. In return they will help to provide our crops with plenty of perfectly balanced organic food materials, do much of our cultivation for us, besides looking after such important matters as soil aeration and drainage.

As the casts of the earthworm are particularly rich in available phosphate and potash, and also contain more soluble nitrogen than the soil in which they are derived, it might easily prove that the money now spent on artificial manures and poison sprays would be much better laid out the provision of food and working conditions for the lowly earthworm. In time these animals are certain to be regarded as one of the most important and most contented groups of our and workers. Their method of expressing dissatisfaction with their working conditions is to go on strike --they leave the soil of the farmer or gardener high and dry to the tender mercies of the manure bag. They do not return till the prodigal comes to himself, repents and restores the humus content of his land.

Postscript: Just as this number was passed for press the results of an interesting experiment in earthworm farming--using a culture of brandlings--reached me from Mr. Charles Forman, Loddon Court, Spencer's Wood, Reading, who writes:

'I have taken down and examined one end of the compost pile in which I had placed the brandling cultures. This pile is 10' x 5' x 2-1/2 and has square sides as I made it inside four hurdles. I had intended to keep the depth of the pile at 36 inches but it settled down to 30. The amount of material is about 5 cubic yards. I built this pile on July 1st, introduced the worm cultures on September 3rd and took down one end of it on November 3rd. The total time involved was thus about 17-1/2 weeks. The worms have worked completely through the mass and worked it down very finely leaving no sign of the layers of material used in building the pile. There is no doubt in my mind that this material will go through any make of manure distributor without clogging it, as all the fibre has either disappeared or is so short and rotted that it should give no trouble in this respect.'

Mr. Forman has been asked to prepare a detailed report on his work for the next issue of *Soil and Health*. It is certain to make interesting reading.