

AGRICULTURAL EXPERIMENT STATION

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RAISING FISHWORMS for BAIT

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Outdoor worm beds. A suitable soil is the first requirement for successful worm beds. A sandy soil is not suitable for the growth of either the common earthworm or the much-prized English, or red, worm. Where sandy soil occurs, a clay loam or clay soil must be provided.

The simplest and most common type of worm bed is that found beside a leaking hydrant or other constant source of water supply. The productivity of this type of bed depends entirely upon the natural food available in the soil and it is usually unsatisfactory.

A much more productive type of worm bed is formed by the application of dishwater to the soil, which furnishes both food and moisture. This type varies from the small bed, to which is carried dishwater, to the relatively large bed supplied with the water piped from the kitchen sink. In constructing this latter type of bed, the waste from the kitchen sink should be carried a distance of at least 50 feet from the house through tile or pipe and then emptied into a long shallow V-shaped ditch lined with boards. This ditch should have only a very slight downward slope, thus spreading the dishwater over a relatively large area.

After the soil has become saturated with dishwater, 100 or more English, or red, worms are placed under the boards. It usually requires about one year for the worms in this type of bed to become sufficiently numerous for use.

The worms congregate in large numbers immediately under the boards, and, when the fisherman decides to go fishing, he merely lifts up a board and scoops up several handfuls of worms from the top of the soil. This is worm digging deluxe! It enables the owner of such a bed to smile pityingly, to shake his head sadly, and view with alarm those who insist upon spading up an acre or so for a dozen worms.

While this is the most satisfactory type of worm bed, because it requires practically no attention, it has one bad feature--a sour odor, which, of course, no true fisherman can ever smell. However, wives can, and perhaps an unsympathetic neighbor may also. Thus, this type of bed is not suitable for use in congested city districts, and in fact can be owned by only a few fortunate fishermen.

Raising fishworms in tubs. After considerable experimentation, a method has been developed whereby individual fishermen may raise their own worms in the garage, basement, or a vacant room. This is done in ordinary galvanized wash tubs, metal drums cut into lengthwise, old bathtubs, or similar water-tight containers.

A tub 2 feet in diameter and 10 inches deep should produce approximately 3,500 to 5,000 worms of fishing size per year. As some should be left to breed, the fisherman should expect to use only about 3,000 worms from one tub per season. The number of tubs necessary can be figured in the following manner: approximately 100 worms are required per fisherman per trip. Assuming 50 trips per year, a total of 5,000 worms would be required. He would, therefore, need to keep two tubs, or one with twice the area of the tub previously discussed. It is recommended that a minimum of two tubs be kept, using the worms from one for several months and then using them from the other. In this way each tub remains undisturbed for a considerable period and reproduction seems to be more satisfactory under these conditions.

Each tub of worms requires 1 pound of vegetable shortening or lard and 2 pounds of cornmeal per month. The cost of food, therefore, is approximately 20 cents per tub per month, or \$2.40 per year. With a production of 5,000 usable worms per tub,

*Formerly Mimeograph Series.

the cost of the food required to raise 100 worms is approximately 5 cents.

Preparation of container. Tin or galvanized tubs or similar containers should be painted on the inside with hot asphalt, acid proof paint, or good house paint to prevent rusting.

Soils. The type of soil used in the tubs is of great importance. Sandy soils cannot be used, apparently because the sharp sand grains injure the digestive tract of the worms. The soil can be tested for sand by rubbing between the fingers. If sharp sand grains are present, the soil is unsuitable. A clay loam or a porous clay is very satisfactory for this purpose. If the soil does not contain considerable organic matter, one-fourth of its volume of dead leaves or rotted straw is mixed with the soil.

Fishworms to be used. Several species of earthworms were tried, but the only one found suitable for this purpose was the small English worm, or red worm, so highly prized by fishermen. These worms reproduce throughout the year under proper conditions and are very prolific. In addition, they will live under a wider variation of conditions than most other species of earthworms. They may be obtained from bait stores or from local fishermen who have private beds. These worms reach maturity in about 6 months, but can be used for fishing 3 to 4 months after hatching.

Food. A wide range of food has been tried. Best results have been secured from the use of a mixture of the cheapest grade of vegetable shortening or lard, and cornmeal. The addition of coffee grounds was without value, contrary to popular opinion. The application of food every 2 weeks was found to give the best growth.

Water. The soil is kept moist throughout, but care must be taken not to add more water than the soil can absorb. After the tubs are started, the addition of water every 2 weeks at the time food is added should suffice. If the soil is too dry, the worms will move down toward the bottom of the tub; if it is too wet, they will all be on the surface of the soil. The amount of water is so regulated that the worms are found throughout the upper 3 to 5 inches of soil.

Procedure. For convenience, the amounts of food and procedure are given here for a

wash tub 2 feet in diameter and 10 inches deep. If larger containers are used, the amount of feed should be increased in proportion to the increased area of soil surface.

Place the painted tub in the basement, the garage, or in any similar protected location. Fill the tub to a depth of approximately 8 inches with the soil and leaf mixture described above. Add sufficient water to make the soil moist throughout. Add 1 pound of cornmeal and 1/2 pound of vegetable shortening or lard and mix with the top 2 or 3 inches of soil. Add 100 or more adult English worms, and cover the soil with a damp burlap bag or strips of wood to prevent evaporation. One month later and every 2 weeks thereafter, add 1 pound of cornmeal and 1/2 pound of lard and mix into the first few inches of soil. At the same time add the necessary water (usually about one quart). No other attention is required. Within 4 to 6 weeks, numerous small worms should be present in the soil and within 6 months the soil should be saturated with fishworms of all sizes.

Removal of worms from tubs. Remove from the tub soil containing worms and throw loosely into a 10-quart bucket. Allow it to stand approximately 30 minutes. Remove the top soil from the bucket and place it back in the tub. The majority of the worms will be found concentrated in the bottom few inches, because of their habit of crawling downward through loose soil. If allowed to stand for a longer period, practically every worm will be found in the bottom of the bucket and handfuls of worms can be taken upon removing the soil above. Worms left from a fishing trip are returned to the tub.

Control of pests. In addition to fishworms, several other animals enjoy the cornmeal and lard diet. These are mites, ants, rats, and mice. The mites are small greyish-white animals about the size of the head of a pin. In case they become numerous, they can be killed by lightly dusting the top of the soil with sulfur dust. A very thin application is sufficient, and it does not injure the worms. Ants can be kept out either by supporting the tub on logs placed in oil or by dusting the floor around the tub with pyrethrum dust whenever the ants appear. If rats or mice become troublesome, the tub may be covered with screen or with other material which does not exclude the air.