

Topic: Species composition, bioecology and importance of earthworms in the Fergana Valley

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Abstract: The types of earthworms and their structure are explained. It was mentioned about the biological significance of the earthworm, what beneficial properties it has for the soil and plants.

Key words: Biohumus, California earthworm, *Nicodrilus caliginosus*, *Oxtoleasium lacteum*, protein.

The earthworm (*Lumbricus terrestris*) is an 8-15 cm long animal, which lives in the soil and is adapted to move in the soil. The head is conical and does not have any growths or sensory organs. Each body joint has 4 pairs of short hairs instead of parapodia. EARTHWORMS, earthworms are the general name of several families of worms belonging to the class of annelids. Its body length is from a few centimeters to 2.5 meters in tropical species. The species found in Uzbekistan do not exceed 15-20 centimeters. The number of rings on the body is from 80 to 450. Each ring has 4 or more pairs of hairs. Feathers provide support for earthworms when they crawl. Special sense organs are not developed, but there are many sensitive cells in the skin. He breathes through his skin. The circulatory system is closed, the heart is not. His blood is red, it contains hemoglobin. The nervous system consists of one supralaryngeal nerve ganglion and several small abdominal nerve ganglions that form the ventral nerve chain. It feeds on decaying organic matter. They live in the soil, and because they come to the surface of the soil after rain, they got the name "Rainworms". A hermaphrodite lays her eggs in a cocoon. Earthworms dig in and soften the soil, allowing air to pass into its deep layers and water absorption; mixes soil layers; accelerates the decay of plant residues; enriches the soil with humus and makes it fertile. Earthworms are especially abundant (more than 300 per 1 square meter of soil) in mixed forests, woodlands, and humid climate regions with black soil. Earthworms are found in the Central Asian region mainly near ditches, in irrigated wet soils. About 1,500 earthworm species are known, including more than 20 species in Uzbekistan. *Nicodrilus caliginosus*, *Octolasion lacteum* are common in irrigated lands. Some earthworms are bred to obtain biological humus. A rain gauge is a device designed to measure atmospheric precipitation (including rain).

Considering the importance of earthworms in increasing soil fertility, farmers are operating in the USA and some Western European countries. Such works are also organized in the regions of our republic. Fruits in soils rich in earthworms are tasty and rich in vitamins. The invention of the microscope by Anton Levenchuk in the second half of the 17th century made a great revolution in soil science. With its help, the incomparable role of small, inconspicuous soil animals in the process of soil formation was revealed only after 100 years by Louis Pasteur.

Biohumus is a high-quality organic fertilizer made from manure, which can be used for all agricultural crops. It contains 40-50 percent dry organic mass, 10-12 percent humus, 0.8-0.3 percent nitrogen, 1.3-2.5 percent phosphorus, 1.2-3.9 percent potassium, 4.5- Contains 8.0 percent calcium and other trace elements.

After the rain, earthworms crawl into organic masses and come to the surface of the earth.

97 types of worms can be found in our country. Only a few species are suitable for feeding. Worms produce a lot of seeds, 4-5 out of 20 seeds survive. The California red worm is very active and aggressive compared to the common "wild" worm. If he has enough food, he will not leave his home. Its length is up to 99 millimeters, its body diameter is 3-5 millimeters, and it spawns every 7 days under favorable conditions. After spawning (up to 20), it lays an egg capsule, and after 14-20 days a new generation is born. Newly born worms reach adulthood after 90 days. Under favorable conditions, one California worm can give birth to 1,500 worms. This type of worm eats its own weight of organic matter every day. 600 kilograms of biohumus and 100 kilograms of protein-rich biomass are produced from one ton of organic waste. Manure, weeds, leaves, tree branches, sawdust, straw, kitchen waste, laundry, aviary, animal waste, cardboard, etc. are worm food. Nevertheless, it is necessary to collect manure and sprinkle water for 4-5 days. As a result, the organic matter heats up and decomposes. If it is advisable to dust the mass with chalk powder, slaked

lime or dolomite flour. Because worms do not like bitter environments. Worms can be kept both indoors and outdoors. Worms can be fed up to 30-100 thousand in the seats. A ton of humus can be prepared in one seat (2×1 m) in a year. For the life of worms, 40 percent of the nutrient substrate is consumed, and 60 percent of biohumus is formed in the form of copromite. Thus, 0.4-0.6 tons of biohumus and about 0.1 tons of worm biomass are obtained from one seat per year. Seats are built on slightly sloping plots so that rain does not accumulate and form puddles. Worms should be protected, especially from bats, they are a formidable enemy. It doesn't matter what day or month you start worming. The best time is spring, autumn and summer. Worms are sensitive to ammonia and high temperature. Therefore, only fermented and cooled manure can be used for feeding. Other organic waste should also be decomposed. Rabbit manure for worm feeding is ready in 5-10 days, horse manure in 3-4 months, cattle manure in 5-6 months. If there is little food, the worms will come out, if there is a lot of food, breathing and gas exchange will be difficult. It is necessary to constantly control the reproduction and development of worms. Worms can be fed in boxes, balconies, basements, and garages. Experiments show that with the help of earthworms, it is possible to turn organic substances into biohumus that can be quickly absorbed by plants in a short period of time. A valuable feature of biohumus is that it is resistant to water washing away with its granular structure. Biohumus contains ten times more nutrients for plants. Let's say that if 500 cattle are kept on a livestock farm, 200 hectares of land can be fed with manure. If this amount of organic matter is used for the production of biohumus, it is possible to feed 1000 hectares of land. 12-15 years ago, high yields of cotton and grain were obtained by preparing biohumus in the livestock complexes of "Aq Oltin" in Altinsoy district and "Pakhtakor" in Shorchi district. It is possible to apply biohumus to vegetable and paddy fields and obtain an environmentally friendly product. Currently, biohumus is being prepared at the small enterprise "Odil Khol" under the leadership of Nasir Ernazarov in the village "Choshiyan" of the "Obizarang" neighborhood of the Uzun district. This enterprise has more than 100 tons of biohumus and more than 60 million pieces of California wormwood. Application of biohumus at the rate of 4 tons per hectare before plowing gives good results, the soil becomes granular, agrophysical and agrochemical properties are improved, plant diseases and soil compaction are reduced, crop yield increases by 15-20%. If farmers increase the number of earthworms in the trenches, the cost of production will decrease.

Earthworms and enchytrids living in the soil have a great impact on soil fertility Ch. Darwin greatly appreciated the importance of earthworms in increasing soil fertility. Earthworms dig into the soil and allow plant roots to penetrate deep into the soil; improves water and air access to it. Due to their activity, soil layers are mixed and softened. Earthworms in one square meter can release 4 kg of soil during one year, and 10 to 30 tons of soil per hectare in the same period.

Earthworms carry the remains of plants into their nests and accelerate their decay. By fertilizing the soil, it accelerates the production of humus. Ular passes the soil through its intestine and excretes it in the form of coprolites. Coprolites protect the soil from erosion by making it structural and granular; improves its moisture absorption. Freshwater bivalves (Tubifex, etc.) pass a large amount of turbidity through their intestines and clean water bodies of decaying organic debris. Kamtukli are also of great economic value as fish food. Red worm (Tubifex) is bred as food for aquarium fish, Eisenia worm (Eisenia) is specially bred to obtain biohumus.

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