

Burlington Community Gardens

Dig in. Eat fresh.

Worm Castings

Worm castings are the richest natural fertilizer known to humans. As little as a tablespoon of pure worm castings provides enough organic plant nutrients to feed a 6" potted plant for more than two months. Worm castings stimulate plant growth more than any other natural product on the market. Unlike animal manure and artificial fertilizers it is absorbed easily and immediately by plants. But Worm Castings don't only stimulate plant growth: they also enhance the ability of your soil to retain water (because of its texture), and it even inhibits root diseases such as root rot.

What Are Worm Castings?

Worm Castings contain a highly active biological mixture of bacteria, enzymes, remnants of plant matter and animal manure, as well as earthworm cocoons (while damp). The castings are rich in water-soluble plant nutrients, and contain more than 50% more humus than what is normally found in topsoil.

Worm castings have a N-P-K ratio of about 3.2-1.1-1.5. It is packed with minerals that are essential for plant growth, such as concentrated nitrates, phosphorus, magnesium, potassium and calcium. It also contains manganese, copper, zinc, cobalt, borax, iron, carbon and nitrogen. However, the best of all is that these minerals are immediately available to the plant, without the risk of ever burning the plant. Remember that animal manure and chemical fertilizers have to be broken down in the soil before the plant can absorb them.

As the organic matter moves through the alimentary canal of the earthworm, a thin layer of oil is deposited on the castings. This layer erodes over a period of 2 months. So although the plant nutrients are immediately available, they are slowly released to last longer. The cocoons in Worm Castings each contain between 2 and 10 eggs that hatch within 2 weeks. This means that the process of decomposition are continued by the young earthworms in the soil, provided that the soil is loose, damp and rich enough in organic matter for the worms to stay alive.

The bacteria in the alimentary canal of the earthworm transforms organic waste to natural fertilizer. The chemical changes that the organic wastes undergo include deodorizing and neutralizing. This means that the pH of the castings is 7 (neutral) and the castings are odorless (they smell like a forest after rain). The worm castings also contain the bacteria, so the process is continued in the soil, and microbiological activity is promoted.

What Can Worm Castings Be Used For?

Worm Castings can be used as an ingredient of potting soil (as plant nutrients) for plants in and around the house. It can also be used as a planting additive for trees, vegetables, shrubs and flowers. When used as mulching material, Worm Castings will ensure that the minerals are absorbed directly into the soil when it is watered. Because Worm Castings will never burn plants, you can use as much of it as you like. In existing perennial borders, vegetable gardens and around fruiting trees and shrubs, apply castings 1 inch deep in spring and work into the soil 3 inches deep.

Benefits of Worm Castings

The humus in the worm castings extracts toxins and harmful fungi and bacteria from the soil. Worm Castings therefore have the ability to fight off plant diseases.

The worm castings have the ability to fix heavy metals in organic waste. This prevents plants from absorbing more of these chemical compounds than they need. These compounds can then be released later when the plants need them.

Worm Castings act as a barrier to help plants grow in soil where the pH levels are too high or too low. They prevent extreme pH levels from making it impossible for plants to absorb nutrients from the soil.

The humic acid in Worm Castings stimulate plant growth, even in very low concentrations. The humic acid is in an ionically distributed state in which it can easily be absorbed by the plant, over and above any normal mineral nutrients. Humic acid also stimulates the development of micro flora populations in the soil.

Worm Castings increase the ability of soil to retain water. The worm castings form aggregates, which are mineral clusters that combine in such a way that they can withstand water erosion and compaction, and also increase water retention.

Worm Castings reduce the acid-forming carbon in the soil, and increase the nitrogen levels in a state that the plant can easily use. Organic plant wastes usually have a carbon-nitrogen ratio of more than 20 to 1. Because of this ratio, the nitrogen is unavailable to plants, and the soil around the organic waste becomes acidic.