



Vermicompost Effect on Growth and Development of Vegetable Crops

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Green revolution can be attained through adopting the technologies such as countless use of synthetic chemicals like fertilizers and pesticides, adoption of nutrient-responsive, high-yielding varieties of crops, greater exploitation of irrigation potentials etc. has boosted the production output in most cases. However, continuous use of these high energy inputs indiscriminately now leads to decline in production and productivity of various crops as well as deterioration of soil health and environments. Vermicomposting is the simple process of producing organic fertilizers. Vermicompost (vermi-compost) is the product of the decomposition process using various species of worms, usually red wigglers, white worms, and other earthworms, to create a mixture of decomposing vegetable or food waste, bedding materials, and vermicast. This process is called vermicomposting, while the rearing of worms for this purpose is called vermiculture. Vermicast (also called worm castings, worm humus, worm manure, or worm feces) is the end-product of the breakdown of organic matter by earthworms. These excreta have been shown to contain reduced levels of contaminants and a higher saturation of nutrients than the organic materials before vermicomposting. Vermicompost contains water-soluble nutrients and is an excellent, nutrient-rich organic fertilizer and soil conditioner. It is used in gardening, sustainable and organic farming.

Method of Application

Vermicompost can be applied in any crop at any stage, but it would be more beneficial if mixed in soil after broadcasting. The rate of application is as:

1. Vegetables @ 10-12 t/ha
2. Field crops @ 5-6 t/ha
3. Flower plants @ 100-200 g/sq ft
4. Fruit trees @ 5-10 kg/tree.

Harvesting:

Factors affecting the speed of composting include the climate and the method of composting. There are signs to look for to determine whether compost is finished. The finished compost would have an ambient temperature, dark color, and be as moist as a damp sponge. Towards the end of the process, bacteria slow down the rate of metabolizing food or stop completely. There is the possibility of some solid organic matter still being present in the compost at this point, but it could stay in and continue decomposing for the next couple of years unless removed. The compost should be allowed to cure after finished to allow acids to be removed over time so it becomes more neutral, which could take up to three months and results in the

compost being more consistent in size. Elevating the maturing compost off the ground can prevent unwanted plant growth. It compost should consistently be slightly damp and should be aerated but doesn't need to be turned. The curing process can be done in a storage bin or on a tarp.

Vermicompost



Advantages of vermicompost in vegetable crops:

1. It Provide excellent effect on overall plant growth encourages the growth of new shoots / leaves and improves the quality and shelf life of the produce.
2. It improves soil structure, texture, aeration, and water holding capacity and prevents soil erosion.
3. It is free flowing, easy to apply, handle and store and does not have bad odour. It provides efficient conversion of organic wastes/crop/animal residues.
4. It is rich in beneficial micro flora such as a fixers, P- solubilizers, cellulose decomposing micro-flora etc in addition to improve soil environment.
5. It neutralizes the soil protection. It helps in reducing the toxicity of heavy metals.
6. It prevents nutrient losses and increases the use efficiency of chemical fertilizers.
7. It is rich in all essential plant nutrients and free from pathogens, toxic elements, weed seeds etc.

References:

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