

Earthworms and Soil Fertility

by Patricia Byrne

February may seem too early to think about preparing garden soil or adding to your flower bed soils before spring. Preparing the soil now for whatever your goals are for planting this spring is a good idea. When you put the organic materials (humates and compost), diatomaceous earth, and other minerals in now you can take advantage of the effects late winter snow or rainfall. This is also the time of year to put corn gluten on your lawn to prevent germination of weed seeds. This reduces the weeds that crowd the grass growth in spring. A mix of minerals, Diatomaceous earth (used for agriculture) humus material, with the corn gluten can be distributed at the same time in your spreader. The amorphous silica, present in Diatomaceous Earth, increases the uptake of nutritional elements from the soil through the root system of plants. Even if it is still cold in February this year and your lawn does not appear to be growing its root system is. As grass stops growing above ground when it is cold and trees drop their leaves, focus naturally goes to survival of the roots. Hibernating animals such as Bears eat enough food to sustain their bodily functions for the winter hibernation and awake in the spring ready to feed. Many plants go through the same process. Plants need to be feed certain times of the year more than others.

Preparation of garden soils ahead of time gives earthworms what is needed to flourish and improve your soil. Earthworms play a major role in the conversion of large pieces of organic matter into rich, humus. Improved richness of the soil is achieved by the worm's actions of pulling below the surface, deposited large particle organic material or Diatomaceous Earth, either for food or to plug its burrow. Once in the burrow, the worm will shred the material and partially digest it and mingle it with the earth. Worm casts can contain 40% more humus than the top 9" of soil in which the worm is living. Earthworms can ingest any other soil particles that are small enough—including sand grains up to 1/20 of an inch into its gizzard, wherein those minute fragments of grit grind everything into a fine paste which is then digested in the intestine. When the worm excretes this in the form of casts, deposited on the surface or deeper in the soil, minerals and plant nutrients are changed to an accessible form for plants to use. Investigations in the United States show that fresh earthworm casts are five times richer in available nitrogen, seven times richer in available phosphates, and 11 times richer in available potassium than the surrounding upper 6 inches of soil.

Earthworm burrows create channels through the soil and are of great value in maintaining soil structure, enabling processes of aeration and drainage. [Permaculture](#) co-founder [Bill Mollison](#) pointed out that by sliding in their tunnels, earthworms are pumping air in and out of the soils continuously and suggest this process is more rapid at night. Thus, the earthworm not only creates passages for air and water to traverse the soil, but also modifies the organic components into a form usable by plants. Agricultural Diatomaceous earth found in organic soil amendments and organic insecticides is digested and utilized by earthworms. Gardens with diatomaceous earth added to the soil will see a very healthy earthworm population. In fact it is often added to the soil of worm farms.