Organic Fertilizers

Given the diverse array of fertilizers currently available, choosing the right one for your specific needs may seem complicated. Gardeners often strive for "organically grown" produce. However, the designation "organic" can only be given to produce grown under USDA organic regulations and that has been certified by a USDA-accredited certifying agent. This process is costly, requires inspections, and record keeping. However, home gardeners wanting to grow organically can model the organic rules in their gardens and orchards.

A primary benefit of organic fertilizers is their "slow release" meaning they require microbial activity in the soil to further decompose them before they are in a form that plants can use. The microbial activity also results in the production of humus: a beneficial mixture of organic acids that have many functions and benefits in the soil. In other words, organic fertilizers and additions of organic matter such as compost contribute to biologically active soils which support plant growth and release nutrients over time. Conversely, inorganic fertilizers provide necessary nutrients with a negligible increase in soil microbiological activity.

A common misconception is that organic fertilizers are safer for plants and the environment than inorganic fertilizers. Improper organic fertilizer application can also contribute to surface and ground water pollution. They can also induce plant nutrient deficiencies/toxicities and cause salt burn. Properly used, both organic and inorganic fertilizers are safe for plants and the environment. As mentioned above, organic fertilizers have the additional benefits of sustaining soil biological activity and contributing organic matter.

The fertilizer label refers to the percent by weight of three major nutrients: nitrogen (N), phosphate (P), and potash (K). This is called the "guaranteed analysis". Fertilizer labels on organic products must follow the same packaging rules as conventional fertilizers. Occasionally, you will encounter organic products that resemble organic fertilizers, but do not list the guaranteed analysis. These products should be differentiated from fertilizers and considered soil amendments. This labeling difference is related to the expense of testing materials to determine guaranteed analysis and variability of raw materials used to produce it.

Organic fertilizers often contain manure, animal byproducts, or plant material. Many times you will see a mixture of these materials. Some examples of organic fertilizers are: blood meal, bone meal, alfalfa meal, cottonseed meal, feather meal, fish meal, hoof/horn meal, kelp, and various manures and guanos. The cost of organic fertilizer varies greatly and increases with the distance the material is transported from its source. Ordering in bulk can reduce the cost per pound, but it can still be expensive. In Arizona, pelletized dehydrated chicken manure is available from local sources. Cottonseed meal may also be available from one of the cotton gins.

Of course, many gardeners use locally available manure in their gardens. The ideal manure is partially composted to decrease the numbers of viable weed seeds. Rabbit, sheep, goat, llama, and alpaca manures have minimal viable weed seeds and moderate amounts can be incorporated at planting time without "fertilizer burn". Fertilizer burn is caused by excessive salts including high levels of plant available nitrogen. Horse, cattle, and poultry manure should be composted before application. Manures can contain pathogens such as E. coli 0157:H7 and this has given rise to food safety concerns. Current research tells us that raw manures should be incorporated into the soil 120 days prior to harvest of vegetable crops to minimize the potential for foodborne illness. These are also the guidelines used by commercial organic growers.

Organic fertilizers can be incorporated into the soil the same as synthetic fertilizers. They can be tilled into the soil within a row, bed, mound, or individual planting hole. High nitrogen using crops such as corn usually require one or two midseason applications of nitrogen fertilizer. Organic fertilizers are ideal for this use because they release the nitrogen slowly. The application can be made by top dressing (applying to the soil surface) or banding (gently digging a shallow trench 8-10 inches from the plants in a row, placing fertilizer in the trench, and covering with soil).

Organic fertilizers have many benefits over synthetic fertilizers. They also vary widely in availability and price. Liquids are also available, but these require other application methods. Vegetable gardeners often gravitate toward organic fertilizers for the good reasons outlined above.

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