MIDWEST BIO-SYSTEMS' NEWSLETTER
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Subject: NPK & Humified Compost

The Core Issue:

- Anyone in the business of cultivating compost, then attempting to market the finished product to the public, has been asked, "What is the N-P-K content of the product?" If the compost producer attempts to either produce his compost with an eye towards N-P-K percentages, or sell it based on its N-P-K value, his task will prove daunting and likely unprofitable.

False Assumptions:

- NPK is the primary measurement of soil fertility
- If nutrient or chemical levels are sufficient, the crop will grow fine.
- Compost value is determined by its N-P-K levels (in conjunction with other nutrients)
- Low N levels in compost indicate a lack of growth/energy potential

The True Bases for Soil Fertility: Soil fertility depends upon a group of three (3) factors, not just the chemical analysis. Among the most important considerations:

- The physical properties of the soil (tilth, aggregation, aeration, moisture retention, exchange capacity, & buffering) comprise the first factor to observe in a fertility profile.
- The biology of the soil (numbers of microbes per gram of soil, the diversity of those microbes, and the ratio of aerobes to anaerobes) are the factors to be observed here. The microbial *environment* is key to establishing and preserving a fertile biological setting. (Plant exudates do much to create their own ideal environment.)
- The chemical profile, commonly regarded as pre-eminent, is in fact only one aspect of the overall fertility picture. Within the Chemical Nutrient Aspect, we not only monitor NPK but Base Saturation Balance, Available Nutrients, and Micronutrients. In additional to the Chemical Nutrielt Aspect of the soil, we monitor three areas with the Microbiological Aspect as well as the Physical Aspect.
- Tillage practices

How Humified, High Quality Compost Aerobically Cultivated Impacts Overall Fertility

- Nitrogen-fixing bacteria, present in sufficient numbers and properly balanced with other microbial groups, enable soil and plants to draw nitrogen from the atmosphere (78% nitrogen) to such an extent that commercial nitrogen additions may be unnecessary.
- Soil aggregation is enhanced. More water is held in the soil, erosion is minimized, and excess water moves through aggregated soil, reducing ponding.
- Photosynthesis is facilitated, capturing energy from the sun.
- Plant roots are protected from disease causing organisms.
- Nutrients encapsulated by humus are delivered to the plants when beckoned by the plant's current growth stage; last year's excess nutrients can be accessed.
- Nutrients are not tied up in the soil through magnetic attraction, rendering them unavailable to the plant.
- Soil porosity is increased, permitting greater oxygen penetration; clay colloids are expanded.
- Mineral availability is buffered across a wide pH range.
- Pesticides, herbicides, and fertilizer inputs can be reduced and sometimes eliminated.
- The earth's recycling system is enhanced as crop residues are broken down.
- Leaching is minimized.
- Organic matter levels are increased.
- Chemical pollutants are remediated.
- Salt readings in the soil will be lowered as they are complexed and rendered unavailable to the plant.
- Improved germination rates.
- Plants show better appearance, higher nutrient content, and increased shelf life.

Summary: A high quality compost brings numerous benefits to the soil/plant beyond N-P-K levels.