



### III. Choosing the Right Type of Plant Food

In general, plant foods fall into one of two categories: (1) Synthetic Plant Foods and (2) Natural Organic Plant Foods. Each type has its own advantages and disadvantages.

#### **Synthetic Plant Foods**

Synthetic plant foods are materials that are manufactured chemically as opposed to found ready made in nature. In general, synthetic plant foods fall into one of two categories: (1) Water soluble plant foods and (2) Controlled release plant foods.

**Water Soluble Plant Foods.** Water soluble plant foods completely dissolve in water and release their nutrients immediately thereafter. They are ideal when you need a quick solution to a problem and for nursery growers who have a drip irrigation system. The trade-off for rapid response is that the feeding is generally short lived, lasting approximately a few weeks. Frequent applications are required as well as mixing with water. Leaching can also be a problem, especially in sandy soils or under high moisture conditions. And burn (dehydration) potential is higher due to solubility and high salt index. Examples of water solubles include: urea, ammonium sulfate and ammonium phosphate.

**Controlled Release Plant Foods** contain a plant nutrient in a form that delays its availability for plant uptake significantly longer than a water soluble fertilizer. The delay occurs by one of two mechanisms: (1) Coating a water soluble source such as urea with molten sulfur, wax, or plastic. The thicker the coating, the slower the release. Examples include sulfur coated or polymer coated urea. (2) Chemically combining materials to form insoluble polymers, which release nutrients more slowly as the length and number of polymers increases. Ureaform is an example of this. While both types give plants a long lasting feeding, neither contains all of the advantages that you will find with natural organics.

# Plant Food Fundamentals

## T I P S H E E T

### Natural Organic Plant Foods

Although no universal definition exists for the term "natural organic", our guiding definition is any material derived from plant, animal or mineral origin that contains one or more essential nutrients for plant growth. While it is true that all plant foods ultimately feed nutrients to plants in the chemical form, it is the process by which they are delivered that makes natural organic plant foods superior to others.

**"Feed the soil that feeds the plants".** Plant growth is dependent on the health and vitality of the soil surrounding it. The process by which natural organic plant foods deliver their nutrients enhances the fertility and structure of the soil. Natural organic plant foods are digested by soil microorganisms, which then release the nutrients in a form available to plants. This process produces humus, a spongy material that improves soil structure. When you improve soil structure, the soil is better able to hold the proper balance of water, air and nutrients until they are required by plants. Plants respond by developing larger root systems. Larger roots support more vigorous top growth and make plants less susceptible to drought. And by stimulating a healthy population of beneficial microorganisms in the soil, plants become more resistant to insects and diseases.

**Slow, steady feeding, as the plants require it.** The nutrients in natural organic plant foods are not in a readily available form for plants to use until they are digested by beneficial microorganisms in the soil. This process is slow and largely dependent upon three factors: the microbial population in the soil, moisture, and soil temperature. A healthy population of microbes in the soil is necessary for the digestion process. Moisture is required to sustain microbial life as well as to keep nutrients flowing into the plants root zone. And soil temperature is critical because as it rises, plants require nutrients more rapidly. Fortunately, microbial activity mimics these requirements and also increases as soil temperature rises, so that plants can be fed the needed nutrients, as they require them.

**The safest choice for your plants and the environment.** Unlike synthetic plant foods, natural organic plant foods have an extremely low salt index, which means there is little to no risk of burning (dehydrating) plants in periods of extreme drought or when over-applying. Natural organic plant foods are generally very resistant to leaching out of the soil, so their nutrients stay in the root zone until the plants need them. And since most natural organic ingredients are byproducts from commercial farms and meat processing plants, the utilization of them for feeding plants is really a system of recycling much like composting.

**Soil and plants receive much more than just the primary nutrients.** With natural organic plant foods, they receive organic matter containing millions of beneficial microbes (bacteria, fungi and protozoa) that help improve soil structure for better moisture retention, nutrient retention, aeration and drainage. They receive secondary and trace nutrients as well as vitamins, minerals, and plant growth hormones that promote plant growth and improve resistance to insects, diseases and climate extremes.

Examples of natural organic ingredients include: bone meal, blood meal, kelp meal and greensand. It is for all of the above reasons that we have always used natural organics as the source of nutrition in our Tone line of products. It has established the Espoma Tones as the finest, safest, and most reliable plant foods available.

For more information about our products and services please contact our customer support department at:

The Espoma Company • 6 Espoma Road, Millville, NJ 08332 • Telephone: 1-888-ESPOMA1 (888-377-6621) • Fax: 856-825-1385 • [www.espoma.com](http://www.espoma.com)