FERTILIZATION

Most of our houseplants have an absolute requirement of **16 essential elements** – those necessary for normal growth and development.

*Carbon, *Hydrogen, *Oxygen

*Nitrogen, *Phosphorus, *Potassium, *Calcium, *Magnesium, *Sulfur

*Iron, *Manganese, *Boron, *Molybdenum, *Copper, *Zinc, *Chlorine

The 3 principal elements are nitrogen (N), phosphorus (P) and potassium (K);potash**.** They are considered the principal ones primarily because they are usually the first ones to become deficient.

*__Nitrogen__ is needed for the production of leaves and stems. When deficient, plants become pale yellow and stunted.

*__Phosphorus__ is required for healthy roots. When deficient, older leaves develop a purple coloration and growth slowing down.

*__Potassium (potash)__ is directly involved in the production of flowers and seeds. When deficient, the leaves develop a pale green color with marginal and tip leaf burn (crispy leaves).

Analysis of Typical Commercial Fertilizer

A triplet of numbers such as 10-10-10 or 10-5-7 refers to percent (by wt) of nitrogen, phosphorus pentoxide (P_2O_5) and potassium oxide (K_2O).

To convert P_2O_5 to P (multiply P_2O_5 by 0.44); to convert K_2O to K (multiply K_2O by .83). A 10:10:10 fertilizer therefore actually has N=10%, P=4.4%, K=8.3%. YOU WILL NOT HAVE TO MAKE THESE CONVERSIONS!

A bag of fertilizer of 5-10-5 supplies 20% actual ingredient, while 80% is simply "filler" or "carrier". Filler is important because it dilutes the fertilizer ingredients, making them easier to handle. If rates of actual ingredients (elements) are too high, the chemical can burn or damage plant roots and lead to other serious problems.

Examples:

1. A 10-10-10 is a BALANCED AND COMPLETE fertilizer with 10% N: 10% P_2O_5:10% K2O.

2. A 5-10-5 is an UNBALANCED AND COMPLETE fertilizer.

3. A 15-0-30 is INCOMPLETE.

*Any fertilizer which reduces to a ratio of 1:1:1 is acceptable for most houseplants (10-10-10,

7-7-7, 15-15-15).

Forms of Fertilizers:

1. Soluble - granules, powders, crystals, tablets that dissolve in water.

2. Liquid - water has been added (Fish emulsion)

3. Slow-Release -- slowly dissolves in moist soil or medium (granules, capsules and spikes).

When to Apply:

How often to fertilize houseplants depends on many factors:

a. type of plant
b. amount of growth occurring
c. type of medium used
d. watering practices
e. quality of water
f. time of year

Some rules of thumb:

1. Always follow package directions.

2. Apply to moist medium

3. Do not fertilize newly purchased plants for at least 2-3 months.

4. Reduce fertilization in the fall and winter months

Usually overfertilization is a far greater sin than underfertilization. Overfertilization can lead to:

1. soft, lush growth suceptible to pests

2. yellow foliage.

3. leaf burn and premature leaf drop.

4. root damage

5. algae growth on the surface of the medium.

Underfertilization can lead to problems such as:

1. a general yellowing of the entire plant.

2. little or no new growth.

3. lower or older leaves dropping

Some general observations and precautions about certain fertilizers:

*When using slow release fertilizers, additional fertilization usually is not needed.

*Slow release fertilizers can be mixed in with the potting medium at planting, making it evenly distributed and evenly available over time.

*Roots of the plant often congregate in the vicinity of fertilizer spikes and capsules, resulting in a root system that is not as well distributed as when a liquid of powder fertilizer is used. Be sure to push the spike or capsule well into the pot.

*Foliar feeding, where the chemical is absorbed directly in the plant, rather than being taken up by the roots should never be used as a major fertilization practice --- use only to give a boost to plants already fertilized by other means.

*Look for the best deal