

## Horticultural Points of Interest February 2019

- **Fertilizer Basics**

- Major Components
  - Three Numbers (N-P-K) are the Percentage by Weight of these Elements in the Fertilizer:
    - Nitrogen (N): Necessary for strong Leaf and stem growth. Too much can weaken Plant and delay or prevent Flowering.
    - Phosphorus (P): Needed for root development, flowering and seed and fruit formation. Essential for plant Metabolism.
    - Potassium (K): Increases Plant strength, disease resistance, stress and drought tolerance.
  - 5-10-5 is 5% Nitrogen, 10% phosphorus and 5% potassium
- Minor Components
  - Calcium (Ca): Needed for plant enzymes and cell wall formation. Too little results in Stunted growth
  - Magnesium (Mg): Needed for Chlorophyll formation and the production of plant enzymes
  - Sulfur (S): Again needed for the formation of Chlorophyll. Too little results in light green Leaves.
- Trace Elements (In general most soils are contain these)
  - Boron (B): Used in cell wall formation, calcium intake and cell membranes. Too little results in stunted or irregular growth
  - Chlorine (Cl): Involved in Osmosis. Deficiency results in wilting, stubby roots and yellowing of Leaves
  - Copper (Cu): Plays a part in Nitrogen metabolism. Deficiency results in die back of growth tips.
  - Iron (Fe): Needed for Chlorophyll formation. Too little results in yellowing of the Leaves
  - Manganese (Mn): Needed for enzyme activity for Photosynthesis, Respiration and Nitrogen Metabolism
  - Molybdenum (Mo): Constituent of enzymes that reduce nitrates to ammonia. Deficiency results in poor growth & poor seed production
  - Zinc (Zn): Component of enzymes. Deficiency result in yellowing of Leaves

- **Water Soluble Fertilizer**

- Dissolves quickly in water & is immediately available to plants
- Revolution in such Fertilizer
  - Excessive Phosphorus is detrimental to Plants and unnecessary for Bloom
  - 3-1-2 Ratio is Optimum for Plant Growth and Sufficient for Blooming
    - Result from Apopka Research Center, Florida
    - Fine Gardening Magazine study (August 2015) showed that half strength Miracle Grow 12-4-8 performed as well or better than full strength Miracle Grow Bloom Booster 10-52-10 both in Leaf Growth and Bloom Production

- **Water Soluble Fertilizer (Continued)**
    - For Houseplants low Phosphorus minimizes Salt buildup in Soil and reduces the Risk of Fertilizer Burn (Typified by blackened and crispy Leaves even though adequate Moisture)
      - Use half or quarter strength Fertilizer in the Winter
    - For Houseplants in popular Peat based potting mixtures addition of Calcium, Magnesium and some Trace Elements is beneficial
      - Peat mixtures & many Fertilizers do not have these elements
      - Dyna-Gro Foliage Pro 9-3-6 an excellent source of the required elements
        - Optimum 3:1:2 ratio
        - No Urea (for Nitrogen)
          - Easily lost by chemical Reaction
            - Forms Ammonia which can evaporate
        - All 3 minors plus 10 trace elements
          - Trace elements below 0.1% are not listed on the label due to state laws regulating listings
- **Fertilizers Outdoors**
  - Organic Fertilizers
    - Can be applied as soon as the Ground can be worked
      - Usually in March
        - Low pH (acidic) Soils
          - Plant Tone and others that do not lower pH
        - Plants that need Low pH Soils
          - Holly Tone and others that do lower pH
          - Note: For blue Hydrangeas use aluminum sulfate
            - Acidity frees up aluminum which leads to the blue color
  - Chemical Fertilizers
    - Apply just before growth begins and throughout season as recommended by Manufacturer
      - April or May
  - Time Release Fertilizer
    - Apply just after growth begins
      - Depends on Plants but usually May
  - Stop Fertilizing
    - Fertilizer applied late in the Season encourages Growth when Plants should be winding down in preparation for Winter and consequently, late fertilizing is detrimental
    - Zone 5 stop about September 1st
    - Zone 6 stop early to late September