

Soil Nutrient Management

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13 Essential Soil Based Plant Nutrients

- Primary Macronutrients:
 - Nitrogen (N)
 - Phosphorus (P)
 - Potassium (K)



13 Essential Soil Based Plant Nutrients cont.

- Secondary Macronutrients:
 - Calcium
 - Magnesium
 - Sulfur



13 Essential Soil Based Nutrients

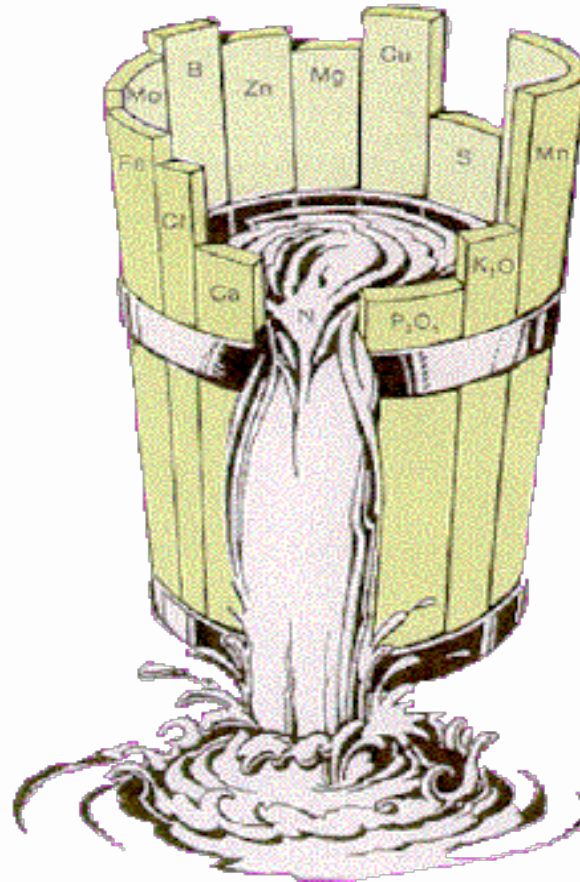
cont.

Micronutrients:

- Boron
- Copper
- Iron
- Chloride
- Manganese
- Molybdenum
- Zinc



Liebig's Law of the Minimum



http://www.microsoil.com/liebigs_law_of_the_minimum.htm



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Do not feed your plant!

**Feed the soil, and the
soil will take care of your
plants!**



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“Old School” Nutrient Management

Keep the soil bare or “clean” to prevent competition (always fighting weeds)

Fertilize heavily with commercial fertilizer infrequently to save on labor



“Old School” Nutrient Management

Bare Soil:

- Very little biotic activity
- Empty niche, weed fill
- Compaction
- Leaching/Run-off of nutrients

Heavy Commercial Fertilizer:

- Prone to leaching, Run-off
- Burn plants



“New School” Nutrient Management

- Mulch and Green Manures:
 - Maintain organic matter
 - High biotic activity
 - Increased soil tilth
 - Increased water and nutrient holding capacity
- Fertilizer:
 - Smaller amounts more frequently
 - Fertigation



Sources of Organic Plant Nutrients

Organic Mulch: Nutrient rich, slow release

Compost: Nutrient rich, microbial activity

Manure: Cow: 10-3-9

Poultry: 30-20-10

Earthworm castings: 1-0-0, high bioactivity

Coffee Grounds: 2-.3-1

Green Manure/Cover crops: crop specific,
increased soil tilth



Sources of Organic Plant Nutrients

Fish meal: 9-5-4

Fish emulsion: 4-1-5

Bone meal: 4-12-0

Blood meal: 13-1-1

Wood ash: 0-1-10 *High with micronutrients,
raises soil pH

Seaweed: @ 12% Potassium, trace elements



You want Container Gardening? “Home Grown” Potting Soils

- Coconut coir 80%, perlite, compost
- 1:1:1 Soil, peat moss (or sifted mulch), sand
- Compost, peat moss (or sifted mulch), vermiculite or
- Try your own blend of local materials

