

Bonsai Health I

Fertilizing

Why fertilize?

- 1 Artificial environment
- 2 Growth
- 3 Reproduction-flowers/fruit
- 4 Preventing diseases/infestations

What components are used to fertilize?

- Macronutrients-minerals: N-P-K
 - Nitrogen “Leaf Fertilizer”
 - Phosphorous “Flower & Fruit Fertilizer”
 - Potassium “Root Fertilizer”
 - Calcium, Sulfur, Magnesium
- Micronutrientsminerals:
 - Iron, Copper, Boron, Molybdomen, Cobalt,
 - Chlorine, Zinc, Manganese
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What forms of fertilizer should be used?

- Organic vs Inorganic
- Liquid vs Solid
- Slow release vs Quick release

Where should the fertilizer be placed?

- Peripherally, away from the trunk
- Feeding smaller nutrient absorbing roots

When should you fertilize?

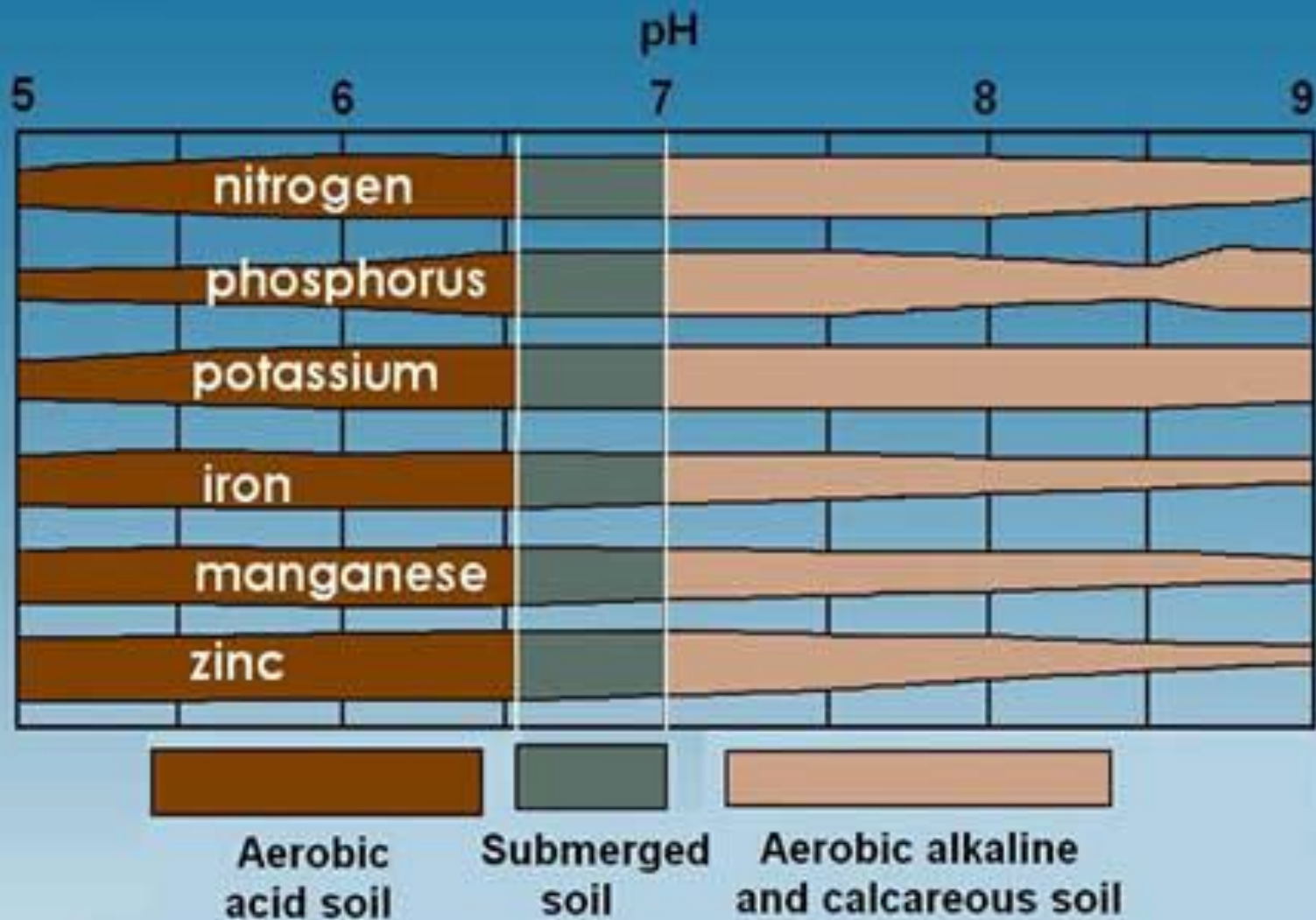
- Consider:
 - Seasonal requirement
 - Tree age & species
 - Soil mix
 - Container
 - Watering schedule

“LESS IS MORE”

- Especially when recently:
 - Repotted
 - Root trimmed
 - Heavily branch trimmed/wired
 - ‘Sick’ (No fertilizer is best)

Does Soil Affect Fertilization?

- Components-Porosity
- CEC - Cation Exchange Capacity
- pH - 6.5 to 6.8 optimal for nutrient absorption



Fertilizer Sources

Organic:

Nitrogen(N) - Phosphorus(P) - Potassium(K)

Cottonseed Meal	6 - 1 - 1
Blood Meal	12 - 0 - 0
Bone Meal	0 - 10 - 0
Fish Emulsion	5 - 1 - 1
Sea weed Extract	0.1 - 0.1 - 1.5

Fertilizer Sources

Inorganic

- 'Miracle Grow' 24-8-16 + microminerals
- 'Ironite' 1-0-1 +4.5 Iron+Micronutrients
- Fugiyama 0-10-10
- Fox Farm 6-4-4 + Micronutrients
- Urea as high as 46-0-0
- Apex Variable - slow release
- Osmacote Variable – slow release

Nitrogen(N)

- Helps plants with rapid growth, increasing seed and fruit production and improving the quality of leaf and branch ramification

Phosphorous(P)

- Encourages blooming and root growth
- Involved in the formation of all oils, sugars, starches, etc.
- Helps with the transformation of solar energy into chemical energy; proper plant maturation; withstanding stress.
- Effects rapid growth.

Potassium(K)

- Helps in the building of protein, photosynthesis, fruit quality and reduction of diseases

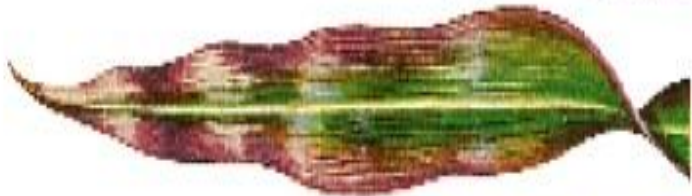
Nutrient deficiency



a healthy corn plant leaf is deep green and glossy



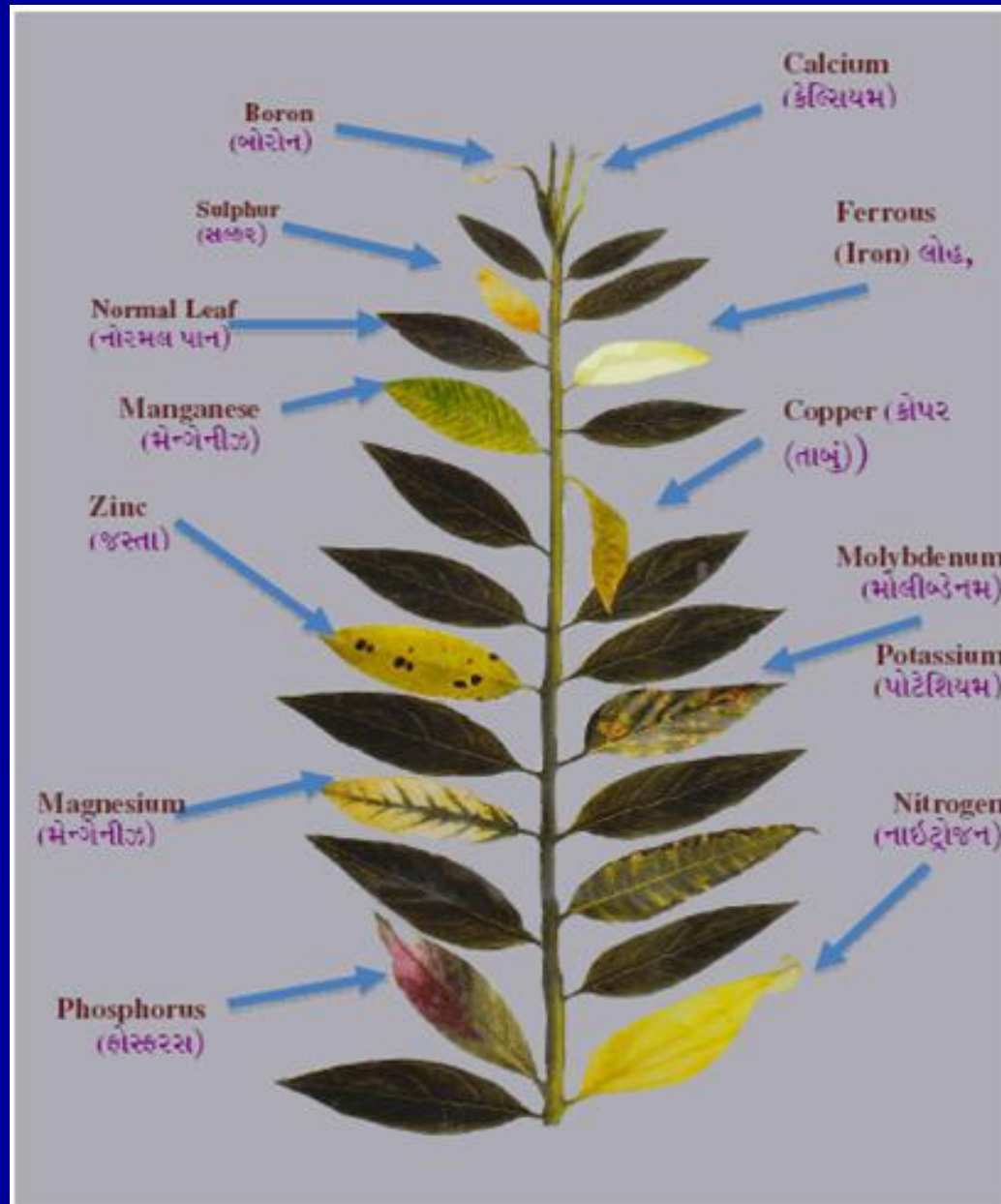
a leaf from a plant with nitrogen deficiency yellows down the midvein starting at the tip and moving back towards the stem



a leaf displaying phosphorus deficiency turns red-purple along the leaf margins



a leaf from a potassium-deprived plant features firing and yellowing along the leaf margins



General Considerations

Organic fertilizer is safer to use than inorganic.

Fertilize after watering or rain.

Young, growing, food-storing trees require more frequent feedings than older established or dormant trees.

Foliar feeding can be used on some species but is less important than root feeding.

Occasionally vary your fertilizer source to assure availability of nutrients.

References:

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