

# UMassAmherst

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## Nutrient Recommendations for Apples

 [A slide show of a talk given at April twilight meetings in 2007.](#) [1]

### Nitrogen (N)

#### New plantings

- If prepared properly, little N is needed the year of growth. Apply 0.6-1 ounce N per tree at bud break and again 4 weeks later.

#### Optimal levels

Leaf analysis (heavy crop will increase N by 0.2-0.3%)

- Hard cultivars - 2.2-2.4%.
- Soft cultivars - 1.8-2.2%.

#### Growth

- Nonbearing years - 0.5-2 feet of growth.
- Bearing years - 8-15 inches of growth.

#### Application

- If the percent N in leaves is greater than optimum, decrease N application by 10% for each 0.1% leaf N is above optimum.
- If the percent N in leaves is less than optimum, increase N application by 10% for each 0.1% leaf N is below optimum.
- For possible set improvement, apply urea (spray grade with less than 0.25% biuret) at tight cluster to pink at a rate of 3 lbs/100 gal and again at petal fall to seven days after petal fall at a rate of 5 lbs/100 gal.

### Potassium (K)

#### New plantings

- Generally K is required only on bearing trees, except for newly cleared land or on particularly sandy or gravelly soil.

#### Optimal levels

#### Application

- Leaf analysis (heavy crop will have 0.4% lower)
  - All cultivars - 1.2-1.8%.
  - Deficient K - 120-180 lbs K<sub>2</sub>O/acre (200-300 lbs muriate of potash -- KCl).
  - Optimum K - 60-90 lbs K<sub>2</sub>O/acre (100-150 lbs muriate of potash -- KCl).
  - Excess K - discontinue for a year.

## Magnesium (Mg)

### Optimal levels

Leaf analysis

All cultivars - 0.35-0.50%.

### Application

- Deficient Mg - use dolomitic limestone plus 15 lbs Epson salts/100 gal. in petal fall, first cover, and second cover sprays (avoid high temperatures or slow drying).
- Optimum Mg - continue present program.

## Boron (B)

### Optimal levels

Leaf analysis

- All cultivars - 35-50 ppm.

### Application

- General program - 1-2 lbs B/acre/year to the soil or 1 lb solubor/100 gal in first and third cover sprays (do not apply later than 30 days after petal fall)
- Less than 25 ppm B 1.7 lbs solubor/100 gal in fall plus 1 lb solubor/100 gal prebloom or 1 lb solubor/100 gal prebloom, first, and third covers or 1 lb solubor/100 gal prebloom plus 2-3 lbs B on the soil
- 25 to 34 ppm B continue present program plus 1 lb solubor/100 gal at tight cluster or petal fall 35 to 50 ppm B continue present program
- More than 50 ppm B discontinue application for one year
- Foliar applications in the fall (postharvest before leaf drop) may improve flower development, pollination, and set. Spring applications (first and second cover) may improve recovery from cold damage.

## Manganese (Mn)

### Optimal levels

Leaf analysis

- All cultivars - 35-135 ppm.

### Application

- Deficient Mn 4 lbs manganese sulfate/100 gal in the first cover spray, or 3 sprays of a Mn-containing fungicide.

## Zinc (Zn)

### Optimal levels

Leaf analysis

- All cultivars - 25-50 ppm.

### Application

- Deficient Zn - 1 lb or 1 quart zinc chelate (EDTA)/100 gal at tight cluster and in the second cover spray.

## Copper (Cu)

### Optimal levels

Leaf analysis

- All cultivars - 7-12 ppm.

## Application

- Deficient Cu - Bordeaux mix or copper sulfate (2 lbs/100 gal) at green tip to 1/4-inch green.

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**Source URL:** <https://ag.umass.edu/fact-sheets/nutrient-recommendations-for-apples>

### Links:

[1] <https://ag.umass.edu/sites/ag.umass.edu/files/fact-sheets/pdf/nutrients2007.pdf>