

Orchards and Fruit Trees

Basic Fertilizer Guidelines

By Paul Chu PhD

NITROGEN

Tree	Non-bearing Trees (lb N/tree/yr of age)	Immature Bearing Trees (lb N/tree/yr of age)	Mature Trees (lb N/tree/yr of age)
Apple	0.1 - 0.2	0.05 - 0.1	0.03 - 0.04
Cherry	0.1 - 0.2	0.05 - 0.1	0.03 - 0.035
Nectarines/ Peaches	0.1 - 0.2	0.05 - 0.1	0.04 - 0.045
Pear	0.05 - 0.1	0.025 - 0.05	0.03 - 0.04
Plum	0.1 - 0.2	0.05 - 0.1	0.04 - 0.045

These recommendations are intended as general guidelines only. Nitrogen needs of fruit trees depend on variety, rootstock, tree vigor and pruning practices. For dwarf trees, the above nitrogen recommendations should be reduced by as much as 50%.

On apples and pears, apply nitrogen at a rate of 0.03 lb to 0.04 lb/tree/yr of growth. Yearly new growth should range within 10-18". If new growth exceeds this, reduce the nitrogen application rate. Increase the nitrogen application rate if the new growth is less than 10". The total nitrogen applied should not exceed 0.40 to 0.50 lb/tree/yr. Apply nitrogen during dormancy.

On peaches and plums, apply nitrogen at a rate of 0.04 lb/tree/yr of growth, not exceeding 0.4 to 0.45 lb/tree. Yearly new growth should range within 15-18". If new growth exceeds this, reduce the nitrogen application. Increase the nitrogen application if new growth is less than 10-12".



On cherries, apply nitrogen at a rate of 0.03 lb/tree/yr of growth, not exceeding 0.3 to 0.35 lb/tree. Yearly new growth should range within 10-18". If new growth exceeds this, reduce the nitrogen application. Increase the nitrogen application if new growth is less than 10-12".

Apply nitrogen at least 1 month prior to bloom. Do not apply nitrogen fertilizer earlier than late November/early December.

Leaf analyses should be performed during early June to determine if foliar applications of nitrogen would be beneficial. Urea fertilizer used for foliar application must have low biuret content. Apply foliar urea only on nitrogen deficient trees at rate of 3 lb of urea/100 gallons of water. Leaf analyses taken during July and August can help to further monitor nitrogen needs for the following season.

PHOSPHORUS

Phosphorus deficiency is rare in fruit crops but can occur and is usually due to low levels of phosphorus in the soil. Phosphorus fertilizer can be broadcast; however it is most effective when applied at the drip line of trees in 10"-12" deep holes.

POTASSIUM

Mature trees should not receive more than 3.5 lb of K_2O in any one application nor should they receive more than 7.5 to 8.5 lb of K_2O in a three year period. Adjust the recommended potassium according to the density of the orchard.

A foliar application of 8 lbs. of potassium nitrate/100 gallons of spray solution applied 3, 5, 8 & 10 weeks after bloom may be helpful where low leaf potassium persists.

GUIDELINES FOR FOLIAR APPLICATION

CALCIUM: To control bitter-pit of apples, apply at a rate of at least 0.5 to 1.0 lb of elemental calcium/100 gallons of water plus a wetting agent. Make four applications to achieve 3.5 to 5.0 lb of elemental calcium in a season as follows:

- 1) At Petal-Fall
- 2) First Cover Spray



- 3) Third Cover Spray
- 4) Two Cover Sprays Preceding Harvest

MAGNESIUM: Apply as a foliar spray at a rate of 1.0-2.0 lb/100 gallons of water in the first 2 cover sprays.

ZINC: Apply 0.3 lb zinc/100 gallons of water in the first two cover sprays. Using oil in combination with zinc sulfate may cause phytotoxicity/burn.

MANGANESE: Apply 1.5 lb manganese/200 gallons of water in the first two cover sprays.

IRON: Apply 1.5 lb iron/100 gallons of water in first two cover sprays.

BORON: Apply 0.2 lb boron/100 gallons of water at full bloom and at 1 week after full bloom.

Agronomists:

Memphis, TN Oscar F. Ruiz Jr. D.P.M. (901) 213-2400
Richmond, VA Paucic C. Mc Groary Ph.D. (804) 743-9401