

liquid formulation are also labeled for use. “STOPIT” liquid calcium concentrate (Shield-Brite Corp.) (12% calcium) is labeled for use at 1 gallon per 74 gallons of drench water. “Decco Calcium Chloride-EC 405” (12% calcium) is labeled for use at 1 gallon per 79 gallons of drench water. Both of these labelled rates of use provide markedly lower calcium concentrations in the solution than does 12 lbs. of calcium chloride (94%) per 100 gallons. However, their formulations make them easier to use than 94% calcium chloride pellets.

All of these calcium materials may be combined with scald-inhibiting chemicals. No postharvest dip or drench should be used without inclusion of fungicide to control postharvest rotting.

POSTHARVEST ROTS

See Part I: *Other Apple Diseases - Postharvest rots*

CHEMICAL CONTROL OF WATER SPROUTS AND ROOT SUCKERS

Water sprouts are vigorous shoots arising from any aboveground part of the tree. Suckers are shoots which originate from roots.

Water sprouts and suckers can be controlled with a formulation of naphthaleneacetic acid (NAA). The formulation is sold by the trade name, Tre-Hold Sprout Inhibitor A 112, and is registered for use on bearing and non-bearing apple and pear trees. **The restricted entry interval for Tre-Hold is 12 hours.**

WATER SPROUT CONTROL. This treatment can be applied any time during the dormant season before buds begin to grow. Use 10 fluid ounces (2/3 pint) of Tre-Hold A 112 and make up to volume of 1 gallon with a combination of water and interior grade white latex paint. The latex marks the treated area, and thickens the mixture, restricting drip onto untreated areas. At least 1/2 gallon of latex paint should be used in each gallon of final mix. Oil based paints injure tree bark, and some exterior grade latex paints may also do some damage to bark.

After pruning, treat the bark and cut surfaces thoroughly in areas where vigorous shoot growth would be expected. Do not treat large portions of the

tree or fruiting wood, as fruit size reduction may occur. Treatment applied to buds may kill them, so avoid dripping mixture onto other parts of the tree.

Apply the NAA/latex paint mixture using a paint brush or small compressed air sprayer. (A sponge attached to the nozzle is useful for swabbing the mixture on pruning cuts.)

ROOT SUCKER CONTROL. To avoid possible fruit thinning, delay application of Tre-Hold to growing suckers until 4 weeks after petal fall. Prepare the mixture as for water sprout control, or you may wish to reduce or eliminate the latex paint and substitute an equal amount of water. Control is most effective when shoots are growing actively. If suckers are pruned back during the dormant season, or a little later, new growth may be easier to treat without accidental application to tree foliage.

Besides proper timing, the most important consideration is thorough coverage of all sucker shoots (foliage) in the treated area. Interference from weeds will reduce effectiveness of the treatment. Use of a contact herbicide about two weeks prior to NAA treatment may be helpful. Repeat annual application of Tre-Hold NAA may be needed for continued sucker control.

Take all necessary precautions to avoid spray drift onto desirable foliage. Do not apply when temperature exceeds 85°F, as volatile NAA can cause leaf damage or fruit ripening.

ETHEPHON TO PROMOTE RED COLOR and RIPENING

Ethephon, sold as Ethrel, releases ethylene, a natural growth regulator. Ethylene stimulates ripening in fruits that have reached a certain minimum stage of maturity. Several changes accompany ripening of apples, including the following: They become softer; an abscission zone develops between fruit stem and spur; starch in the fruit is converted to sugars; internal production of ethylene increases; and the rate of respiratory heat production increases. In McIntosh and some other cultivars, the ability to develop red color in the fruit skin is stimulated as a ripening response. Use of ethephon will advance development of all the maturity-dependent changes.

Stimulated ripening may be desirable where fruit is needed for early fresh market, for increasing