

treated with scald inhibitor to control scald.

**Rome Beauty.** CA storage alone has often provided commercial scald control on mature Romes. Early harvested Romes are most susceptible to scald. DPA may cause fruit injury to Rome Beauty.

### USE OF 1 - MCP TO SLOW RIPENING IN STORAGE

SmartFresh™ [1-methylcyclopropene (1-MCP)] is a new chemical which is being marketed as a postharvest treatment for a number of products including apples. It is used to slow the ripening process. Ethylene, a gas similar in structure to 1-MCP, is an important initiator of the ripening of apple, and the onset of apple ripening occurs when the fruit begin to produce ethylene. The 1-MCP competes with ethylene for binding sites within the fruit cells, thus interfering with ethylene-activated ripening processes.

The 1-MCP treatments which have been applied on a research scale have consistently and significantly reduced the amount of ethylene produced by apples (and pears). This effect has lasted far into the storage season. How long and how strongly ethylene has been suppressed, have varied by cultivar and stage of fruit maturity at the time of harvest. Fruit already producing significant ethylene should not be as affected by 1-MCP as those not yet producing ethylene. Among cultivars, Gala did not produce appreciable ethylene even after 5 months of refrigerated storage followed by a week at room temperature, but McIntosh and Delicious did produce ethylene after 3 months of air storage when allowed a week at room temperature following the cold storage.

When Retain™-treated McIntosh were also treated with 1-MCP, the fruits' ability to produce ethylene was further delayed. Positive effects of 1-MCP treatment included improved maintenance of fruit firmness, reduction of superficial scald, and reduction of weight loss of stored fruit. These effects varied with cultivar and from season to season in trials. Other effects included delayed change in background color (green to yellow) and delayed development of volatiles which provide fruit with aroma and flavor. Gala still had not developed characteristic odor after 5 months in refrigerated air storage. Taste testing was not done, but when ripening is as completely shut down as it appeared to be in the Gala, flavor development likely will shut down as well. The 2002 1-MCP-treated fruit should give an indication of the effects the product may have on flavor.

The 1-MCP is applied as a gas in a refrigerated sealed room (CA room) in which good air movement is provided. Gas is introduced by mixing the SmartFresh™ powder with water, stirring, then leaving and closing the room. After 24 hours, the fruit are removed, or if the fruit are to remain in the treatment room, the room is flushed with air. SmartFresh™ was available in some states for the 2002 harvest season, and the manufacturer, AgroFresh, has indicated that it will be available in New England for the 2003 season. For 2002, AgroFresh required users to attend a seminar to learn application procedures for the product, and in 2003, rooms to be used as treatment chambers will have to be certified for tightness before the material may be purchased. Also note that the product has been sold in prepackaged units for rooms of defined sizes; the smallest being 18,000 cubic feet (e.g. 30ft x 30ft x 20ft). Please note that no reentry of the room is allowed until 30 minutes after it has been fully vented.

*Skilled farmers provide the foundation for a healthy society.*

