

During the winter of 1961-62, minimum temperatures were -18° F. in December, -31° in January, and -32° in February. Exposed stems of Mallings were unhurt. Earth mounds and/or trash mulch, plus a foot or more of deepest snow, protected roots. Unfortunately, a summer flood from the river killed many of the East Malling and grafted trees. One EM VIII in our backyard and a few crab frames on EM VIII and IX roots in the upper garden survived.

Lowest temperatures during the winter of 1962-63 were -16° F., -28° , and -22° respectively for December, January and February. Skimpy snowfall left much of the garden bare, and many usually hardy perennials were winter killed. The EM VIII tree had been mounded about eight inches for stooling purposes, and a two inch trash mulch covered the mound. Spring revealed two out of five branches dead from crotch injury above the mound, but small roots an inch within the mound were sound. This tree had to compete with adjacent plum trees and more distant shade trees.

The winter of 1963-64 was comparatively mild; all dwarf materials came through it uninjured, and grew well this past summer.

My observations during these past five years have given me reasons for optimism. I believe others will not fail if they grow their dwarf apples in sod or among flowers and shrubs which will compete with the apples for fall moisture. However, a good water supply should be provided through the summer. A six inch settled mulch as far as the branches spread is needed to protect the Malling roots in case of a snowless winter. Research has shown that Malling roots will be killed or badly dam-

aged if the soil temperature goes much below 15° F.

A safer and easier way to handle dwarf apples is to graft a dwarfing interstem on hardy roots. Deep, well-drained soils permit planting such trees so that the interstem is just below the ground level. A clean area one foot in diameter should be maintained at the base of the tree to prevent scion rooting. This area around the interstem can then be mulched easily.

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Washington Apple Grower Appraises Delicious Sports

At the 1963 annual meeting of the Washington State Hort. Assoc., Marvin Sundquist, a noted Washington apple grower, gave his evaluation of several of the Delicious apple sports. Included in his comparison were Hi Early, Red King, Red Queen, Red Spur, Royal Red, Starking and Starkrimson, all of which had been planted or grafted in 1956.

According to Mr. Sundquist, Hi Early appeared to develop the darkest red color, followed by Red Queen and Starkrimson. He has not found this darkness of color a handicap in marketing. He also rated them for other characteristics as follows: **early coloring**—Starkspur (1), Hi Early (2), Royal Red (3); **uniformity of coloring throughout the tree**—Starkrimson (1), Hi Early (2), Red Queen (3); **resistance to sunburn**—Starkrimson (1), Red Spur (2), Red Queen (3); **earliness of bearing**—Starkrimson (1), Hi Early (2), Red Spur (3); **typiness of fruit**—Starkrimson and Red Spur tied for first; **general uniformity of fruit**—Starkrimson (1), Hi Early (2), Red Spur (3).