

## EFFECT OF WINTER DAMAGED SPURS ON THE 1986 APPLE CROP

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Cold temperatures during the months of November, early December and in some areas, mid-February have caused slight to moderate damage to the fruiting spurs on some apple trees. With spur injury, hormone balance is upset and translocation of both inorganic and organic nutrients is restricted.

Fruit size tends to be small on spur injured trees. To produce fruit with any kind of size, one must pay particular attention to chemical thinning and do the best job possible. Chemical thinning is not only necessary to promote larger fruit size in 1986, but is also essential for any kind of return crop in 1987. It is also necessary to do a good job of hand thinning early in the season, since little advantage is realized if hand thinning occurs after July 1.

In past cases of winter injury to spurs, the restriction of organic and inorganic nutrients both ways has caused a major problem at harvest. The first problem is the lack of color on red apple varieties in which the color is very poor and late in developing. The second, and major problem is the initiation of early maturity on all varieties. Soluble solids are usually high and pressure low very early during harvest. The storage quality of fruit grown on winter damaged spurs is usually poor and subject to a high incidence of watercore. Growers tend to leave the fruit on the tree for better color. However, the longer the fruit stays on the tree the more mature it becomes. The grower also risks an increased chance of watercore and poor storage quality. Among other things, calcium disorders, such as bitter pit, have a higher incidence of occurring.

The incidence of winter injury to spurs calls for an all-out effort by the grower, horticulturist, and the warehouse operator to keep a close watch at harvest time. To promote better quality fruit, the grower and the horticulturist will have to watch maturity very closely to ensure picking at the proper time. Warehouse operators will have to make sure that fruit is cooled as soon as possible and that only the best storage facilities are utilized. If the effort is made, there should be no problem in providing high quality fruit to markets.