



# Frost and Freeze Watch



January 2009

**Avocados, like other subtropical fruit, can be adversely affected by extreme cold. When temperatures range below 28° F for four hours or more, fruit and/or tree damage may occur.**

When cold temperatures arrive, patience, discipline, knowledge, and cooperation are vital if the maximum amount of fruit is to be saved. In the event of prolonged cold, packinghouse resources may be stretched to the limit. It is important that the packer's attention remains focused on the handling of fruit that is marketable. That's why you should stay in close contact with your handler, so you know exactly what to harvest and how to minimize your crop loss.

The extent of cold damage may vary within the grove and the area, and even from one variety to the next. Since cold usually hits from November through February, remember that avocados must be legally mature before they can be sold.

## **When Cold Injures Avocado Stems**

**Stem damage may be evident but the fruit may not be hurt. When stems are completely girdled by a brown band, fruit is going to fall off the tree. Drop starts within 7 to 10 days after a freeze. This fruit has been disconnected from the tree just as if it were picked, i.e. the ripening process is underway.**

Stem damaged fruit should be picked first, assuming that it is mature and not otherwise damaged by the cold. Once the fruit has dropped its quality may be questionable since it may soften quickly. When avocados have spotted-brown stems--those not completely girdled--they usually will hold longer on the tree and not soften. Often, they will even continue to develop and harvest can be delayed. Consult with your handler for the best harvest strategy for your fruit condition.

## **Chilled Avocados May Also Drop**

**A "chill drop" may occur 7 to 10 days after a freeze as a result of damage to the avocado stem which ends its connection to the tree. Upon dropping, such avocados have lost much of their storage and shipping life and growers should avoid picking them up unless specifically advised to do so by their handler's field representative.**

There may be no outward evidence of damage, even to the stem. Yet avocados chilled at low temperatures for a long period can suddenly start to drop. If this occurs, all fruit in the affected area, if mature, should be picked immediately.

Selective picking is seldom possible because there is generally no way to tell which avocados are not chilled. Sometimes though, only fruit near the ground or in one part of the grove has been chilled. If this can be determined, unaffected fruit can be left safely on the tree to size up for later harvest.

## **When the Skin is Discolored**

***Do not pick or pick up any avocado which is discolored (bronze colored) on the outside surface.***

Discoloration of the avocado's outside skin is an indication that freeze damage has occurred. Color can range from a barely visible bronze to black.

Such fruit is seldom worth picking unless external injury is very slight and the fruit's quality is not affected. Never pick skin-discolored avocados.

## **When Fruit is Damaged Internally**

***Avocados must be legally mature. Fruit that does not appear to be otherwise damaged may be damaged internally and may not be mature enough to market. Maturity varies by variety, size and area. Your handler's field representative can provide you with advice on your fruit's maturity.***

The Avocado Inspection Service Freeze Damage Regulation states: "Freeze damage will be determined using a cut one inch from the stem or distal ends. The brown vascular bundles that show in the cut surface will be compared to a California Department of Food and Agriculture approved color chip. Fruit with vascular bundles as dark as the color chip will be scored against the tolerance. Furthermore, fruit with any water soaked areas, any internal voids, any bronzing of the outside skin, or decay and desiccation aggregating more than one half inch will be scored against the tolerance." Fruit scored against the tolerance will be rejected.

For details about the regulation or advice in the event of a freeze, contact your handler.

