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# Citrus Rind Splitting

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## SUMMARY

**Some environmental conditions can stress citrus trees and result in rind splitting. The gardener can help ameliorate this phenomenon by managing soil moisture and soil nutrient levels.**

*Q: The rinds on some of the oranges on my navel orange tree are splitting open on the tree before they are ripe. What causes this splitting and how can I prevent it?*

A: Spontaneous splitting of citrus rind, especially on navel oranges, is not uncommon. On oranges the split starts at the navel end of the fruit, the weakest point in the rind. It is sometimes shallow but can also be deep and long, exposing the fruit membrane. Usually the splitting occurs before the fruit is ripe, and decay fungus such as blue and green mold can invade the wound. Typically only some of the fruit on the tree is affected.

## It's Cultural or Environmental

Citrus rind splitting is not caused by a disease or by biological pests. While the exact cause is not fully understood, splitting is thought to result from environmental or cultural conditions that stress the tree.

## Fluctuating Conditions

Extreme fluctuations in temperature, humidity and soil moisture can result in

rind splitting. When drying winds occur during hot weather, the tree can become drought stressed and begin taking water from the fruit. If the tree is then irrigated heavily or if a good rain follows the hot spell, water and sugars are transported from the roots of the tree to the fruit. The rind of the dehydrated fruit is not able to expand quickly enough to contain the added volume, and the rind bursts open under pressure. In our area, high air temperatures and windy conditions can occur followed by rains in fall months. Not surprisingly, rind splitting most often occurs in the months of September, October and November.

## Manage Soil Moisture Levels

High fluctuations in nutrient levels may also contribute to the problem. Take care to avoid extreme fluctuations in soil moisture and fertilization levels during the growing season. Irrigate trees regularly to provide constant soil moisture, especially during hot or windy weather. If a hot, windy period is expected, irrigate before the winds begin. After winds subside, irrigate



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lightly for a few days before resuming a normal irrigation schedule.

### Manage Soil Nutrient Levels

Instead of one large application of quick release fertilizer each year, apply smaller amounts monthly throughout the growing season (February through May) to help keep nutrient amounts level. Or, you can use a timed-release fertilizer early in the growing season to supply nutrients at an even rate over the growing season. Check the potassium levels in the soils in the drip line around the tree canopy and add a potassium source if levels are low. Compost and some organic fertilizers (e.g. potassium sulfate) are good sources of potassium. Soil application of ten pounds of potassium sulfate in bands around the

drip line of a mature navel orange tree will correct a potassium deficiency for several years.

### Sanitation Is Important

Be sure to remove any fruit that has split and discard it. Damaged fruit is susceptible to invading organisms that may cause diseases. Decaying fruit may also invite insects, fungi, bacteria, and other unwanted pests.

### For More Information:

Additional information on growing and caring for citrus can be obtained from the University of California website The Home Orchard at:

[http://homeorchard.ucanr.edu/Fruits & Nuts/Citrus/](http://homeorchard.ucanr.edu/Fruits_Nuts/Citrus/).



Photo: Elizabeth E. Grafton-Cardwell, courtesy UC Statewide IPM Program