



# Don't let **BLOSSOM END ROT** take a bite out of vegetable production

Several strategies can help protect tomatoes, pepper, squash

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Ask any gardener – there is nothing like the taste of home-grown vegetables fresh from a garden.

Growing prize tomatoes and peppers in a place like Wyoming can take a bit more effort than growing them elsewhere. If you read the article, “What’s wrong with my tomatoes?” in last summer’s *Barnyards & Backyards* magazine, you know several ailments can really put an end to what looks like a bumper crop.

One all-too-common ailment in Wyoming is blossom end rot (BER). Knowing a little bit about this disorder can help avoid the disappointment of watching fruit wither on the vine.

BER, as the name of this nutrient disorder indicates, is the early maturation (and subsequent rotting) of portions of the fruit flesh, usually near the blossom end of the fruit. It can occur on tomatoes, peppers, and squash.

The affected flesh rots when it becomes colonized by saprophytic fungus before the rest of the fruit has matured. This is what causes the affected area to turn yellow or brown and later, as decomposition progresses, black. Once BER occurs, remove affected fruits from the plants, as they will not recover. If small, the affected area can be trimmed, and the rest of the fruit is safe to eat.

BER is generally understood to be caused by low calcium concentrations in the fruit tissue; however, some researchers believe BER is the cause of low calcium in the tissue, not the result. Most Wyoming



*The saprophytic fungus feeds on the dead vegetable flesh.*

soils have sufficient levels of calcium, but there are some environmental factors that limit how much calcium plants can take out of the soil. Reducing stress on the plants from drought and salinity will help improve calcium uptake and fruit quality.

Careful water management is one of the most important things gardeners can do to minimize BER risk. This is a case of “just right” – not enough water and you cause drought stress, too much water and you have waterlogged soils.

A screwdriver or thin metal rod can be used to measure the depth of water in your soil. You will be able to easily push the rod into moist soil but will feel increased resistance when you reach dry soil. The soil should be kept moist (but not saturated) to a depth of at least 12 inches. This method of testing does not work very well in raised beds or containers since the soil typically contains very high levels of organic matter that

does not harden as it dries.

Some nutrients compete with calcium for plant uptake, so high levels of soluble salts (often found with over-fertilization) can increase BER risk. There are many laboratories that can measure soluble salts in soil and irrigation water. Contact your local University of Wyoming Extension educator for assistance with soil and water tests. Fertilizers, manures, and some composts contain high levels of soluble salts. Limit the use of these materials to only what is needed, as recommended by a soil test.

Drought and heat stress can stress plants, leading to increased BER. There is some evidence using shade cloth can help reduce BER in tomatoes and peppers. Minimize heat stress by shading plants during the hottest part of the day.

A high leaf-to-fruit ratio or excessive vegetative growth increases BER likelihood. In tomatoes, removing side shoots or suckers encourages more

fruit production and can help maintain a healthier leaf-to-fruit ratio. Thinning fruit increases fruit size and chances of BER. High rates of nitrogen fertilizer can also increase the leaf-to-fruit ratio so only use what you need.

Some varieties are more likely to develop BER than others. Consult seed catalogs and extension publications for information about varieties less susceptible to BER such as Mountain Delight, Mountain Fresh, Mountain Spring, Mountain Pride, Celebrity, Fresh Pak, Jet Star, Manapal, Pik Red, Sunny, and Winter tomatoes.

There is limited evidence foliar calcium sprays can reduce BER rates. To be effective, calcium spray must be applied directly to the fruit, not the leaves. In most plants affected by BER, the leaves already contain more calcium than the fruits. However, because these fruits have such a waxy coating, absorption of calcium from the surface of the fruit may be limited.

There are many factors that contribute to BER in tomatoes, peppers, and squash, but all is not lost – carefully manage water and nutrients in the soil, protect plants from stress, and try different varieties.

After all of the hard work that goes into raising home-grown veggies, enjoying those crisp red tomatoes and fresh peppers at the end of the growing season seems a fitting reward.

## Resources

<http://bit.ly/cornellhelp>

<http://bit.ly/unlhelp>

<http://bit.ly/ipmhelp>

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