



Osmopro Technical Data Sheet

Here's a few solutions to help growers significantly reduce the risk of bitter pit in apples

What is Apple Bitter Pit Disease?

This disorder is the result of a lack of calcium in the fruit. Calcium may be plentiful in the soil and in the leaves or bark of the apple tree but lacking in the fruit.

The symptoms of apple bitter pit are mildly water-soaked lesions on the skin of the apple that become evident beneath the skin as the disorder develops. Under the skin, the flesh is dotted with brown, corky spots that indicate tissue death. The lesions vary in size but are generally about ¼ inch across.

Some apple varieties are more prone to bitter pit than others. Spy apples are frequently affected and with the correct conditions, Delicious, Idared, Crispin, Cortland, Honeycrisp and other varieties may be afflicted.

Osmopro®

- The purest form of glycine betaine, which has been extracted from sugar beet and is a natural amino acid.
- Regulates water flow within the plant to maintain normal osmotic balance.
- Glycine betaine is an osmolytic compound, which helps to maintain the plant cell turgor in stress conditions. Increased stress increases bitter pit.
- Improves the plant's tolerance to different stress conditions, i.e. cold, heat, drought and salinity.
- Improves flower retention and fruit setting.
- Enhances the plant's photosynthesis and reduces light respiration.
- After foliar spraying, Osmopro is taken up via the epithelium and translocated throughout the plant within 12 hours.
- Best applied at times of highest humidity.
- Calcium and boron are quickly absorbed by leaves supported by the presence of glycine betaine which is ideal for treating bitter pit in apples and blossom end rot in tomato and capsicum.
- The effect of glycine betaine lasts for 2 – 4 weeks dependent on stress levels.
- Can be used together with fertilizers and microbial products.
- OMRI listed for organic apples.



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Apple Bitter Pit Treatment with Osmopro

Several factors can lead to insufficient calcium. Bitter pit control will be the result of cultural practices to minimize the disorder.

Large apples from small crops tend to be more prone to bitter pit than apples harvested during heavy crop years. Fruit thinning results in larger fruit, which is often a desirable thing but since it may foster bitter pit, apply a calcium/Osmopro spray to better control bitter pit.

Excessive nitrogen or potassium seems to coincide with bitter pit as does fluctuating soil moisture; mulch around the tree with a low nitrogen material to help retain moisture.

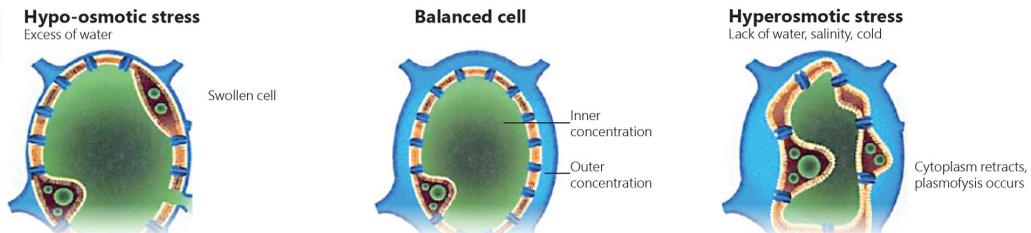
Heavy dormant season pruning increases shoot growth because it results in higher nitrogen levels. Heavy shoot growth leads to a competition between fruit and shoots for calcium which may result in bitter pit disorder. If you plan to prune the apple tree severely, reduce the amount of nitrogen fertilizer provided or, better yet, prune judiciously each year.

Osmopro aids in the uptake in calcium when applied as a foliar application.

Treatment guidelines:

1. Start the Osmopro/calcium application early. Petal fall is too late. Start at first bloom during cell division. A period that lasts 28-30 days.
2. Use the correct form of calcium that is soluble
3. Spray with calcium every five to seven days. Apply Osmopro at one pound per acre with the calcium spray every 14 days.
4. Don't over thin to increase the size of the fruit. Fruit load management is key.
5. Watch your nitrogen levels. Do not over fertilize with nitrogen.
6. Treat for boron and molybdenum deficiencies.
7. Do not apply foliar potassium sprays during cell division, apply potassium after cell division window is over.

Diagram



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