Potassium and other factors needed for high quality tomatoes

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Tissue tests taken in tomato fields over the last 6 weeks show that fields with good levels of potassium (K) (≥3.2%) have overall lower levels of fruit ripening problems than fields with below recommended levels of K (< 2.5%). Figure 1 shows an example of a tomato with good levels of K, while figures 2 and 3 show what often happens when K levels are too low. Tomatoes like the one in figure 2 can still occur in fields with high K levels because about 60% of the fruit ripening problems can be explained by the lower levels of potassium in the plants, but that still leaves about 40% that potassium levels do not explain. What are some of these other factors? One of them is the cultivar grown, some cultivars are just more prone to fruit ripening problems then others and the best way to find the ones that work in your growing system is to trial several cultivars over the years.

Another factor is the weather. Intense heat and high humidity along with very intense sunny days or heavy downpours will take a toll on plants and can reduce the quality of the fruit. The first few clusters of fruit that are produced on a vine usually look the best as these clusters are found deep inside the plant and shielded from rain and intense sun. As the later clusters mature they are often exposed (fig. 4) and can end up with sunscald, rain check (fig. 5) or other fruit ripening problems. Good canopy coverage will help with protecting these later clusters of fruit. One other thing that will help with these exposed fruit is using a 30% shade over the top 1/3-1/2 of the plants. I know most growers will not use this but it has been shown to increase the marketable yield of tomatoes by 20-50% depending upon the year and the shade cloth can be used for many years. Other factors impacting fruit quality include diseases and other nutrient deficiencies such as phosphorus, nitrogen and boron. So while there are many factors that go into producing a lovely red tomato potassium levels, cultivar selection and weather play the biggest roles and their impact can be mitigated to produce the best fruit with the best investment.

Fig. 1 No internal whitening of tomato

![Tomato with good potassium levels](image1)

Fig. 2 Greater level of internal whitening

![Tomato with low potassium levels](image2)
Fig. 3 Very high level of internal whitening

Fig. 4 Fruit clusters exposed to the weather

Fig. 5 Rain check on tomato fruit