

Late Blight Resistant Tomato Varieties

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Resistant varieties are the most useful tool for managing plant diseases, especially for a disease like late blight. Thus finally having tomato varieties resistant to late blight is truly exciting news for gardeners and farmers alike. Plant diseases are most effectively controlled with management practices implemented before the disease starts to develop or at the first sign. This is because, unlike with people and animals, plants cannot be cured of a disease and there are no medicines that can make their symptoms disappear. When resistant varieties are grown, the management practice is in place before the disease starts to develop. This is especially valuable with late blight because it is a difficult disease to attempt to manage after onset. And since the prognosis is for late blight to occur sporadically and rarely, fungicides applied preventively for late blight may provide no benefit except insurance when there are no other diseases occurring.

Three tomato varieties resistant to late blight are available in 2011, the first year seed was offered for sale, and more are being developed. Mountain Magic (a campari or large cherry type) and Plum Regal were developed by Randy Gardener at North Carolina State University and are being produced by Bejo Seeds and distributed by Seedway. Defiant PhR is a mid-sized slicer from Johnny's Selected Seeds. Plant breeders at seed companies and universities (including Cornell) are developing varieties with two major genes for resistance to late blight, Ph-2 and Ph-3, to obtain a high level of broad resistance. Resistance is expressed in all parts of the plant. These varieties were highly effective against the main strain (genotype) of the pathogen present in 2009. Late blight resistant varieties are being bred to also have resistance to a more common foliar disease, early blight, as well as to Septoria leaf spot by a Cornell breeder.

While resistance to disease is an important trait for a tomato variety, it is flavor, yield and other aspects of fruit quality that usually drive variety selection. So how do these new varieties perform? This was the goal of several experiments conducted in 2010, including at Cornell's research facility on Long Island (LIHREC). Mountain Magic received the highest rating for Taste and for Overall Satisfaction by researchers conducting this experiment as well as a total of 70 growers and consumers who evaluated fruit independently or at various events. Full report on this experiment is posted under 'New for 2011' at <http://www.hort.cornell.edu/lateblight>

Resistant varieties are being evaluated again in 2011 on Long Island where a late blight outbreak is occurring thus providing an opportunity to assess ability of these varieties to suppress this disease.

Resistant varieties are not immune and new pathogen strains can develop able to overcome resistance genes; therefore, as with non-resistant varieties, it is important to routinely inspect resistant ones for disease symptoms. Fortunately no strain has been found yet able to overcome the combined resistance of Ph-2 and Ph-3. When late blight is found, it is important to report and submit a sample, especially with resistant varieties, and to manage the outbreak. Late blight occurrence can be reported and monitored through a new national program (<http://usablight.org/>).

Plum Regal

http://www.seedway.com/vegseed_catalog_prices.asp?ShowProd=5472

Mountain Magic

http://www.seedway.com/vegseed_catalog_prices.asp?ShowProd=5473

Defiant PhR

<http://www.johnnyseeds.com/p-8473-defiant-phr-f1.aspx>

'Mountain Magic' tomatoes

