Serving Tomato Growers in North Carolina and Beyond

The Need: North Carolina tomato growers must contend with a range of challenges with every crop they plant. Factors such as the weather and markets are often fickle. Then there are diseases such as Fusarium wilt race 3, early blight and tomato spotted wilt virus, which has become an increasing problem in recent years.

Serving the Need: North Carolina fresh-market tomato growers have no better friend than Dr. Randy Gardner, a tomato breeder in N.C. State University’s College of Agriculture and Life Sciences. Stationed at the Mountain Horticultural Research and Extension Center in Fletcher near Asheville, Dr. Gardner works to develop new tomato varieties with improved disease resistance and other traits that are adapted to the varied growing conditions in North Carolina.

Gardner has developed 18 new tomato varieties adapted to North Carolina conditions but used by growers well beyond the state. Among this string of successful varieties are three — Mountain Supreme, a large-fruited tomato, and Plum Dandy and Plum Crimson, both Roma-type tomatoes — with resistance to early blight. Studies with Mountain Supreme have shown that growers can control early blight when they spray their tomatoes with fungicide every 10 days in Western North Carolina. The grower who plants a more susceptible variety must spray every five days to control the disease.

Plum Crimson is also resistant to Fusarium wilt race 3, as is Floralina, a hybrid developed by Gardner in collaboration with breeders at the University of Florida. Floralina produces large, high-quality fruit in fields where race 3 of Fusarium is present and cannot be controlled with chemicals. In addition, Crista, one of Gardner’s newest creations, is resistant to tomato spotted wilt virus, nematodes and Fusarium wilt race 3. It’s grown widely in North Carolina and other Southern states.

Gardner has also developed varieties bred for longer shelf life and with higher than usual amounts of lycopene, the red pigment in tomatoes that is also an antioxidant.

Impact beyond North Carolina: The use of adapted, disease-resistant tomato varieties results in substantial savings in production costs and lessens the environmental impact of chemical use. In the case of Fusarium wilt race 3, growers can produce a crop in disease-infested fields where no alternative control is available. Where tomato spotted wilt virus is an issue, growers using a resistant variety can produce fruit where tomatoes could not be grown otherwise. Growers who plant tomato varieties developed by Randy Gardner are more profitable. The majority of the vine-ripe tomato acreage planted in the Eastern United States is planted in varieties developed by Gardner. The rights to sell seed of most of Gardner’s varieties have been sold to seed companies, and based on royalties paid on seed sales, Gardner estimates that $2 million worth of seed for his varieties is sold annually.

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