

North Carolina Agricultural Research Service
North Carolina State University
Raleigh, North Carolina

Notice of Release of 'Mountain Honey' Hybrid Grape Tomato

North Carolina Agricultural Research Service announces the release of 'Mountain Honey' hybrid grape tomato. 'Mountain Honey' (tested as NC 10242), resulted from a tomato breeding effort initiated in 2003 to develop a superior hybrid grape tomato with improved fruit color based on the crimson gene combined with late blight, fusarium wilt race 3, and tomato spotted wilt virus resistances. 'Mountain Honey' is the F₁ hybrid resulting from the cross of NC 07310(x)-14-1-9 (simultaneous release as NC 4Grape breeding line) x NC 08135(x)-8W-15-16-64 (simultaneous release as NC 6Grape breeding line) (see figure 1). The resultant hybrid, 'Mountain Honey', first crossed in the fall of 2009, was tested in replicated and observational trials at the Mountain Horticultural Crops Research Station (MHCRS), Mills River, NC, in 2010 through 2012 and was widely tested in grower plantings in western North Carolina and the coastal area of South Carolina. It has performed extremely well in these trials in research station and grower fields.

Performance of 'Mountain Honey' was compared with 'Smarty', a superior hybrid grape tomato released from our program and extensively grown commercially in different parts of the country. When averaged over four trials with three replications each at MHCRS in field trials in the summer seasons of 2010-2012, 'Mountain Honey' was significantly higher than 'Smarty' in total yield, marketable yield and percent marketable yield and had equivalent fruit size (10.6 g per fruit). Average total soluble solids (TSS) of 'Mountain Honey' was 7.1%, slightly lower than 'Smarty' (7.5%), when six fruits were tested per time for three times from each replication from early replicated trials in 2010 and 2011.

Fruit of 'Mountain Honey' develop deep red color and are firm in the fully ripened stage. Immature fruits have a glossy, uniform green color (*u* gene). Fruit pedicels are jointed. The fruit are long ovate in shape and have good resistance to fruit cracking and bursting, despite high TSS levels. Flavor of 'Mountain Honey' has been rated excellent in subjective taste evaluation of fruit produced in research station plots and in grower trial plots.

'Mountain Honey' has a vigorous vine with indeterminate growth habit with short internodes conferred by the brachytic (*br*) gene; plants are slightly shorter than 'Smarty' in height. Foliage provides adequate coverage for fruit protection. In grower plantings in coastal SC, where tomato spotted wilt virus was prevalent, 'Mountain Honey' was free of virus symptoms, whereas 'Smarty' was severely affected by the disease. Presence of the *I-3* and *Sw-5* genes for resistance to fusarium wilt race 3 and tomato spotted wilt virus, respectively, were verified by molecular markers tightly linked to the resistance genes. A high level of resistance to fusarium wilt race 3 was verified for 'Mountain Honey' in a seedling inoculation screen in a growth chamber. Seedling screening for late blight resistance in a greenhouse test verified that 'Mountain Honey' has a moderate level of resistance to late blight. 'Mountain Honey' is the first hybrid grape tomato with these important disease resistances combined.

Breeder seed of 'Mountain Honey' and each parent are available by contacting Dr. Dilip Panthee, Mountain Horticultural Crops Research and Extension Center, 455 Research Drive, Mills River, NC 28759 or by telephone: 828.654.8590; fax 828.684.8715; email:

dilip_panthee@ncsu.edu. To acquire seed of the parents of 'Mountain Honey' or the hybrid for non-exclusive, non-transferable research purposes, a fully executed tomato seed transfer agreement (parents) or plant trial agreement (hybrid) is required with NC State University's Office of Technology Transfer. NCSU will invite proposals from interested tomato seed companies and select one company to enter into an exclusive production and marketing agreement for 'Mountain Honey'.

David W. Monks
Interim Associate Dean and Director,
North Carolina Agricultural Research Service

Date

Figure 1. Pedigree of 'Mountain Honey' hybrid grape tomato

