

NORTH CAROLINA AGRICULTURAL RESEARCH SERVICE  
NORTH CAROLINA STATE UNIVERSITY  
RALEIGH, NC

Notice of Release

'Mountain Lion' Fresh Market Hybrid Tomato

'Mountain Lion' is the F1 hybrid of NC 1CS x NC 2rinEC tomato breeding lines released by NC State University (Fig. 1). It resulted from a breeding effort to develop a superior large-fruited F1 hybrid tomato with improved fruit color, increased lycopene (*crimson* gene, homozygous) content and increased shelf-life (heterozygous ripening inhibitor gene (*rin*)) in combination with resistances to fusarium wilt, verticillium wilt and tomato spotted wilt virus. The resultant hybrid, NC 0821, first crossed in the fall of 2007, was tested in replicated and observational trials at the Mountain Horticultural Crops Research Station (MHCRS), Mills River, NC, in 2008-2011. It is particularly adapted to vine-ripe production conditions in North Carolina.

When averaged over eight replicated trials conducted at MHCRS in early and late plantings in the summer seasons of 2008-2011, 'Mountain Lion' was equivalent to 'Mountain Fresh', 'Mountain Majesty' and 'Red Defender' in total yield, U.S. Combination grade yield, percent combination grade fruit, and fruit size. A high percentage of the fruit of 'Mountain Lion' were in the Jumbo size category (> 3.5" in. diameter), which is highly desirable for vine-ripe tomatoes and for which growers are often paid a premium over smaller fruit sizes.

'Mountain Lion' has the same disease resistances as 'Mountain Majesty' and 'Red Defender'. Like 'Mountain Majesty', it has the *crimson* gene in homozygous condition for improved internal fruit color and increased lycopene content, but it has increased shelf life compared to 'Mountain Majesty' as a result of having the *rin* gene in heterozygous condition. 'Red Defender' has the *rin* gene in heterozygous condition for increased shelf life but lacks the *crimson* gene present in 'Mountain Lion'.

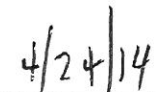
Fruit of 'Mountain Lion' develop deep red color resulting from the *crimson* gene and are very firm even in the fully ripened stage. Immature fruit have a glossy, uniform green color (*u* gene). Fruit pedicels are jointed. The fruit are deep oblate to flattened globe in shape with generally smooth blossom end scars and have good resistance to fruit cracking and weather check. Flavor of 'Mountain Lion' has been rated good in subjective taste evaluation in research station plots and by growers and consumers of fruit produced and marketed from grower trial plantings.

'Mountain Lion' has a vigorous determinate plant (*sp* gene) similar in height to that of 'Mountain Fresh' and 'Mountain Majesty' when staked. Foliage provides adequate cover for fruit protection. 'Mountain Lion' has resistance to verticillium wilt (*Ve* gene) caused by *Verticillium dahliae* Kleb., fusarium wilt resistance (*I*, *I-2* genes) to races 1, 2 caused by *Fusarium*

*oxysporum* f.sp. *lycopersici* (Sacc.) Snyder and Hans. contributed by both parents, and resistance to TSWV (*Sw-5* gene), which is contributed by NC 1CS. It also has the ripening inhibitor (*rin*) gene in heterozygous condition, which comes from NC 2rinEC, and increases the shelf-life of tomato. Total and marketable yield of 'Mountain Lion' was significantly higher than 'Mountain Fresh' in 2008 when there was severe TSWV infection in the field.

Trial seed of 'Mountain Lion' and seed of each of its parents are available by contacting Dr. Dilip Panthee, Mountain Horticultural Crops Research and Extension Center, 455 Research Drive, Mills River, NC 28759 or by telephone: 818.654.8590; fax: 828.684.8715; email: [dilip\\_panthee@ncsu.edu](mailto:dilip_panthee@ncsu.edu). To acquire seed of the parents of 'Mountain Lion' 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 solicit proposals from interested tomato seed companies and select one company to enter into an exclusive production and marketing agreement for 'Mountain Lion'.

  
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Director, North Carolina Agricultural Research Service

  
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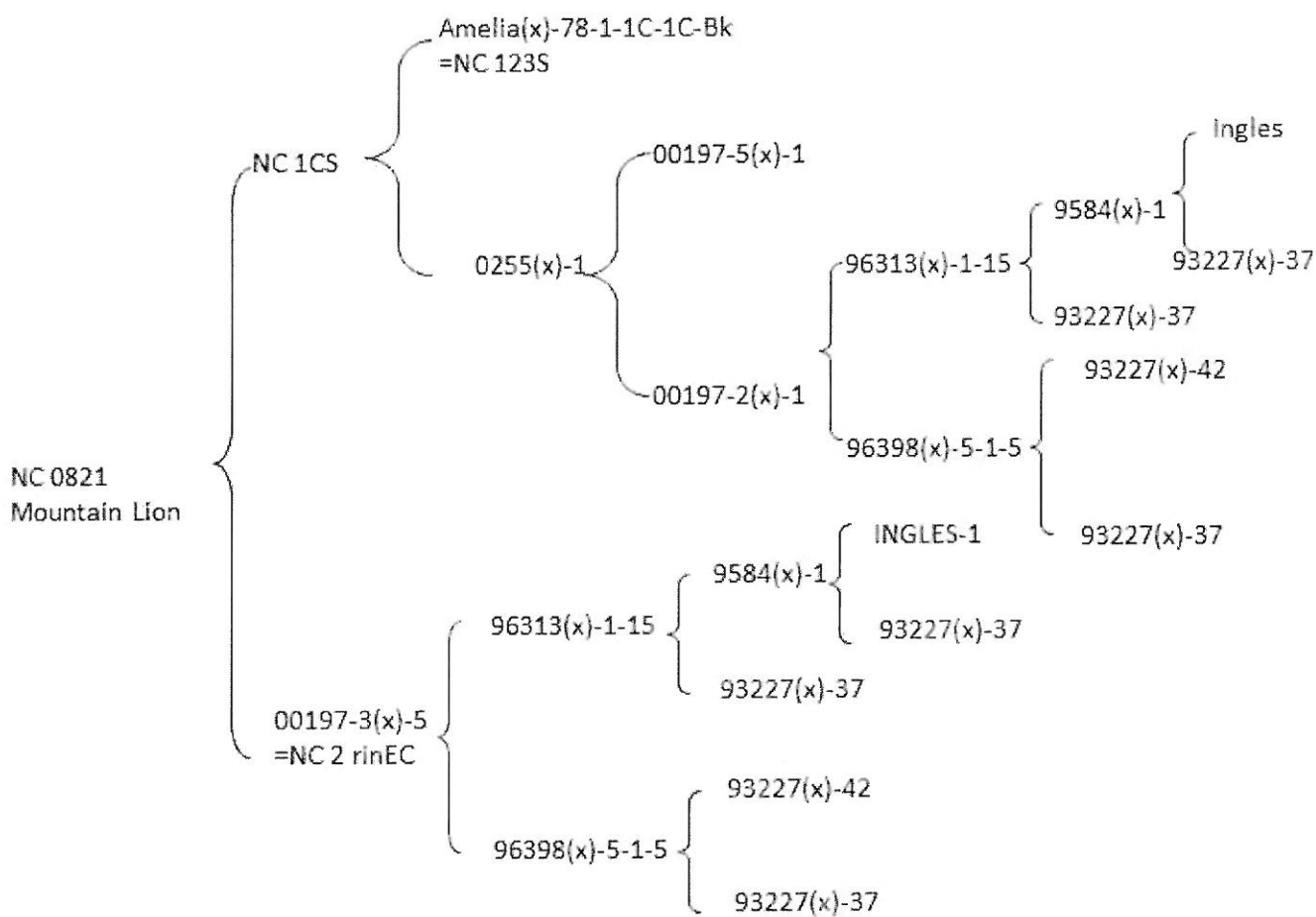


Fig. 1: Pedigree of 'Mountain Lion' (NC 0821) hybrid tomato.