TO: Interested Tomato Seed Companies

The North Carolina Agricultural Research Service (NCARS) is pleased to announce the development and release of a new tomato breeding line, ‘NC 4 Plum’.

‘NC 4 Plum’ resulted from selfing NC 13272, the F₁ hybrid of NC1CELBR x Ontario 7710, and selecting a large F₂ population. NC1CELBR is a large-fruited tomato breeding line with desirable horticultural traits and resistance to late blight (Ph-2 and Ph-3 genes) developed from NC State tomato breeding program. Ontario 7710 is a processing tomato breeding line resistant to Bacterial speck developed in Canada. This line’s seeds were obtained from the commercial sources to make crosses with NC tomato breeding line and were used as a source of Bacterial speck resistance (Pto gene). The objective of breeding NC 4 Plum was to incorporate Bacterial speck resistance (Pto gene) into the desirable horticultural background of tomato and combine with other disease resistances including late blight resistance (Ph-2 and Ph-3 genes) and develop plum breeding line. Single plant selections were made for large fruit size, yield, and other desirable horticultural traits in the F₂ through F₅ generations derived from selfing NC 13272. Seed of the F₆ generation were bulked to produce the F₇ generation inbred line proposed for release as ‘NC 4 Plum’. No segregation was found beyond F₄ generation grown in 2016 plot.

The plant growth habit of ‘NC 4 Plum’ is vigorous, determinate with attractive, heavy foliage cover. Fruits are slightly round in shape and have joined pedicels. Immature fruits are uniform light green (u gene). Ripe fruits are firm. Disease resistances include verticillium wilt (Ve gene), fusarium wilt races 1 and 2 of (I and I-2 genes), late blight (Ph-2 and Ph-3 genes), and Bacterial speck (Pto gene).

The average marketable yield of 22.2 ton/ha and total yield of 29.0 ton/ha of NC 4 Plum was not significantly different from control breeding lines. However, its fruit size (136.3 grams per fruit) was significantly larger than controls. Considering its acceptable yield, large fruit size, disease resistance package and good combining ability, it is being used as a parent in other crosses. ‘NC 4 Plum’ is not intended for use as a cultivar but solely as a parent for its contribution of excellent fruit size, and other desirable horticultural traits and disease resistance genes when used as a parent in F₁ hybrids. ‘NC 4 Plum’ is the first line developed for release from the NCSU tomato breeding program that combines the Bacterial speck resistance and late blight resistance into the desirable horticultural background. It is intended for crossing with other lines having the recessive crimson gene so the hybrids will have an improved red color.

To acquire seed of NC 4 Plum for non-exclusive, non-transferable research and breeding purposes, a fully executed tomato seed transfer agreement is required with NC State University’s Office of Research Commercialization. Please contact Dr. Dilip Panthee (Dilip_Panthee@ncsu.edu).

If you have further questions about this breeding line after reviewing the attached materials, please contact me by email: loren_fisher@ncsu.edu or by phone at 919-515-4059.

I look forward to hearing from you.

Sincerely yours,

Loren Fisher
Assistant Director, North Carolina Agricultural Research Service

Cc: Steve Lommel
    Rob Whitehead
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