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BACTERIAL SPOT RESISTANCE, YIELD, AND QUALITY OF BELL AND SPECIALTY PEPPERS

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After completing a three-year study of bell pepper cultivars under induced bacterial spot (*Xanthomonas campestris* pv. *vesicatoria* or *Xcv*) and bacterial spot-free environments, we began a new series of trials in 2000 to compare new cultivars with previously recommended cultivars that were either highly resistant ('Boynton Bell') and/or that had very attractive fruits ('X3R Wizard'). We also screened a large number of hot and specialty peppers, some of which also carry the *Bs2* gene for bacterial spot resistance. Near-duplicate trials were planted in Lexington (LEX), Kentucky and at an isolated location in eastern Kentucky (QSND). Plots at both locations consisted of 16 plants in double rows with four replications in a randomized complete block design for bells and in single plots for hot and specialty peppers. All were planted on raised beds with black plastic mulch and drip irrigation. No preventive fungicide treatments were applied at QSND in order to encourage the development of a natural bacterial spot epidemic. Hot and specialty peppers included a group of 13 jalapeño cultivars of which two had the *Bs2* resistance gene (>X3R Ixtapa= and >El Rey=) and others claiming multiple virus resistance. These were compared with >Mitla=. Other pepper types included three serrano cultivars, six anaheim cultivars, seven poblano/ancho cultivars (entry SVR 35-4845-7 had the *Bs2* gene), four Italian/cubanelle cultivars, four hot banana/wax cultivars (X3R Hot Spot and SVR 35-4846-7 with *Bs2* gene), six sweet banana/wax cultivars (>Pageant=, >Sweet Spot=, and PX 35-4360-7 with *Bs2* gene), two fresno cultivars, and two pepperoncini cultivars.

Although yields were somewhat lower than in 2000, most of the bell pepper cultivars were high yielding (20-25 tons/acre) at LEX with 9 that were not significantly different from the top yielding cultivar >X3R Aristotle=. >Aristotle=, >King Arthur= (bacterial spot susceptible), >4 Star=, >Boynton Bell=, and >Lexington= were also in this category in the 2000 LEX trial. There were no statistically significant differences among cultivars for total marketable yields or gross incomes at QSND. Marketable yields ranged from 13 to 18 tons per acre. Some of the highest yielding cultivars at QSND were also in the highest yielding group of varieties tested at LEX: >4 Star=, >X3R Aristotle=, >X3R Red Knight=. Yields at this location appeared to have been affected by the early bacterial spot epidemic.

Most jalapeño cultivars had high marketable yields at LEX ranging from 14 to 27 tons per acre with three cultivars exceeding >Mitla=. Among these >Coyame=, >Summer Heat 6000', and RPP 7042-VP had the most attractive fruits. Marketable yields for the three serrano cultivars at LEX ranged from 15 to 22 tons per acre with >Tuxtlas= and >Serrano del Sol= having the highest yields and most attractive fruits. >Tuxtlas= was also the highest yielding and most attractive serrano in 2000.

Yields of the six anaheim cultivars ranged from 15 to 31 tons per acre at LEX; >Navojoa= was the highest yielding while PX-35-4606-7 and >Anaheim TMR 23' had the most attractive fruits. >Navojoa= was also highest yielding at QSND in spite of severe BLS symptoms early in the season. Yields among the seven poblano cultivars at LEX ranged from 4 to 21 tons per acre. >Ancho Villa= was again (as in 2000) the highest yielding with the largest fruit size. The only entry with the *Bs2* gene for resistance to bacterial spot (SVR 35-4845-7) was high yielding and had the

highest appearance rating at LEX. Most poblano/ancho cultivars are quite susceptible to bacterial spot and yields at QSND may have been affected by the early epidemic at this location. >Mulato Isleno= had very low yields at both locations. Yields for the four Italian/cubanelle or frying peppers ranged from 17 to 28 tons per acre at LEX. >Aruba= had the highest yield and largest fruit size followed by >ACX 500'. As in 2000, >Corno di Toro= was considered to have the most attractive fruits although they were light to medium green in color instead of the typical light green or pale yellow. >Key West=, a new cultivar with the resistance to bacterial spot, appeared to be unaffected by the early epidemic at QSND. Two hot banana cultivars and >Santa Fe Grande= were tested. >X3R Hot Spot= (with the *Bs2* gene) had the highest marketable yield and good appearance ratings at LEX (26 tons/acre). Both >Inferno= and >Santa Fe Grande= had severe symptoms of bacterial spot associated with the early epidemic at QSND. The six sweet banana or sweet wax cultivars included two with the *Bs2* gene (>Pageant= and PX 35-4360-7); yields at LEX ranged from 21 to 32 tons per acre. PX 35-4360-7 was the highest yielding entry at both locations and had the most attractive fruits. Most cultivars had many >C=- or apostrophe-shaped fruits. >Market Sweet= was high yielding at LEX but exhibited severe BLS symptoms during the brief epidemic at QSND.