

2003 Tomato Cultivar Trial, Quicksand, Kentucky
R. Terry Jones, Charles T. Back and John C. Snyder
Department of Horticulture, Robinson Station

Introduction

Kentucky growers produce approximately 1200 acres of staked, vine-ripe tomatoes for local and national sales. Kentucky tomatoes have an excellent reputation for quality among produce buyers. This trial evaluated new and existing cultivars to identify those that might produce a premium tomato with resistance to a potentially serious virus problem (Tomato Spotted Wilt Virus, TSWV). Cultivars were evaluated for yield, appearance, earliness and potential return to growers. We wanted to see if the new tomato cultivars with resistance to TSWV would produce attractive fruit, acceptable to the industry.

Materials and Methods

Eighteen tomato cultivars were evaluated at Quicksand, Kentucky (Table 1). Fourteen cultivars had large, red fruit. One cultivar had large yellow fruit, another was a plum tomato and two were grape tomatoes.

According to soil test results (Table 2) the plot received 60 lb P₂O₅, 60 lb of K₂O and 50 lb N/A preplant. An additional 100 lb of N/A was applied through the drip irrigation lines during the growing season. Pest control was based on recommendations from ID-36, *Vegetable Production Guide for Commercial Growers*. Fungicides were applied weekly and insecticides, as needed.

Trays were seeded in the greenhouse at Quicksand on 26 March. Black plastic mulch and drip tape were laid on 12 May and the tomatoes were planted on 13 May. Cultivars were replicated four times with eight plants/block. Plants were spaced 18 in. apart so that each plot was 15 ft long. Three feet separated each cultivar in a block. The rows were 7 ft. apart on center to allow the sprayer to be driven between rows.

Nine harvests were made during this trial. The two grape tomato cultivars were harvested when they were red; other cultivars were harvested at the breaker stage. Data collected included: grade, weight and count for extra large (>3.5 in.), large (>2.5, <3.5 in.), No. 2, small (<2.5, >2.0 in) and cull tomatoes. Reasons for culling included catfacing, concentric or radial cracks, disease, scars, blossom end rot and uneven ripening. Incomes were calculated based on the prices received by growers for stake tomatoes, or on prices at the Atlanta terminal market for plum/roma and grape tomatoes (Table 3).

Results and Discussion

The 2003 growing season was wetter and slightly cooler than normal. Rainfall totals for May through August were: 5.8, 6.5, 4.2 and 3.6 inches. Heavy rains and high humidity in June lead to poor initial fruit set in the first cluster and catfacing (open locule) on early fruit in many cultivars. As a result there were more cull fruit at harvest than usual. The skin on most tomato cultivars was thinner than usual and lacked the usual waxy feel and smooth appearance. The appearance of fruit harvested during August was normal.

Compared to the early yields of other stake tomato cultivars, Sunshine produced considerably more jumbo, extra large and large fruit, as well as total marketable yield (Table 4). Early income was also considerably higher than those for Amelia and Mt. Spring. Amelia,

produced more large fruit than did Mt. Spring. However, early income for Amelia was not significantly different from that of Mt. Spring. Sunchief, BHN 591, Sungard, Sunleaper, BHN641 and Mt. Fresh produced early jumbo-large yields equal to that of Mt. Spring (Table 4).

For the entire season, BHN444 had the highest total marketable yield but it was not significantly different from the yields of ten other large-fruited cultivars (Table 5). Cash return for Sunshine was significantly higher than those of the other standard cultivars. The BHN cultivar group produced a higher percentage of culls than most of the other cultivars (Table 5). The equivalent of thirty-eight percent of the total marketable fruit of the five BHN cultivars was discarded as culls, whereas only 14% of Mt. Spring were culls. These culls were produced throughout the growing season. The largest average tomato fruit size was 13.9 oz. for the Florida 47 cultivar (Table 5).

The grape tomato Navidad generated significantly higher early and total incomes than any of the other cultivars tested (Tables 4 and 5). The appearance and uniformity of Navidad was better than Tami G, the other grape tomato in this trial. The labor cost of picking the small grape tomatoes is much higher than that of the traditional cultivars. The Plum Crimson cultivar produced good yields of attractive plum tomatoes and is worthy of trial planting by growers having a market for this type of fruit. The highest total cash returns to the grower were from the two grape and the plum tomato cultivars.

As stated previously, Sunshine did give significantly higher total season returns than the industry standard Mt. Spring (Table 5). The cultivar Sunshine was first tested at Quicksand and Lexington in 1999 (1999 Fruit and Vegetable Crops Research Report, PR-423 pg. 33-37). In these trials Sunshine was the lowest yielding and return cultivar. In 1999, the growing season was extremely hot and dry. Under these conditions the fruit of Sunshine had yellow shoulders. The plants of Sunshine are small and fruit are exposed. (In commercial seed catalogs, Sunshine is recommended for use in Northern areas.) The summer of 2003 at the Robinson Station was cooler than normal with excessive rain and cloudy days. Cultivars like Sunshine that look exceptional one year may perform poorly in another year when weather conditions are different. Growers' should use caution when selecting any vegetable cultivar based on one year's results.