

Tomatoes 2006 -2007 - 2008

In 2006, as part of a larger program of NRI research, tomatoes were trialed at the CSU Horticultural Research Center (HRC) using both certified organic and conventional growing systems. In 2007 a longer list of melon varieties was trialed using organic growing methods exclusively. In 2008 a selected number of varieties also trialed in 2008 were grown within a plastic tunnel at HRC. The yield data collected for all three years has been reduced for this report to include the fruit weight (pounds), total fruit count per plant and total fruit production per plant (pounds). However, 2006 data consisted of only total fruit yield per plant. Therefore, multi-year comparisons are limited. The suite of varieties in each year differed with only five varieties comparable between 2006 and 2007.

There was a trend of greater yield in the 2006 conventional treatment however only for Red Sun was the difference statistically significant. T-tests of the conventionally grown varieties showed that Red Sun and Early had significantly greater production but only when compared to the four lowest producing varieties (Figure 1). Differences in yield between varieties grown organically were only significant between Red Sun, the most productive, and Roma, the least productive.

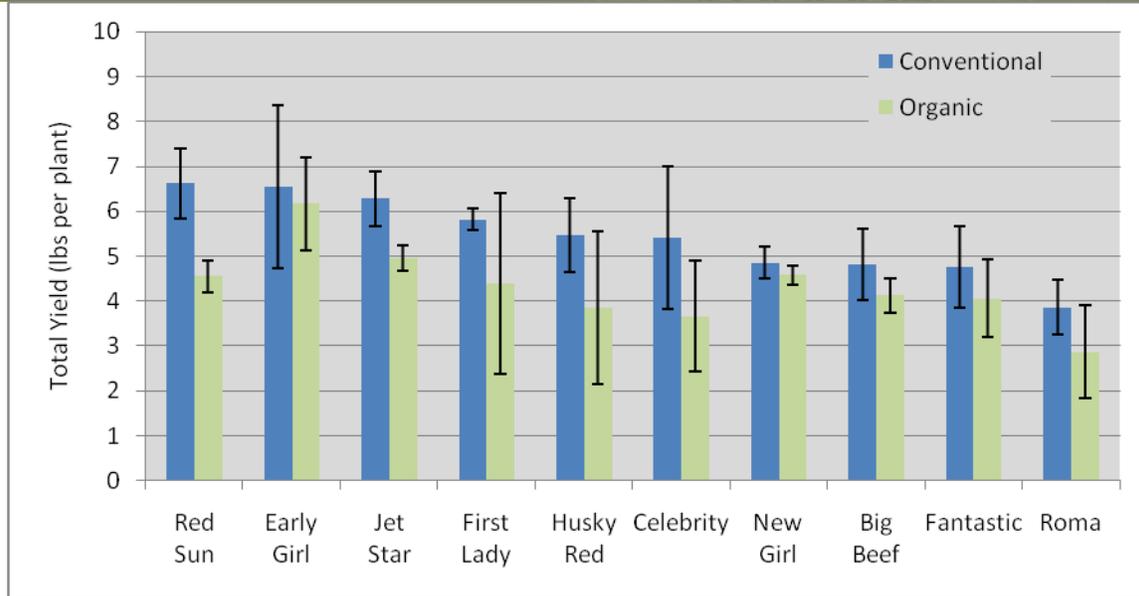


Figure 1 Effects of variety and growing system on total yield of 10 tomato varieties grown at the CSU Horticultural Farm in 2006. The trend in greater yield from the conventional system was only significant for Red Sun. Statistically significant differences in yield between varieties were limited to only the highest and lowest producers regardless of growing system. Error bars represent one standard deviation.

The obvious difference in 2007 was the dramatic increase in production over 2006 due to ideal growing conditions (Figures 2, 3 and 4). Differences in average total yield per plant became significant as the magnitude of the differences between varieties increased. The variability in yield between replications was high and required a difference in yield of approximate 15 pounds before any one variety could be confidently described as superior to another.

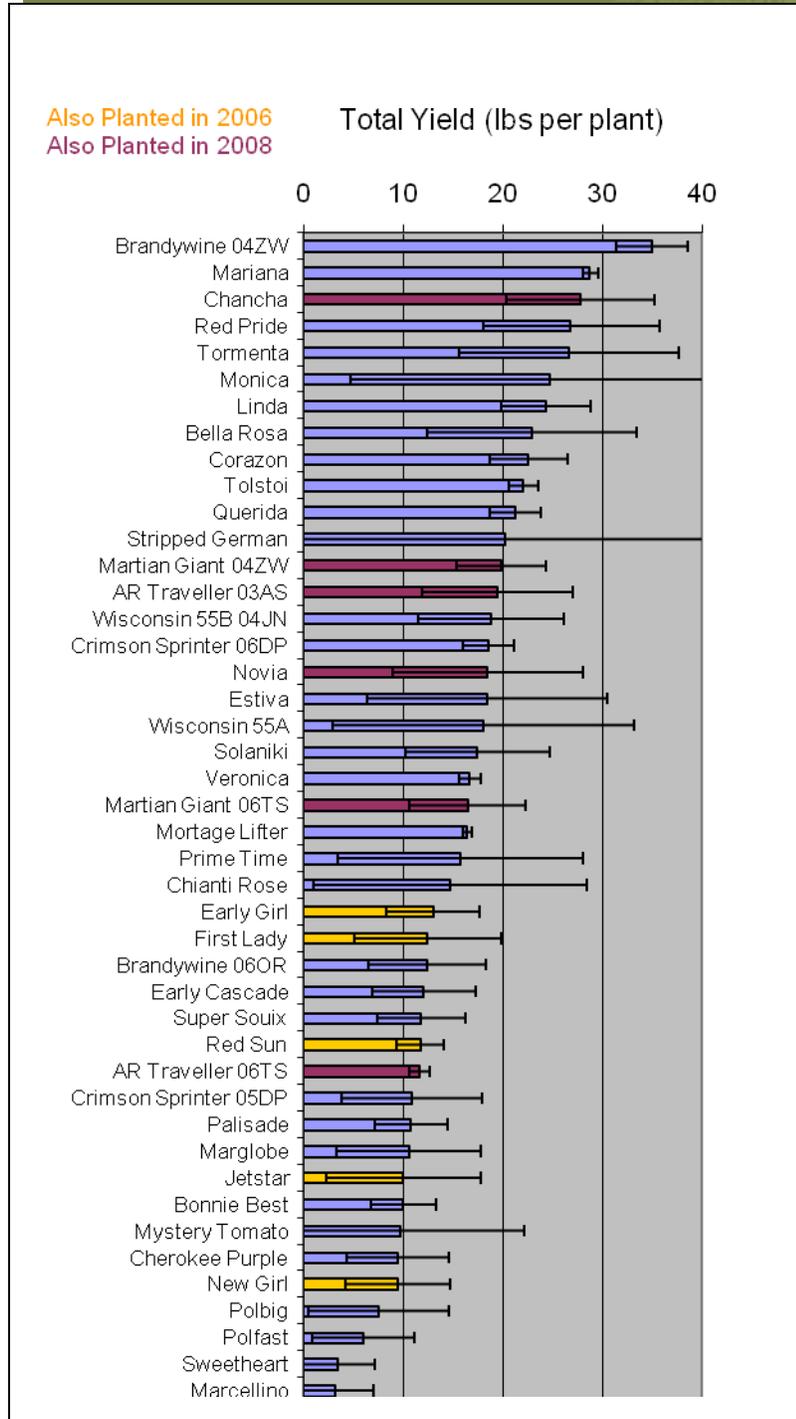


Figure 2 Variation in total yield between 44 tomato cultivars grown in 2007 at the CSU Horticultural Farm. All plants were grown organically and had significantly greater yield than in either 2006 or 2008. Error bars represent one standard deviation.

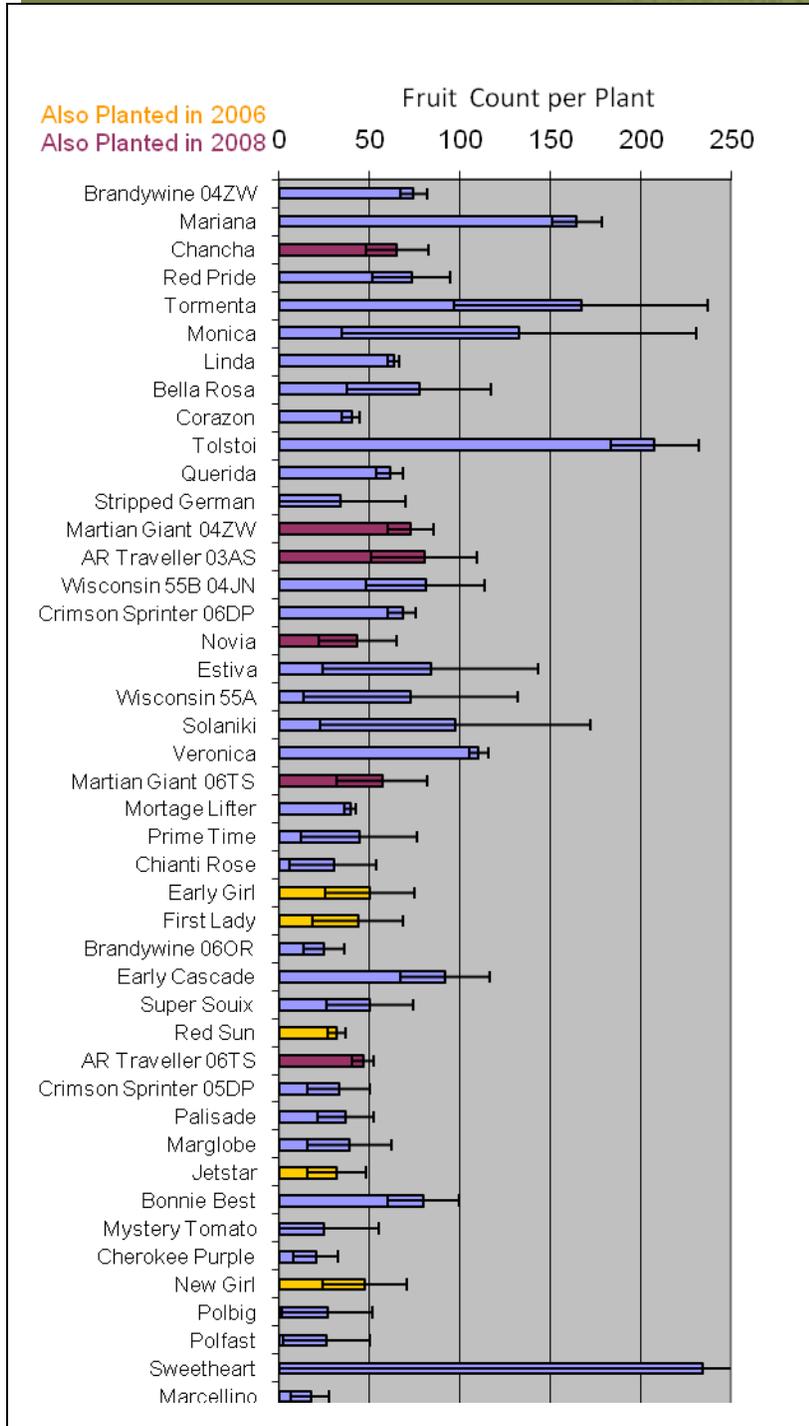


Figure 3 Variation in fruit count between 44 tomato cultivars grown during 2007 at the CSU Horticultural Farm. All plants were grown organically and had significantly greater yield than in either 2006 or 2008. Cultivars are arranged in order of total yield (Figure 2). Average fruit weight was calculated for each replication by dividing the total season yield by number of fruit harvested. Error bars represent one standard deviation.

Also Planted in 2006
Also Planted in 2008

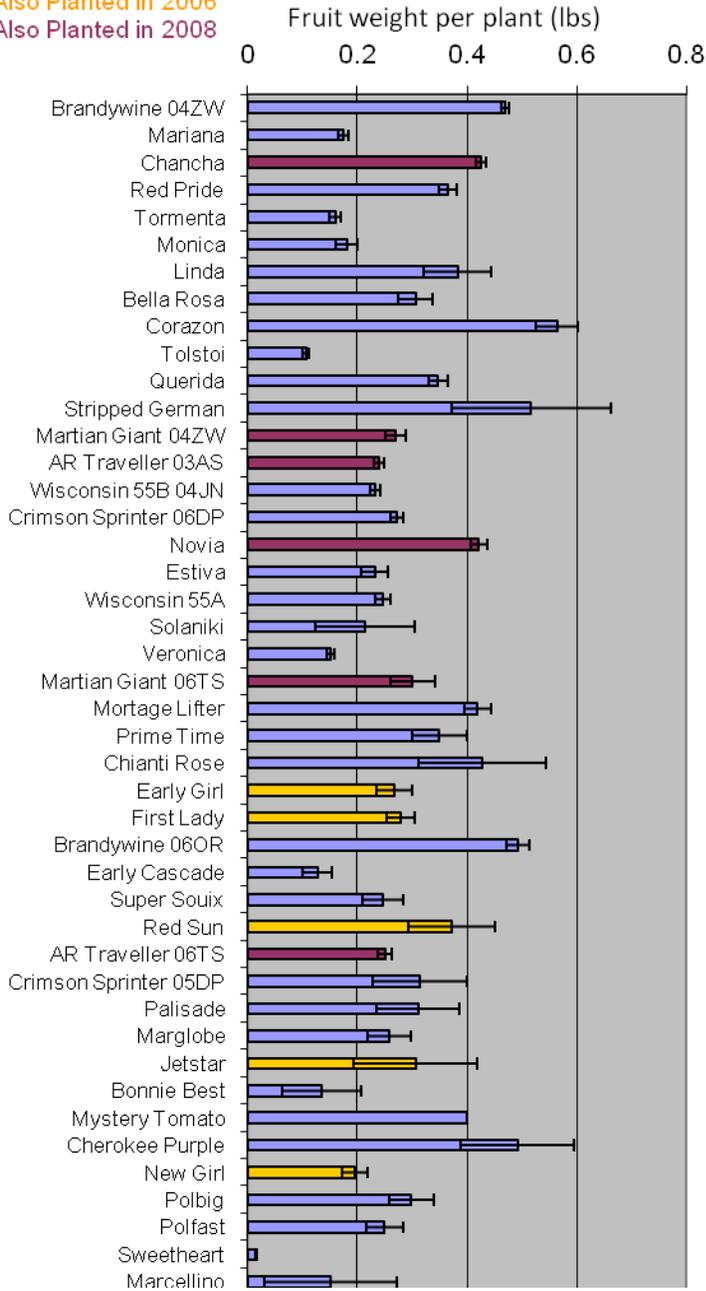


Figure 4 Variation in fruit weight between 44 tomato cultivars grown during 2007 at the CSU Horticultural Farm. All plants were grown organically and had significantly greater yield than in either 2006 or 2008. Cultivars are arranged in order of total yield (Figure 2). Error bars represent one standard deviation.

Trials in 2008, grown in plastic high tunnels, were not replicated and significance between varieties could not be calculated (Figure 5). Novia and Cobra had similar fruit weights.

Therefore, the difference in total yield of approximately three pounds per plant between Novia and Cobra was due to fruit count.

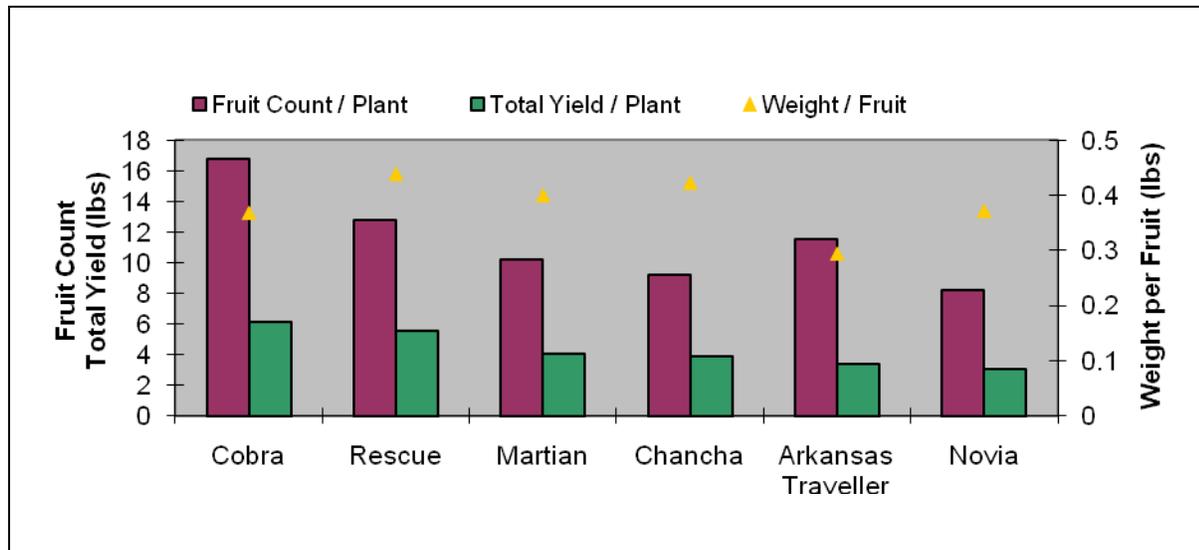


Figure 5 Variation in total yield, fruit count and weight per fruit between 6 tomato cultivars grown under high plastic tunnels during 2008 at the CSU Horticultural Farm. All plants were grown organically. Average fruit weight was calculated for each replication by dividing the total season yield by number of fruit harvested.

Varieties grown in both 2006 and 2007 provide a direct comparison of yields between the two years (Figure 6) and show the dramatic increases in 2007 yields (Figure 6).

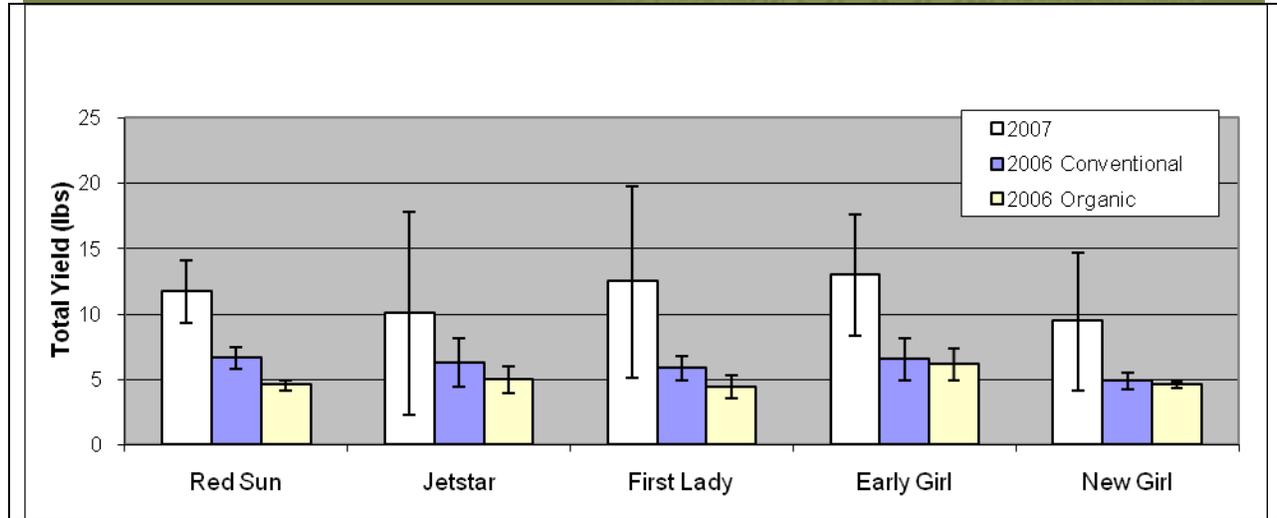


Figure 6 Effect of production year on the yield of five tomato varieties grown during 2006 and 2007 at the CSU Horticulture Farm. Differences between varieties in 2007 or between productions systems in 2006 were not significant.