Pruning for Productivity   By Amy Ivy   January 2017

Tomatoes are one of the most valuable crops for high tunnel production in New York State and they are by far the most commonly grown high tunnel summer crop here. We have given talks and prepared fact sheets and resources on how to grow and train slicing tomatoes in tunnels (available at http://enych.cce.cornell.edu/greenhouse_tunnels.php) but until last summer we had not given much attention to understanding how to prune cherry tomatoes in high tunnels.

Cherry tomatoes are notorious for their rampant growth and early and sustained production. They are usually ready for market before the slicers and sell quickly in pint boxes. Many growers begin the season trying to keep their cherry tomatoes at least somewhat pruned and contained but often give up by mid-summer. In an effort to help growers learn the best way to tame their high tunnel cherry tomatoes we conducted a pruning and training trial last summer at the Cornell Willsboro Research Farm. The project was funded by the Northern New York Agricultural Development Program. Our Cornell summer intern, Lauren Fessler was very helpful in performing much of the training and data collection through early August. The project team consisted of Amy Ivy, Judson Reid and Michael Davis, Willsboro Farm Manager.

We used the variety Supersweet 100 for our trial and compared 3 different pruning and training treatments, replicated 4 times in beds 11 feet long.

- Treatment A was the most intensive, training each plant to a single leader and removing all suckers. Plants were 12" apart in a single row, with 9 plants per row.
- Treatment B was moderately intensive, training each plant to a double leader. Plants were 18" apart in a single row, with 5 plants per row.
- Treatment C was meant to be the least intensive. We started by training the plants to 4 leaders and then let them go with minimal pruning. Plants were 18" apart in a single row with 5 plants per row.

Many growers feel intensive training takes too much time to bother with but we found the easiest group to prune was the single leaders. By far the most time consuming group to prune early on and then harvest was Treatment C with many leaders. See the bar graphs and charts below.
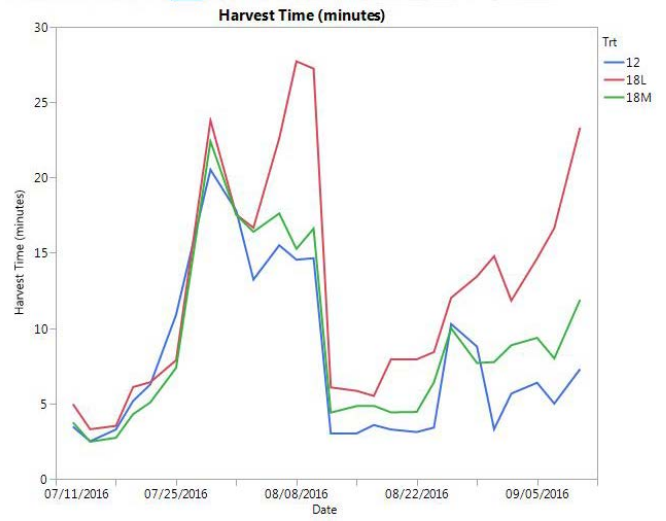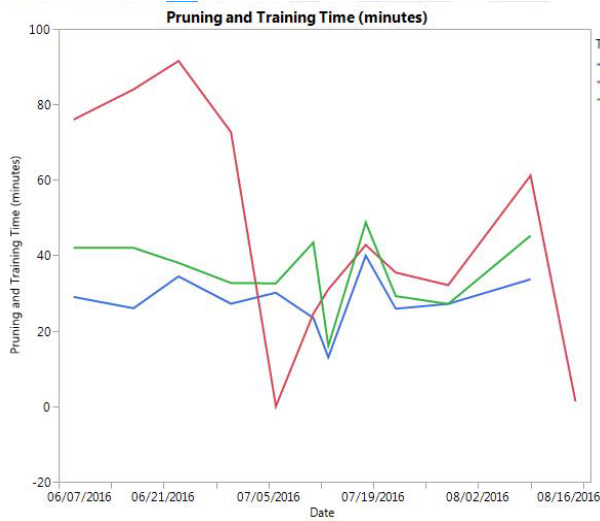
(Photo caption: Double leader treatment on left, four leader treatment on right, on July 29. photo by A Ivy)

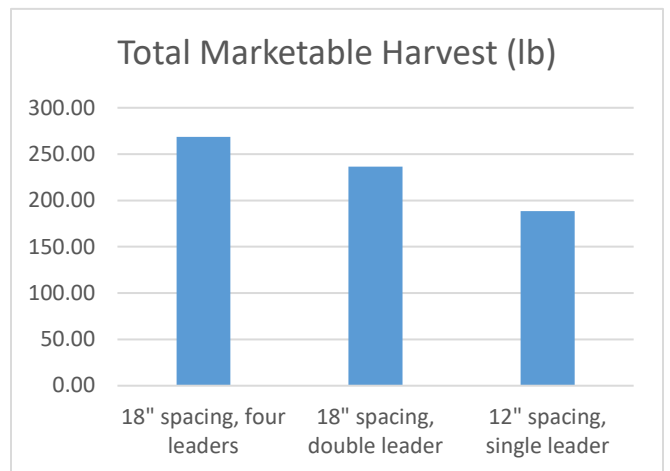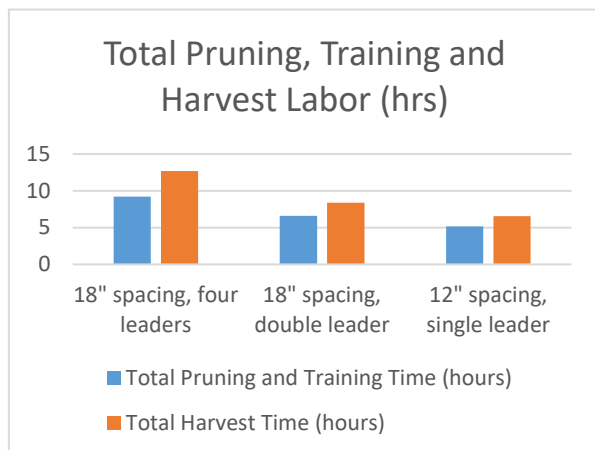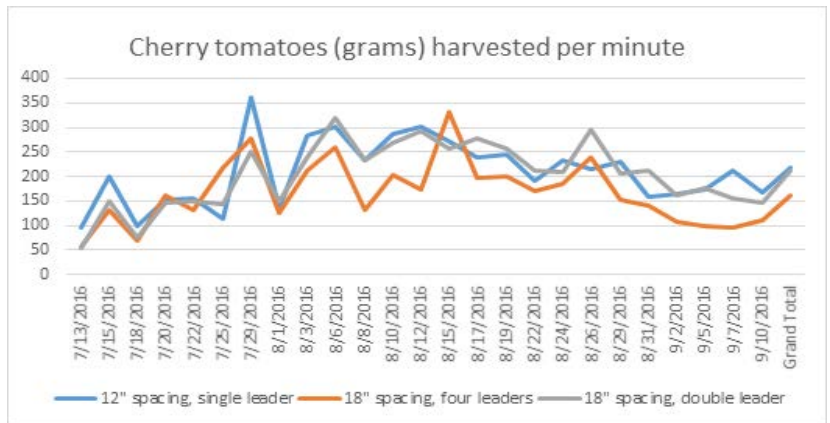## Time Spent for Pruning and Training, Time Spent for Harvesting

The 2 graphs (below) show that from the beginning and throughout the trial, the single leader treatment (blue line) took less time to prune and harvest even though it had 4 more plants per treatment at 12" spacing. The 4 leader treatment (red line), with 5 plants at 18" spacing, took more time to prune, train and harvest due to their dense tangle of growth.
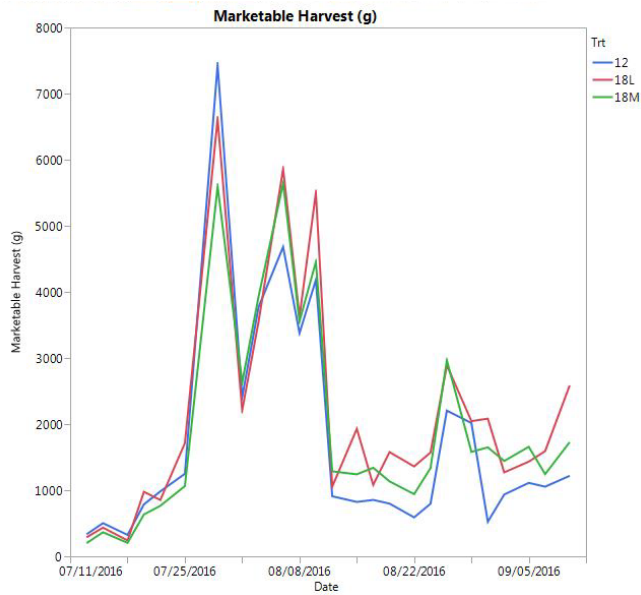
Key:
blue line - single leader
green line – double leader
red line – 4 leaders

Pruning and Training Time (minutes)

Harvest Time (minutes)

Efficiency of Harvest

The graph to the right shows that the single leader treatment took less time to harvest per minute all season, so that even late in the season, when the tangled 4 leader plants yielded slightly more overall, the efficiency of gathering that harvest was less. This corroborates with the experience and comments from the harvesters as well.

The 2 graphs below show the total time for training and harvesting each treatment (left), and the total harvest (right). It took more time to harvest the 4 leader treatment but the yield was not statistically better than the double leader treatment which took less time to harvest.

Cherry tomatoes (grams) harvested per minute

Total Pruning, Training and Harvest Labor (hrs)

Total Marketable Harvest (lb)

Marketable Harvest (g)

Trt
— 12
— 18L
— 18M

Marketable Harvest over Time

This graph (left) shows that the single leader (blue line) yielded more than the other treatments earlier in the season (when prices are highest) and then less by the end. This may have been due in part to the rampant growth of the multiple leader blocks which began to overgrow and shade the single leader blocks by late August.