APPENDIX A.11

GRAPE TOMATO VARIETY AND HARVEST EFFICIENCY TRIAL – 2002

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INTRODUCTION

Grape tomato production in 2001 increased by almost 150% in volume and 133% in dollar sales. This tomato market segment is the fastest growing niche having a potentially high profit margin when retail prices range from $2.00 - 3.00 per clamshell pint. The Santa Hybrid F1 is the primary variety used. This vigorous and indeterminate growth crop presents a problem in cultural approaches and in labor costs in our region. This study compares five different cultural methods in use by New Jersey growers and measures total yield and the respective times needed to harvest.

MATERIAL AND METHODS

Santa Hybrid F1 seeds were sown in the greenhouse on April 18, 2002, in 48-cell trays containing a peat-vermiculite media. The plants were maintained in the greenhouse until one week before transplanting when they were placed in a protected outside area for hardening off. Plasticulture beds on 6' centers were prepared with drip irrigation placed down the center. The transplants were hand-planted in single rows spaced 30' apart between plants.

EXPERIMENTAL DESIGN AND HARVESTING METHOD

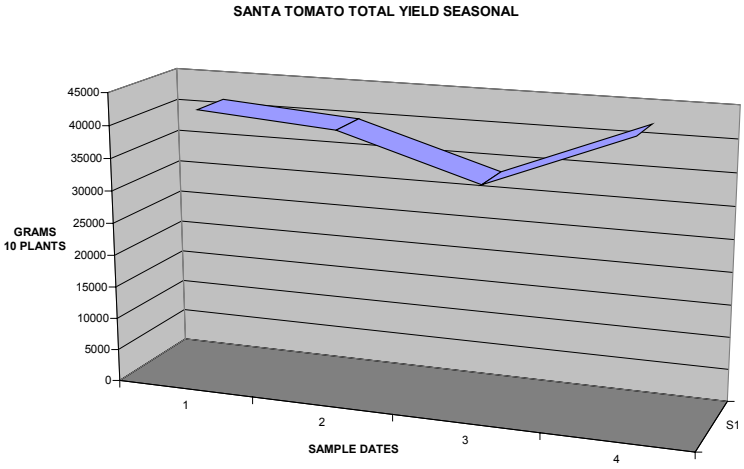
The five cultural methods were:

1. 4' tomato cage
2. 4' trellis with wooden stakes and Florida basket-weave system
3. 5' tomato cage constructed of rebar with a 30' diameter
4. 8' stakes with plants strung every 2'
5. Sprawl

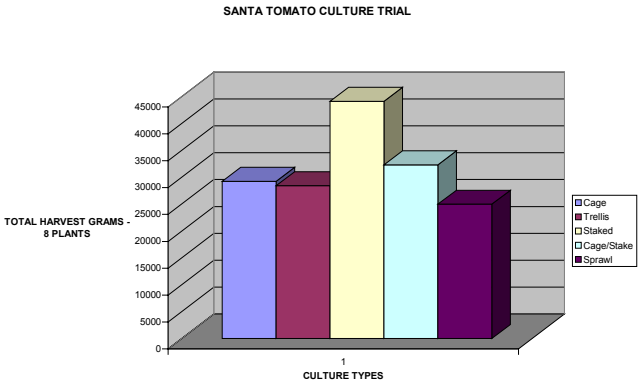
Four replications of each cultural method were randomized throughout the test. Five harvest teams, composed of two people each, rotated through each culture and were timed as to harvest completion. There were four harvests timed in total – August 14, August 30, September 11 and September 19. Each individual harvest was measured and graded.

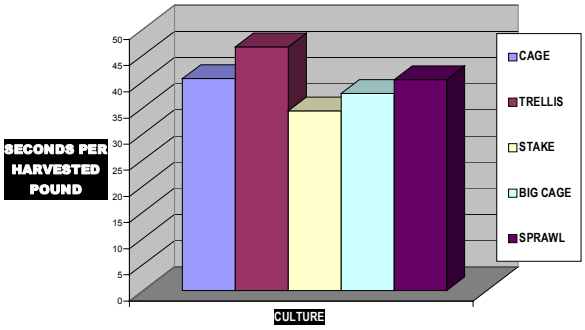
RESULTS AND DISCUSSION

The four harvests showed very little difference among harvest periods. The average yield per



plant ranged from 8 - 9 pounds for these four harvest periods. This yield compares favorably with the agricultural estimates from 1999 in drought disaster calculations.
The tall 8' stake was significantly larger in total yield and shorter in amount of time required to harvest one pound of grape tomatoes. It also had the highest percent marketability. The 4' cage, the trellis and the 5' cage cultures were intermediate and similar in both total yield per plant and time to harvest. The sprawl method had the lowest yield, the longest time to harvest and the highest percentage of unmarketable fruit.





The advantages of the 8' tall wooden stake in terms of total yield may be explained by having larger vegetative growth, less crowding and shading, more sunlight intercept and more fruiting sites. The advantage in terms of quicker harvest times per pound of grape tomato may be explained by easier access to the harvester in the mid and upper reach ranges and less fruit in the lower, more time consuming harvest areas. The fruit sizes of all cultural methods were similar and similar in taste quality. The primary disadvantage of the tall stake is that it is difficult to pound the stake in easily without a small ladder or tall worker. Whatever the method chosen from these side-by-side studies, it is clear that the grower should avoid the "standard" sprawl method.