

# Fall Tomato Production in a High Tunnel Organic Production System

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## Abstract

Tomato growers in North Carolina can expand their growing season by incorporating late season, heat tolerant tomato cultivars into high tunnel production systems. High tunnel production may enable growers to increase their profits because prices are generally higher for fall market tomatoes, especially for certified organic tomatoes. This study presents an experiment that was conducted in a section of a 28' x 200' Haygrove High Tunnel at the NC A&T State University Farm in Greensboro, NC. Organically approved soil amendments: 7-12-0 from Nature Safe, feather meal (13-0-0) and sul-po-mag (0-0-22) were applied prior to planting at rates of 80 lbs/acre N and P and K @ 100 lbs/acre. Compost was applied at a rate of 10 tons per acre. During the growing season, supplemental N and K were applied at a rate of 20 and 25 lbs/acre using liquid fish meal (5-2-2) and seaweed extract (0-0-6), respectively. Cultivars were planted on two different types of mulch (paper and plastic) with 4 replicates of each mulch type on July 13, 2010. Eight heat-set determinate cultivars (Early Wonder (V1), Floralina (V2) Sebring (V3), Solar Fire (V4), Spit Fire (V5), Florida 91 (V6), Solar Set (V7), and Sun King V8) were used. The first harvest took place on September 22, 2010. Yield data consisted of a weekly harvest with fruits sorted into marketable and non-marketable fractions. Peak harvest for the tomatoes was recorded 16 weeks after planting (November 5, 2010). Although yields were numerically higher on paper than plastic mulch, they were not different statistically. However, there were statistically significant differences ( $p < 0.05$ ) among cultivars. V3 (7.6 lb/plant) yielded less than all other varieties except V1 (8.6 lb/plant). (V2) and (V7) yields (10.7 lb/plant) were greater than V3 and V1. The ratio of market yield (MY) to total yield (TY) was highest for (V2) at approximately 90%, (V6, V4, V7, V5, and V8) MY: TY had intermediate averages at 85% with (V3) recording the lowest at 72%. The overall mean total yield for all varieties was 11.2 lb/plant. (V3) recorded the highest mean fruit weight at 11 ounces/fruit with (V1) recording the lowest at 5.0 ounces.