The Connecticut Agricultural Experiment Station, New Haven

Heirloom Tomato Trials—2004-2006

BY ABIGAIL A. MAYNARD

Bulletin 1008
May 2007

SUMMARY

In 2004-2006, a total of twenty-seven varieties of beefsteak-type heirloom tomatoes were grown on a sandy terrace soil (Windsor, CT) and a loamy upland soil (Mt. Carmel, CT). Yields were determined weekly from late July until frost in October. The total estimated yield in 2004-2006 was 10.8-24.5 tons/acre (T/A) greater at Windsor compared to Mt. Carmel. This result was due mostly to the greater average number of tomatoes/plant and, to a lesser extent, a greater average weight of each tomato. In a few varieties, we observed radial concentric cracking and catfacing, but overall fruit quality was very good to excellent. Varieties with the highest consistent quality were Box Car Willie, Delicious, Dinner Plate, Druzba, Hillbilly, and Pineapple. The varieties with the greatest yields were Mortgage Lifter, Pineapple, Kellogg's Breakfast, Wins All, and Dinner Plate. Omar's Lebanese produced the largest tomatoes (23.7 oz). The variety producing the greatest number of tomatoes/plant was Polish Linguisa (87.7 tomatoes/plant). Characteristics of each variety including timing of harvest are discussed along with management techniques.

HEIRLOOM TOMATO TRIALS – 2004-2006

By Abigail A. Maynard

Agriculture in Connecticut has seen vast changes in the past three decades. Tobacco and dairy farming, once the largest agricultural industries, have diversified with a shift to increased vegetable, nursery stock and Christmas tree production. In 2004, the cash value of all vegetable crops grown in Connecticut was 24.8 million dollars or 8.1% of all crops grown (Anon. 2005). This is compared to 16.2 million dollars in 1999.

The marketing of produce has also shifted from wholesale contracts with local supermarkets to direct retail sales. According to the Connecticut Agricultural Marketing Directory (Anon 1989), approximately 560 farms offer a variety of fruit, vegetables, bedding plants, and Christmas trees at roadside stands and sales rooms. About 120 of these are open all year. Nearly 30% of these farms offer pick-your-own fruit and vegetables to reduce the cost of harvest labor. These savings are passed on to the consumer. The development of a network of farmers' markets in Connecticut's major urban centers and densely populated suburbs is an important segment of direct sales of vegetables to consumers. All produce sold at farmers' markets must be "Connecticut Grown". In 2006, there were 82 farmers' markets attended by 250 farmers compared to 22 markets in 1986.

As the popularity of farmers' markets in Connecticut have surged, so too has the need for growers to find a diversity of high value niche crops. Consumers, used to a wide variety of fruits and vegetables in large supermarkets, are demanding a greater diversity of ethnic and specialty crops at farmers' markets and roadside stands. Because of this demand, specialty crops have been a topic at fruit and vegetable growers' meetings in Connecticut and New England for the past five years. Since 1983, The Connecticut Agricultural Experiment Station has been investigating specialty crops to provide new opportunities for Connecticut's farmers. Over 30 fruits and vegetables have been studied including: globe artichoke, Belgian endive, radicchio, sweet potato, okra, Chinese cabbage and heirloom tomatoes. Crops were chosen because they have a high market value and an existing or expanding market that would readily accommodate these commodities.

Tomato varieties produced by the commercial tomato industry are designed to withstand the considerable physical stresses imposed by the industry's picking, packing, and shipping techniques. Hybridized plants are selected to produce uniform, attractive, even-ripening fruit that is easier to store and ship. Less emphasis is given to flavor. Seed from the fruit of these hybridized plants will not produce the same characteristics due to cross-pollination with similar plants. Hybrids are patented and require annual re-breeding under controlled conditions to reproduce the desired characteristics.

Heirlooms, on the other hand, are open pollinated. They have adapted to the natural environment so that they will continue to produce seeds that grow true despite pollination from other plants. What is an heirloom tomato? According to Taylor's Guide to Heirloom Vegetables (Watson, 1996), a tomato must meet three criteria to be considered an heirloom variety: (1) the variety must grow "true to type" from seed saved from each fruit; (2) the seed must have been available for more than 50 years; (3) the tomato variety must have a unique history or folklore of its own.

There is a strong market for heirloom tomatoes because home gardeners and consumers seek tomatoes with excellent flavor in a variety of colors, shapes, and sizes. The specialty and heirloom tomato industry is looking for producers to fill this niche market. While some specialty varieties of tomato (beefsteak, roma, grape) are fairly new to the market, many heirloom varieties are resurfacing due to their excellent flavor and array of colors and shapes. Consumers perceive that heirlooms taste better and have thinner skins than hybridized tomatoes. There is a nostalgic attraction for the 'ole time' varieties that Grandma used to grow. Heirloom varieties come in many interesting colors and shapes and have fun names that just make them different from standard tomatoes.

Heirloom tomatoes provide an excellent opportunity for local growers, despite the fact that they have several production problems. Most heirloom tomatoes have little disease resistance. Organic production, in particular, is very difficult because in a wet season, tomatoes become diseased before they yield much fruit. They can be prone to catfacing, a physiological disorder that occurs at pollination, which blemishes and distorts the fruit. Because their skin is tender, heirloom varieties have a tendency to crack which makes them difficult to pack and ship long distances. This, however, makes them ideal for home gardeners and growers who have farm stands or attend farmers' markets. In addition to direct market sales, connection to chefs in fine restaurants provides a valuable outlet for an unusual and beautiful crop.

In this bulletin, I report yield and quality of 27 beefsteak heirloom tomato varieties grown from 2004-2006 at our experimental farms in Windsor and Mt. Carmel. Characteristics of each variety are discussed as well as management and cultural techniques.

METHODS AND MATERIALS

Sites and soils. Trials of beefsteak heirloom tomatoes were conducted over three years at the Valley Laboratory, Windsor, on Merrimac sandy loam (Entic Haplorthod), a sandy terrace soil with somewhat limited moisture holding capacity (Shearin and Hill, 1962); and at Lockwood Farm, Mt. Carmel, on Cheshire fine sandy loam (Typic Dystrochrept), a loamy upland soil with moderate moisture holding capacity (Reynolds, 1979).

Cultivars. Seeds were obtained from Totally Tomatoes, Randolph, WI. The cultivars evaluated in 2004 were: Abraham Lincoln Original, Brandywine, Box Car Willie, Caspian Pink, Giant Belgium, Mortgage Lifter, Old German, Omar's Lebanese, Pineapple, and Polish Linguisa. In 2005, the varieties were: Anna Russian, Dixie Golden Giant, Golden Ponderosa, Italian Giant Beefsteak, Kellogg's Breakfast, Red Ponderosa, and Yellow Giant Golden. The cultivars evaluated in 2006 were: Amana Orange, Black Krim, Cherokee Purple, Delicious, Dinner Plate, Druzba, German Johnson Pink, Hillbilly, Lillian's Yellow Heirloom, and Wins All. Characteristics of each variety are shown in Table 1. Folklore and history of some of the varieties are shown in Table 2.

Culture. Each year 7-10 heirloom tomato varieties were seeded in a greenhouse on April 10-14. The seedlings were grown in Promix BX (Premier, Red Hill PA) in standard plastic pots (3601 insert) measuring 2 5/8 X 2 ¼ X 2 5/8 inches (volume 15.5 cubic inches). The seedlings were fertilized with water soluble 20-20-20 (N-P2O5-K2O) (0.5 oz/gal) four weeks after germination. After hardening the plants in a cold frame, they were transplanted between May 24-28 at both sites. Each cultivar had one row of 15 plants. The first and last rows were planted with the cultivar, Big Beef, which served as guard rows. Yields were not taken from the guard rows. Spacing was three feet within the row with rows four feet apart. The plants were staked and vegetative suckers removed up to the first flower cluster. Weeds were controlled by hand cultivation. Overhead irrigation was used as necessary. Plants were removed from all plots at the end of the growing season and the land fallowed over winter.

Fertilization. The soils were fertilized each year with commercial grade 10-10-10 (N-P2O5-K2O) material at 1300 lb/A, a rate determined from analysis of soil from both sites before the experiment. Soil fertility at both sites was low.

Harvest. Marketable tomatoes (at least 3" diameter and some red showing) were harvested weekly from late July until frost (October). The harvest of each cultivar was counted and weighed in the field.

Insect and disease control. Insects and diseases were controlled by Manzate (mancozeb), Quadris (azostobin), Asana (esferivaterate), and Bravo (chlorothalmil) applied as needed throughout the growing season.

YIELD

In 2004, the average yield of 10 cultivars of heirloom tomatoes was 34.8 lbs/plant at Windsor compared to 21.3 lbs/plant at Mt. Carmel, a 63% difference (Tables 3 and 4). In 2005, the average yield was 28.9 lbs/plant at Windsor and 18.1 lbs/plant at Mt. Carmel, a 60% difference. In 2006, the average yield was 24.0 lbs/plant at Windsor compared to 18.0 lbs/plant at Mt. Carmel, a 33% difference. The total estimated yield in 2004-2006 was 10.8 T/A to 24.5 T/A greater at Windsor compared to Mt. Carmel. Greater yield of heirloom tomato cultivars at Windsor compared to Mt. Carmel in all years was due mostly to greater average number of tomatoes/plant and, to a lesser extent, a greater average weight of each tomato. Plants at Windsor were larger and healthier than at Mt. Carmel. Increased disease pressure at Mt. Carmel produced smaller fruit and unfavorable conditions during pollination produced fewer fruits.

In 2004 at Windsor, Mortgage Lifter had the greatest yields (41.1 lbs/plant). Pineapple and Giant Belgium also produced greater than 40 lbs/plant, or an estimated yield of greater than 70 T/A (Table 3). At Mt. Carmel, Pineapple and Old German had the greatest yields (26.5 and 24.9 lbs/plant, respectively), producing greater than 45 T/A (Table 4). The largest fruit were produced by Omar's Lebanese which averaged 27.0 oz/fruit at Windsor and 20.4 oz/fruit at Mt. Carmel. Although Omar's Lebanese had the largest fruit, it produced the fewest number of fruit per plant at both sites which led to lower overall yields. On the other hand, Polish Linguisa had, by far, the greatest number of fruit per plant at both sites and also produced the smallest fruit.

In 2005 at Windsor, Kellogg's Breakfast had the greatest yields (35.6 lbs/plant) with Anna Russian and Red Ponderosa also producing greater than 30 lbs/ plant or total estimated yield exceeding 55 T/A (Table 3). At Mt. Carmel, Kellogg's Breakfast also had the greatest yields (22.3 lbs/ plant) with Anna Russian also producing greater than 20 lbs/plant or total estimated yield of 37 T/A (Table 4). The largest fruit at both sites was Golden Ponderosa which averaged 16.2 oz/fruit in Windsor and 10.9 oz/fruit at Mt. Carmel. Dixie Golden Giant and Italian Giant produced the greatest number of fruit per plant at Windsor and Mt. Carmel, respectively.

Table 1. Fruit characteristics of tomato cultivars in 2004-2006 heirloom tomato trials

Cultivar	Fruit Color	Fruit Size*	Comments
Abraham Lincoln	dark red	medium	sweet, meaty, crack-free
Amana Orange	yellow-orange	large	mild, variable, hard to pick,
Anna Russian	red	medium	early, heart-shaped fruit
Black Krim	dark red	medium	early, sweet, cracks easily
Box Car Willie	red	large	crack-free, disease resistant
Brandywine	pinkish-red	large	strong flavor, variable
Caspian Pink	red	large	good flavor, cracks easily
Cherokee Purple	reddish-purple	medium	cracks easily, easy to pick
Delicious	red	medium	consistent, crack free, sweet
Dinner Plate	red	large	consistent, heart-shaped
Dixie Golden Giant	yellow	small	meaty, few seeds
Druzba	red	medium	consistent, crack/disease free
German Johnson	pinkish-red	large	variable, cracks easily
Giant Belgium	red	large	irregularly shaped, sweet
Golden Ponderosa	yellow	medium	low acid, mild, thin skin
Hillbilly	orange-yellow	medium	mild, cracks easily, consistent
Italian Giant	red	small	meaty, fruit flattened
Kellogg's Breakfast	pale orange	medium	meaty, mild, few seeds
Lillian's Yellow	yellow	medium	consistent, cracks easily
Mortgage Lifter	red	large	mild, sweet, tough skin
Old German	reddish-yellow	large	great taste, cracks easily
Omar's Lebanese	red	extra large	irregularly shaped, great taste
Pineapple	orange-yellow	very large	meaty, sweet, consistent
Polish Linguisa	red	medium	pointed, easily picked, sweet
Red Ponderosa	red-orange	medium	meaty, low acid, mild, sweet
Wins All	red	large	round, sweet
Yell. Giant Belgium	yellow	small	low acid, mild, smooth

* extra large - >20 oz
very large – 15-20 oz
large – 10-15 oz
medium – 5-10 oz
small - <5 oz

Table 2. Folklore and History of some of the Varieties

Abraham Lincoln – originally released by H.W. Buckbee seed of Rockford Illinois in 1923.

Amana Orange – named for Amana, Iowa
Anna Russian –reportedly brought to Oregon by a Russian immigrant generations ago

Black Krim –originally from Krymsk (Ukrainian word for Krim), on the Black Sea. Seed originally smuggled to the US before the breakup of the Soviet Union.

Box Car Willie –named after the country singer, Box Car Willie, who passed away in 1999

Brandywine –an Amish heirloom that dates back to 1855

Caspian Pink –originally grown in Russia in the area between the Caspian and Black Seas

Cherokee Purple –Cherokee Indian origin, introduced in Tennessee.

Dixie Golden Giant – grown by the Amish since the 1930's

Druzba – originally from Bulgaria via France. "Druzba" means "friendship in Bulgarian

German Johnson Pink – Pennsylvania Dutch heirloom. One of the "parents" of Mortgage Lifter.

Hillbilly –heirloom from the hills of West Virginia in the 1880's. Also called Flame.

Kellogg's Breakfast – heirloom from West Virginia, preserved by Darrell Kellogg, a railroad supervisor, from Michigan

Italian Giant Beefsteak – brought over from Italy over 80 years ago

Lillian's Yellow Heirloom – heirloom from Manchester, Tennessee

Mortgage Lifter – "Radiator Charlie's Mortgage Lifter" Developed by M.C. Byles in the 1930's. Mr. Byles earned his nickname from the radiator repair business he opened at the foot of a steep hill on which trucks would often overheat. Radiator Charlie, who had no formal education or plant breeding experience, created this tomato by cross-breeding four of the largest tomatoes he was able to find and developed a stable variety after 6 years of pollination and selection. He then sold his tomato plants for $1.00 each (in the 1940's) and paid off the $6000 mortgage on his house in 6 years. It is said that each spring gardeners drove as far as 200 miles to buy Charlie's seedling tomatoes.

Old German – heirloom originally grown by the Mennonite community in the Shenandoah Valley of Virginia. Popular in the Ozarks

Omar's Lebanese – heirloom from a Lebanese hill town

Pineapple – heirloom from Mississippi

Polish Linguisa – 19th century heirloom from Poland

Wins All – heirloom named in a 1925 naming contest

Yellow Giant Belgium – introduced over 150 years ago from Belgium

Table 3. Yields of marketable fruit at Windsor, 2004-2006

Cultivar	Avg fruit/plant #	Avg wt/fruit oz	Avg wt/plant lb	Total est. yield* T/A
2004				
Abraham Lincoln	77.0	8.6	30.7	55.6
Box Car Willie	38.3	14.5	31.2	56.6
Brandywine	37.4	14.5	30.8	55.9
Caspian Pink	27.5	13.9	22.9	41.6
Giant Belgium	48.3	15.0	40.5	73.5
Mortgage Lifter	51.1	13.6	41.1	74.6
Old German	50.5	12.7	37.8	68.6
Omar's Lebanese	23.3	27.0	35.5	64.4
Pineapple	36.0	19.9	40.8	74.1
Polish Linguisa	104.1	6.0	36.3	65.9
2005				
Anna Russian	40.4	13.0	32.8	59.5
Dixie Golden Giant	52.6	8.0	26.3	47.7
Golden Ponderosa	29.1	16.2	29.5	53.5
Italian Giant	41.3	8.4	21.7	39.4
Kellogg's Breakfast	38.5	14.8	35.6	64.6
Red Ponderosa	48.8	10.2	31.1	56.4
Yellow Giant Belgium	36.3	11.2	25.4	46.1
2006				
Amana Orange	47.1	10.6	31.2	56.6
Black Krim	34.9	8.1	17.6	31.9
Cherokee Purple	35.9	9.1	20.5	37.2
Delicious	34.6	10.4	22.6	41.0
Dinner Plate	31.0	11.2	21.7	39.4
Druzba	54.5	6.2	21.1	38.3
German Johnson	37.6	11.4	26.6	48.3
Hillbilly	50.4	9.2	29.0	52.6
Lillian's Yellow	40.6	7.0	18.0	32.7
Win's All	39.6	12.7	31.5	57.2

* Total estimated yield = Avg. wt/plant x 3230 plants/A (spacing 3' x 4')

Table 4. Yields of marketable fruit at Mt Carmel, 2004-2006

Cultivar	Avg fruit/plant #	Avg wt/fruit oz	Avg wt/plant lb	Total est. yield* T/A
2004				
Abraham Lincoln	55.5	7.4	21.9	39.7
Box Car Willie	28.5	12.7	18.7	33.9
Brandywine	29.5	11.5	19.9	36.1
Caspian Pink	22.7	13.8	18.3	33.2
Giant Belgium	32.7	11.5	21.3	38.7
Mortgage Lifter	32.3	10.5	20.5	37.2
Old German	41.7	9.8	24.9	45.2
Omar's Lebanese	16.6	20.4	20.1	36.5
Pineapple	28.3	15.8	26.5	48.1
Polish Linguisa	71.3	4.8	20.7	37.6
2005				
Anna Russian	41.0	8.0	20.5	37.2
Dixie Golden Giant	35.9	7.3	16.4	29.8
Golden Ponderosa	27.2	10.9	18.5	33.6
Italian Giant	53.1	4.1	13.6	24.7
Kellogg's Breakfast	33.7	10.6	22.3	40.5
Red Ponderosa	39.8	7.8	19.4	35.2
Yellow Giant Belgium	38.0	6.7	15.9	28.9
2006				
Amana Orange	26.6	9.9	16.5	29.9
Black Krim	41.6	6.8	17.8	32.3
Cherokee Purple	37.5	9.0	21.1	38.3
Delicious	27.2	9.4	16.0	29.0
Dinner Plate	24.7	10.2	22.9	41.6
Druzba	49.5	4.6	14.3	26.0
German Johnson	28.1	9.7	17.6	31.9
Hillbilly	42.9	6.8	18.3	33.2
Lillian's Yellow	47.2	6.0	17.8	32.3
Wins All	31.0	9.2	17.9	32.5

* Total estimated yield = Avg. wt/plant x 3230 plants/A (spacing 3' x 4')

In 2006 at Windsor, Wins All and Amana Orange exceeded 30 lbs/plant while Hillbilly and German Johnson had yields greater than 26 lbs/plant or total estimated yield exceeding 48 T/A (Table 3). At Mt. Carmel, yields of Dinner Plate and Cherokee Purple exceeded 20 lbs/plant or total estimated yield of 38 T/A (Table 4). Wins All and Dinner Plate produced the largest fruit averaging 12.7 oz/fruit and 10.2 oz/fruit at Windsor and Mt. Carmel, respectively. Druzba produced the greatest number of fruit per plant at both sites.

TIMING OF HARVEST

Table 5 shows the distribution of harvest for each variety in three time periods throughout the growing season: beginning of harvest to August 15 (early), August 15 to September 15 (mid), September 15 to frost (late). For most varieties, the greatest percent of tomatoes was harvested between August 15 and September 15. Abraham Lincoln, Giant Belgium, and Red Ponderosa had two-thirds of their fruits harvested between August 15 and September 15.

Cherokee Purple produced 40% of its crop before August 15 followed by Black Krim (38%) and Caspian Pink (30%). These varieties were classified as “early”. Early varieties were especially vulnerable to hot, dry summer weather which led to some flower abortions. Delicious and Dinner Plate produced over 40% of their crops after September 15 followed closely by Pineapple and Amana Orange (38%) and Druzba (37%). These varieties were classified as “late” and were vulnerable to higher disease pressure, catfacing, and early frosts.

Amana Orange, Black Krim, and Cherokee Purple varieties had a fairly even distribution of fruit maturation throughout the season, averaging less a 7 percentage point difference between the three time frames. These varieties were less susceptible to weather extremes over the harvest period.

MANAGEMENT STRATEGIES

Selection of cultivars. Many heirloom tomato varieties can be grown successfully in Connecticut. All 27 varieties evaluated produced marketable tomatoes. There are four fruit characteristics to consider when choosing a variety. First is the color of the fruit. Colors in these trials ranged from yellow to orange to pink to red to dark red. Color is a cosmetic characteristic and has little effect on taste. Size is another factor to consider. All varieties tested were labeled “beefsteak” in the catalog but some were much smaller. Timing of harvest is another important consideration. Varieties with differing maturities create a constant supply of tomatoes throughout the harvest season. Lastly, the total yield is an important consideration especially for commercial enterprises. Varieties with large yields at both sites should do well in most of Connecticut.

Taking all of these factors into consideration, Pineapple (late, yellow), Kellogg’s Breakfast (mid, orange), Amana Orange (mid, orange), Mortgage Lifter (mid, red), Caspian Pink (early, red), Dinner Plate (late, red), and Cherokee Purple (early, reddish-purple) appear to be good choices. These selections offer a variety of colors, maturities, and sizes throughout the harvest period. The best varieties for consistent quality were Box Car Willie, Delicious, Dinner Plate, Druzba, Hillbilly, and Pineapple.

Planting times. Seeds were sown in the greenhouse on April 10-14. When 6-weeks old, they were transplanted in the field May 24-28. At this stage, the plants were large enough for transplanting, but not leggy or root bound. There was no interruption in their growth. Many backyard gardeners, anxious to start the gardening season, start their transplants in late February or early March. At transplant time, seedlings are often root bound and their growth has slowed or stopped. Flowers may form if the plant is stressed, diverting some energy into fruit production rather than vegetative growth. Transplanting in the third or fourth week of May is ideal for Connecticut because the soil has warmed sufficiently and the threat of frost is gone.

Soil Amendments. While no soil amendments were used in these trials, other studies have shown that some soil amendments improve tomato growth and yields. Maynard (2000) showed that on both loamy and sandy soils, 1-inch of leaf compost could be substituted for inorganic 10-10-10 fertilizer and equivalent tomato yields could be expected in the first year of compost application. Plots amended only with compost appeared to have less blossom-end rot in years when this disorder is prevalent. For the greatest yields, it appeared that a combination of compost and 10-10-10 fertilizer is optimum but the full rate (1300 lb/A) was not usually necessary. Half the rate of fertilizer (650 lb/A) plus one-inch compost was sufficient for optimum yields on loamy soils and for most years on sandy soils. Compost increased the organic matter content of the soil and increased the water holding capacity. Hill et al. (1982) showed tomatoes mulched with grass clippings yielded significantly more than plants mulched with clear or black plastic or unmulched. The reduced yields of tomato plants with clear or black plastic was probably due to insufficient soil moisture because the impermeable plastic limited resupply by rain or irrigation. Fruit set was limited if grass mulch was applied before the first flower cluster had formed. Grass clippings from lawns treated with herbicides may inhibit crop growth.

Table 5. Timing of harvest (average % of harvest) at Windsor and Mt. Carmel

	Before Aug. 15	Aug.15 - Sept. 15	After Sept. 15
Abraham Lincoln	16	68	16
Amana Orange	26	36	38
Anna Russian	22	58	20
Black Krim	38	38	24
Box Car Willie	16	54	30
Brandywine	19	53	18
Caspian Pink	30	52	18
Cherokee Purple	40	35	25
Delicious	16	38	46
Dinner Plate	20	36	44
Dixie Golden Giant	19	62	19
Druzba	18	45	37
German Johnson	17	53	30
Giant Belgian	22	76	24
Golden Ponderosa	10	54	36
Hillbilly	14	54	32
Italian Giant	17	58	25
Kellogg’s Breakfast	14	56	30
Lillian’s Yellow	16	62	22
Mortgage Lifter	24	56	20
Old German	9	59	32
Omar’s Lebanese	14	53	33
Pineapple	8	54	38
Polish Linguisa	12	57	31
Red Ponderosa	12	67	21
Wins All	22	47	31
Yellow Giant Belgian	19	59	22

Pruning and Staking. All plants were pruned to two main stems. The first sucker beneath the first flower cluster was saved and every sucker below it was removed. Lower suckers were not productive and were more prone to soil borne diseases.

The plants were tied to stakes weekly as they grew. Staking tomatoes helps control many foliar diseases by increasing air circulation. Staking also separates most of the plant away from the soil where many diseases originate. Most varieties reached the top of the 6-foot stakes midway through the growing season. Wooden stakes (1" X 1") were used the first year but many broke during wind storms from the combined weight of the plants and tomatoes. Six-foot metal stakes were used in the final two years.

Harvesting. Fruits in these trials were harvested weekly. Harvesting 2-3 times a week would be optimum. One of the factors that makes heirloom tomatoes so appreciated is the tenderness of the skin. It is this tenderness that makes many heirlooms vulnerable to cracking. The secret to limiting cracking is providing even moisture. Since the skins lose elasticity as fruits approach maturity, a heavy rain (or irrigation left on too long) will swell the fruits and cause cracking. With heavy rain in the forecast, it would be wise to pick ripe and almost ripe fruits to protect them from cracking.

Insect and Disease Control. Plants in these trials were sprayed proactively for Early Blight and Septoria or before symptoms were apparent. Heirlooms have little or no disease resistance. Once disease symptoms occur, they spread rapidly through the field. Home gardeners can slow down the spread of disease by removing diseased leaves from the plant and discarding them.

CONCLUSIONS

Beefsteak heirloom tomatoes can be grown successfully in Connecticut with a few changes to hybrid tomato culture. A few varieties experienced radial and concentric cracking as well as some catfacing but overall fruit quality was very good to excellent. Some consideration, however, should be made to their thin skins and disease susceptibility. This would include more frequent harvesting and disease surveillance. All varieties continued to produce fruit and vegetation until frost in October. For the homeowner, heirloom varieties provide a flavorful alternative to standard garden tomatoes. For the commercial grower, heirlooms offer special market opportunities.

REFERENCES

Anon. 2005. 2004 Cash receipts. New England Agricultural Statistics. Sept. 2, 2005. 8p.

Anon. 1989. Connecticut Agricultural Marketing Directory. Conn. Dept. Agr. Hartford, CT. 52p.

Hill, D.E., L. Hankin, and G.R. Stephens 1982. Mulches: Their effect on fruit set, timing, and yields of vegetables. Connecticut Agricultural Experiment Station Bulletin 805. 15 pp.

Maynard, A.A. 2000. Applying leaf compost to reduce fertilizer use in tomato production. Compost Science & Utilization 8(3):203-209.

Reynolds, C.A. 1979. Soil Survey of New Haven County, Connecticut. United States Department of Agriculture, Soil Conservation Service. 197 pp.

Shearin, A.E. and D.E. Hill. 1962. Soil Survey of Hartford County, Connecticut. United States Department of Agriculture, Soil Conservation Service. 126 pp.

Watson, B.A. 1996. Taylor's Guide to Heirloom Vegetables. Houghton Mifflin. New York. 352 pp.

Notes

Notes