

## Allee Demonstration Garden

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### Introduction

The focus of the organic Allee Demonstration Garden in 2001 was to conduct a fourth-year trial on the use of copper wire in tomatoes for disease management, the most important problem in organic tomato production. There are numerous reports concerning successful use of copper wire and other organically approved methods (such as spraying with hydrogen peroxide) from growers nationwide. Results from the 1998 and 1999 Allee Demonstration Garden copper wire trials showed increased fruit production from heirloom tomato plants containing a copper wire insert.

### Materials and Methods

Six plants each of five heirloom varieties were grown: Garden Peach, Spanish Sun, Clear Pink Early, Flamme, and Pineapple. In fall 2000, tomato beds were prepared by rototilling in 1.5 tons/acre of hoop house compost. In spring 2001, the beds were rototilled to 6 inches. On June 10, all tomatoes were transplanted, caged with concrete reinforcement wire (5' x 2' diameter), and covered with black plastic mulch and grass-hay around the perimeter. Drip irrigation was used as needed. Two plants of

each variety were planted side by side. One plant did not receive any treatments (untreated), while the other plant received a copper wire insert into its stem (treated). When the stem of a treated plant reached the diameter of a pencil, a 3-inch long piece of 16-gauge copper wire was inserted through the center of the plant's stem (leaving equal amounts of copper wire on either side of the stem) approximately a half-inch above the soil line.

As a preventive against fungal attack, all tomatoes in the trial were sprayed weekly with a solution of 3% undiluted hydrogen peroxide. A sub-sample of each plant was monitored for the number of fruits/stem and weight of fruits/stem. Fruit number and yield were recorded at each harvest date until September 30, 2001.

### Results and Discussion

A total of six plants of five cultivars were used in this trial. A description of the varieties is contained in Table 1. The 2001 growing season did not have the drought conditions found in the 2000 season. There were no significant differences between the treated and untreated tomatoes in the numbers of fruit or the harvested yield in any of the varieties (Table 2). 'Pineapple' yielded less than all other cultivars, and harvest weight was significantly lower. All fruits were marketed through the local farmers' market.

**Table 1. Description of Tomato Varieties, Allee Demonstration Farm Trial, 2001.**

**Clear Pink Early:** Determinate Russian heirloom with 58- day maturity. Grows 2–3 feet tall and produces abundant, smooth, round, clear pink 3–6 oz. fruit. Very good; sweet, yet sharp, flavor.

**Flamme:** Indeterminate heirloom with 70-day maturity. An orange salad tomato with sweet flavor and fruity overtones.

**Garden Peach:** Indeterminate heirloom with 75–85-day maturity. Abundant clusters of small, yellow tomatoes with a pink blush. Skin is somewhat fuzzy, resembling a peach. Flavor excellent—sweet and mild. Constant supply of uniform tomatoes with no breaks in production.

**Pineapple:** Indeterminate heirloom with 85-day maturity. Bicolor: red and yellow fruit. Very large beefsteak-type tomatoes. Streaked with red both inside and out. Rich, sweet flavor. Good producer.

**Spanish Sun:** Determinate heirloom with 78-day maturity. Deep red, medium to small tomatoes. Great flavor. Steady producer.

**Table 2. Copper wire tomato trial harvests per plant over the 2001 season, Allee Farm, Newell, IA.**

Variety	Treated Yield (lb) ± SE	Untreated Yield (lb) ± SE	Treated Fruit Number ± SE	Untreated Fruit Number ± SE
Clear Pink Early	2.90 ± 0.88	2.88 ± 0.91	16.9 ± 4.3	20.17 ± 6.22
Flamme	3.78 ± 0.50	3.36 ± 0.54	57.33 ± 14.89	59.44 ± 21.10
Garden Peach	4.08 ± 0.67	3.96 ± 0.76	77.89 ± 27.62	69.67 ± 24.67
Pineapple	2.39 ± 0.85	2.49 ± 0.73	6.56 ± 2.79	8.50 ± 4.37
Spanish Sun	3.11 ± 0.81	3.81 ± 0.82	24.17 ± 8.05	27.33 ± 12.18