

# The New Crops Program – Helping Connecticut’s Vegetable Growers



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# Vegetable Production in Connecticut

- About 11,000 acres on 733 farms with a cash value of 30.2 million dollars.
- Over 63% of these farms are less than 50 acres
- Marketing has shifted to direct retail sales
- Over 70 different types of vegetables grown commercially











# 129 farmers markets attended by over 400 farmers in 2012



# About 560 farms have roadside stands





# About 120 are opened year round



# New Crops Program

- Crops chosen because they had a expanding market in Connecticut
- Over 50 fruits and vegetables have been studied
- Cultivar trials of popular vegetables
- Cultural trials of crops not normally grown in Connecticut
- Station Bulletins and fact sheets



Table 5. Yield (ounces/plant) of sweet potatoes grown at Windsor and Mt. Carmel—2000.

	Hvst %	Jumbo + U.S.#1 oz.	Canners oz.	Split oz.	Total oz.	yield* lb./A	40-lb. crates no./A
WINDSOR							
Beauregard	90	28.2	7.2	1.4	36.8	19,700	432
Carolina Ruby	96	3.5	8.6	0.0	12.1	7,965	58
Georgia Jet	88	33.4	4.9	32.4	70.7	22,940	500
Jewel	98	24.9	7.6	3.2	35.7	21,655	415
Porto Rico	98	10.1	22.4	0.5	33.0	22,190	181
Vardaman	100	7.6	18.2	4.0	29.8	20,295	129
White Triumph	54	16.2	9.0	2.4	27.6	9,255	149
MT. CARMEL							
Beauregard	94	37.2	7.0	2.7	46.9	28,995	598
Carolina Ruby	91	5.1	10.4	0.0	15.5	9,615	79
Georgia Jet	94	19.7	6.5	27.5	53.7	16,820	316
Jewel	96	18.6	8.9	1.0	28.5	18,000	304
Porto Rico	93	13.0	14.0	1.7	28.7	17,130	206
Vardaman	96	10.9	9.3	8.2	28.4	13,190	178
White Triumph	78	9.2	15.4	3.6	28.2	13,040	122

\* Total marketable yield (Jumbo + U.S.#1 + Canners) = wt./plant x 10,890 plants/A (1' x 4' spacing) x % plants producing.

Among all vegetables, sweet potato is very high in nutritive value. It is high in carbohydrates, beta carotene (provitamin A) and vitamin C.

#### METHODS AND MATERIALS

**Cultivars.** Vegetative slips of Beauregard, Georgia Jet, Jewel, Bush Porto Rico, Vardaman, and White Triumph were obtained from a domestic supplier. Carolina Ruby was obtained from a Massachusetts grower and has limited availability at this time. This cultivar was recently developed at North Carolina State University. Its female parentage is highly productive Beauregard crossed with an unknown red-skinned variety, producing a highly productive red-skinned progeny (Collins, et al. 1999).

**Culture.** Preliminary trials were conducted in 1999 at both sites. Two 50-foot rows were planted with Beauregard. One row was hilled to 10 inches, the other unhilled. Half of each row was covered with 1.5 mil black plastic mulch. The slips were planted 12 inches apart in rows 48 inches apart.

In cultivar trials in 2000, single 50-foot rows were planted with each cultivar at each site. All rows, unhilled, were covered with 1.5 mil black plastic mulch. The slips were planted 12 inches apart in holes cut through the plastic. The rows were 48 inches apart. In 1999, the slips were planted June 2-10; in 2000, May 29- June 1. Late-arriving Carolina Ruby was planted June 29-30 at both sites.

**Fertilizer.** The soil at both sites was fertilized with

10-10-10 at a rate of 1300 lb/A before the plants were transplanted.

**Irrigation.** In dry 1999, the plots were irrigated three times at Windsor and two times at Mt. Carmel. In wet 2000, the plots were irrigated only once at each site, shortly after transplanting.

**Harvest.** In 1999 and 2000, sweet potatoes were harvested at both sites September 23-October 10 and September 11-October 16, respectively. Fully 60% of the harvest occurred in both years before October 8-9 frosts. The harvested sweet potatoes were graded according to USDA standards as follows:

- Jumbo: Greater than 3.5 inches diameter and 9 inches length.
- U.S. #1: 2-3.5 inches diameter and 3-9 inches length.
- Canners: 1-2 inches diameter and 2-7 inches length.

Split roots were weighed and discarded. Roots smaller than 1-inch diameter or less than 2-inches long were not weighed and were discarded.

#### YIELD 2000

Average marketable yield of seven cultivars of sweet potatoes was 17,800 lb/A at Windsor compared to 16,685 lb/A at Mt. Carmel, a 7% difference (Table 5). At Windsor the total yield of Georgia Jet was greatest (4.4 lb/plant) among all cultivars but 46% of the yield was split and unmarketable. Total yield of Beauregard, Jewel, and Bush





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## How to Grow Sweet Potatoes in Connecticut

Sweet potatoes, *Ipomoea batatas*, are perennial dicots in the morning glory family (Convolvulaceae) that are grown as an annual. They are native to Central and South America, but are now grown in many tropical, subtropical, and temperate regions. They are unrelated to potatoes; potatoes produce tubers, while sweet potatoes produce primary fibrous roots, pencil roots, and storage roots. Storage roots are the only part eaten in the United States, but in parts of Asia the leaves are cooked and eaten as a green vegetable like spinach. Skin color of the storage roots ranges from white to brown to red-orange. Flesh color of the storage roots can be red-orange, orange, yellow, or white. Sweet potatoes contain an enzyme that converts most of its starch to sugar as the potato matures. Sugars continue to increase during storage and when they are cooked. Sweet potatoes are a good source of calcium, iron, and vitamins, A and C.

Sweet potatoes are often confused with yams which are monocots in the family Dioscoreaceae. Yams are grown as a food staple in many tropical countries, but seldom in the continental United States. Compared to sweet potatoes, yam flesh is starchier and drier. Sweet potato varieties are classified as either "firm" or "soft" when cooked. "Soft" varieties are often labeled as yams in the

United States. When soft varieties were first grown commercially, there was a need to differentiate between the two. African slaves called the "soft" sweet potatoes "yams" because they resembled the yams grown in Africa. The nutritional content of sweet potatoes greatly exceeds the nutritional content of yams.

**Cultivars.** Sweet potatoes are grown from young plants called "slips". If buying through mail-order firms, order early to get the cultivars you desire. Sweet potatoes produce a trailing vine of considerable length up to 20 feet. These vigorous vines make the sweet potato an impractical crop in gardens with limited space. Some cultivars, however, have a different growth form, called a "bush" or "bunch" type. These varieties are more practical for small gardens because they utilize a smaller space.

Here are the characteristics of some the cultivars which we have tested:

*Beauregard* – developed in Louisiana, is among the commercial sweet potato industry's best producing variety. Large, elongated, rose colored skin with orange flesh. Resistant to storage diseases. Extremely high yielder with a fairly short growing season (80-90 days).

*Centennial* – an older cultivar with smaller yield than others. Stores well.



# Cultivar Trials

- Crops commonly grown throughout Connecticut
- Trials conducted at two sites – Hamden and Windsor
- Trials at least 3-years in duration
- May be repeated after several years





# Broccoli 2013

122 cultivars evaluated







# Cauliflower

69 cultivars evaluated







# Iceberg Lettuce

## 15 cultivars evaluated



# Onions

35 cultivars evaluated



# Sweet Corn 2013

## 47 cultivars evaluated



# Pumpkins

## 27 cultivars evaluated

# Specialty Vegetables

- High value crops
- Not large acreages
- Cultural trials
- Cultivar trials
- Trials conducted at Hamden and Windsor
- Trials at least 3-years in duration





## Personal-sized Watermelons

19 cultivars evaluated



# Edamame

15 cultivars evaluated











# Heirloom Tomatoes

## 57 cultivars evaluated



# Specialty Eggplant

## 11 cultivars evaluated



# Colored Sweet Bell Peppers

10 cultivars evaluated



# Sweet Potatoes 2013

14 cultivars evaluated

# Ethnic Vegetables

- Not normally grown in Connecticut
- High value crops
- Not large acreages
- High appeal in specific areas of Connecticut
- Cultural and cultivar trials
- Trials at least 3 years in duration in Hamden and Windsor





# Globe Artichokes

## 34 cultivars evaluated



# Calabaza

## 6 cultivars evaluated





# Jilo

2 cultivars evaluated



# Chinese Vegetables

34 Chinese Cabbage cultivars evaluated

21 Pak Choi cultivars evaluated





# Radicchio

37 cultivars evaluated



# Vegetable Amaranth

## 8 cultivars evaluated

# Research in 2013

- Sweet corn
- Broccoli
- Japanese plums
- Colored sweet bell peppers
- Sweet potatoes





# Specialty Melons

## 16 cultivars evaluated



# Hops

5 cultivars evaluated





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