

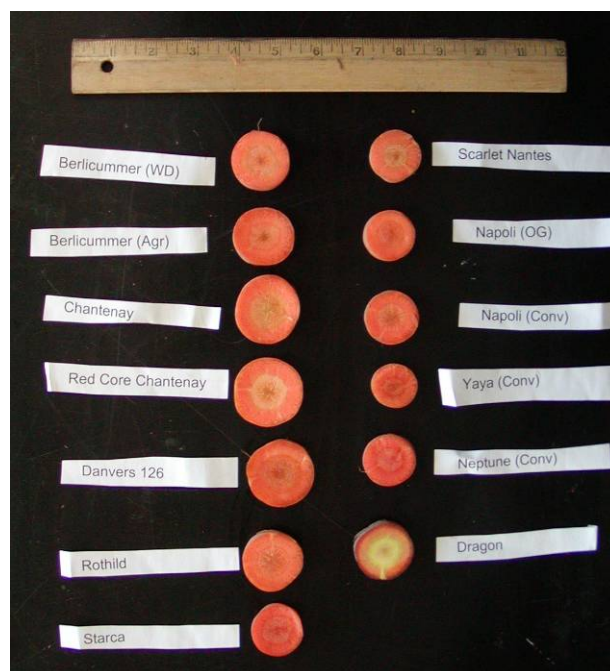


## MARITIME ORGANIC SEED TRIALS: CARROTS

Interim Research Report E2007-31

### BACKGROUND

The organic seed sector is growing, and every year new cultivars are being released for vegetable crops. Certified organic farmers are required to use organically grown seed when it is available for the crop they are growing. However, organic seed has not been available for many of the favourite cultivars grown by Maritime market gardeners and commercial growers. In 2006, the Organic Agriculture Centre of Canada (OACC) worked in collaboration with four Maritime organic farmers to start a two year research program exploring the current state of organic seed for two vegetable crops. The goal of this project was to evaluate existing and novel cultivars of organically grown carrot seeds to identify the best currently available cultivars for organic production. As taste is often a determinant of consumer choice for organic food, the preferences of consumers was also assessed.



Thirteen carrot cultivars were grown from organic seed (R. Beavers)

**Table 1. Organically produced and non-organic standard carrot cultivars tested in this trial**

Cultivar	Characteristics
<i>Non-Organic Standards</i>	
Napoli <sup>1</sup>	F1 (55 d), nantes type, fresh market
Yaya <sup>2</sup>	F1 (56 d), nantes type, fresh market
Neptune <sup>1</sup>	F1 (65 d), imperator, storage
<i>Organically Produced Seeds</i>	
Napoli OG <sup>1</sup>	F1 (55 d), nantes type, fresh market
Chantenay <sup>1</sup>	OP (65 d), chantenay type, all purpose
Royal Red Core Chantenay <sup>3</sup>	OP (70 d), chantenay type, all purpose
Danvers 126 <sup>3</sup>	OP (70 d), storage
Scarlet Nantes <sup>1</sup>	OP (70 d), nantes type, all purpose
Berlicummer 1 <sup>4</sup>	OP (75 d), improved nantes, storage
Berlicummer 2 <sup>3</sup>	OP (75 d), improved nantes, storage
Dragon <sup>5</sup>	OP (75 d), purple flesh
Starca <sup>6</sup>	F1 (75 d), storage
Rothild <sup>6</sup>	OP (85 d), storage

Seed source: <sup>1</sup>Vesey's Seeds (PE), <sup>2</sup>Johnny's Selected Seeds (ME), <sup>3</sup>Agrestal Organic Heritage Seeds (ON), <sup>4</sup>William Dam Seeds (ON), <sup>5</sup>Stellar Seeds (BC) and <sup>6</sup>Rawlinson Garden Seeds (NB, no longer in business)

### WHAT WAS DONE

The organic carrot seed trial was conducted at four farms and at the Brookside Organic Research Site in Truro, NS. Ten organically produced carrot cultivars were seeded at each site (Table 1). Three conventional carrot cultivars were seeded as a standard for which to compare the organic cultivars. The carrots were seeded using an Earthway Seeder with light carrot plate, to represent common practices of market gardeners. One challenge this presented was the seeder was not able to be calibrated when there were variations in seed size. Carrot cultivars were planted in a random order in 10-m long rows, with most sites using row spacing of 60 cm. At harvest, carrots were graded to Canada No. 1 fresh market standard. Total and marketable yield were determined for each cultivar. Analysis of variance was completed with SAS using the mixed procedure to determine differences between cultivars; LS Means was used for means comparison.

## PRELIMINARY RESULTS

**Emergence:** In the 2006 field season, carrot density was different between cultivars. Variable emergence was an unpredicted consequence of using a smaller push-seeder. Further analysis needs to be performed to determine if these differences are related to seeding rate/seed size or germination rate. Stand densities ranged between 16-24 plants m row<sup>-1</sup>, with highest density from Scarlet Nantes (30 plants m row<sup>-1</sup>). Crop stands for the conventionally produced seed were not superior to the organic.

**Yield:** Most organically produced cultivars produced carrots of comparable yield to the conventional standard cultivars Napoli, Yaya and Neptune, indicating that organic growers do have some worthwhile varieties available at present from organic seed. There was not a significant difference in total yield between any of the cultivars. After grading, about 82% of carrots were marketable. Carrot yields were slightly lower than expected; the average marketable yield (total minus undersized or damaged carrots) was 19 t ha<sup>-1</sup>. For marketable yield, the cultivar Berlicummer-2 was the heaviest yielder. It had significantly ( $P < 0.05$ ) greater yield than Rothild and Starca, where higher root size couldn't compensate for lower carrot density. It also outperformed Chantenay, RCC Chantenay and Danvers 126, storage/processing cultivars which are shorter in length. Mean yield values are shown on Figure 1.

**Preference Tests:** To determine which cultivars produced fresh market carrots that customers would like, consumer preference tests were conducted at two different Farmers Markets. Over 50 participants assessed taste, texture and likeability of twelve carrot cultivars, tasting six at a time. The top carrots in both trials are presented below. Many of the carrots scored quite closely in the test rankings; the stand-out in both tests was Yaya, which will be available as organic seed in 2007. The lower score for some of the storage cultivars may be due to immaturity.

**Table 2. Carrot Preference Test Results**

Rank	Trial 1 - Truro	Trial 2- Dieppe
1	Yaya	Yaya
2	RRC Chantenay	Berlicummer 1
3	Chantenay (tie)	Napoli
4	Neptune (tie)	Chantenay
5	Scarlet Nantes	Dragon

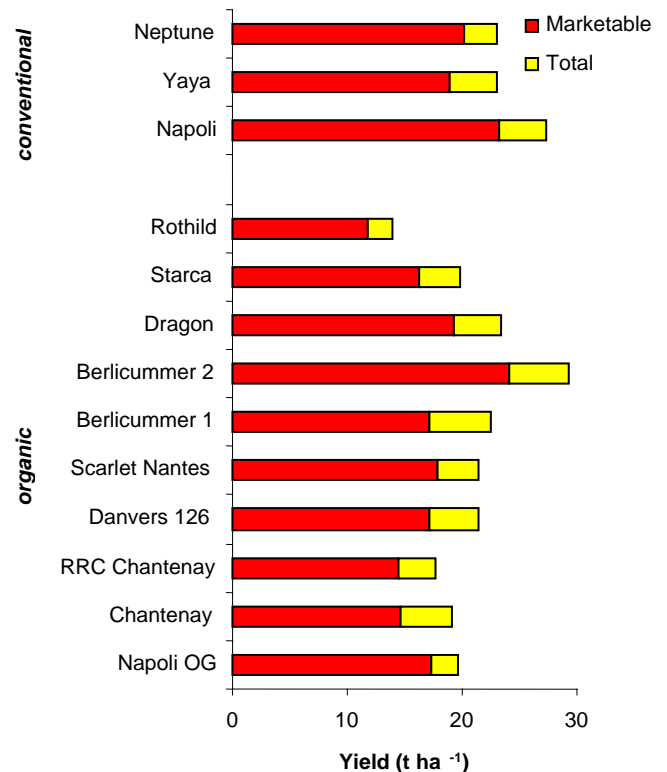
## CREDITS

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**Figure 1. Total and marketable yield for carrots grown from conventional and organic seed**

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