

2019 NOVIC III Non-Orange Carrot Trial



Trial Goal

Evaluate purple, red and yellow carrot varieties for performance in organic systems for direct marketing, including flavor, weed competitiveness/vigor, disease resistance, uniformity and yield. Varieties were chosen based on input from growers and NOVIC breeders, and included OP as well as F1 cultivars. Red Samurai was not included in the research site trial, but was included in two out of three grower trials.

Variety	Color	Seed.Source	Available.as.pelleted.
Purple Haze F1	purple	Johnny's	y
Purple Elite F1	purple	Johnny's	y
Cosmic Purple	purple	High Mowing	n
Dragon	purple	Fruition	n
Atomic Red	red	Reimer	n
Rainbow	white,yellow,red	Johnny's	y
Red Samurai F1	red	Territorial	n
Yellowstone	yellow	Johnny's	y
Gold Nugget F1	yellow	Johnny's	y
Malbec F1	red	Johnny's	y
OSA Purple 1	purple	CIOA project	n
OSA Purple 2	purple	CIOA project	n
OSA Red	red	CIOA project	n
OSA Yellow	yellow	CIOA project	n

Locations

Homer C. Thompson Research Farm, Freeville NY
Hudson Valley Farm Hub, Hurley NY
Sparrowbush Farm Hudson, NY
Stick and Stone Farm, Ithaca NY

Trial Specifications

Trial plots at the research farm were planted by hand on raised beds in 2 rows 30" apart in a Random Complete Block Design with three blocks. Each plot in the block was 8 ft long (16 row ft). The research farm trial was seeded on June 19th and harvested September 10th. Grower trials were planted between June 6 and July 15, and harvested between August 20 and October 1, so trial results may not reflect performance for early season plantings.

Average hundred root weight is in grams, all other categories rated 1-5 with higher score representing better performance, i.e. earliness score of 1 indicates late maturing, 5 indicates early maturing and an Alternaria rating of 1 indicates high incidence of disease, 5 indicates low incidence of disease. Ratings are color coded such that light green indicates best performers (high rating).

Results

The trial demonstrated stark differences in flavor/palatability as well as agronomic performance. For purple carrots, Purple Haze, Dragon and Cosmic Purple were highest overall performers with good vigor, uniformity, root size and appearance. However, Dragon is a shorter and thicker Danvers-type that may be less ideal for mixed bunches but perhaps ideal for storage. Rainbow was high yielding, but roots were irregular, rough and colors were pale compared to single color varieties.

Dragon, Purple Haze and Gold Nugget scored best on flavor/palatability ratings on the research site and in grower trials. Cosmic Purple received lowest scores for flavor amongst purple entries. In general, yellow varieties were mild and appealing, while red varieties had the strongest/most unappealing flavor.

Table 1. Table of Means and Groups. Note: Letters indicate entries which are not statistically different for that trait. For example, all entries with an 'a' are not statistically different for that trait.

Variety	Avg.hundred.root.weight	top.vigor	top.strength	tip.fill	alternaria	Flavor
Atomic Red	2.7	abc 3	abcd 4.7	a 1	b 3	a 1.1
Cosmic Purple	4.3	a 4.3	abc 2.7	bc 3.3	ab 4.7	a 3
Dragon	4.3	a 3.7	abcd 2.3	c 4.3	a 4.3	a 3
Gold Nugget	3	abc 3.7	abcd 3.3	abc 3	ab 3	a 4.1
Malbec	3.3	abc 4.7	ab 4	ab 1.7	b 4	a 2.1
OSA Purple 1	1.4	c 2.6	bcd 3.4	abc 1.5	ab 2.6	a 1.3
OSA Purple 2	2	bc 2.3	cd 2.7	bc 2.3	ab 2.7	a 1.1
OSA Red	2	bc 2.3	cd 3.7	abc 3	ab 3.3	a 3.1
OSA Yellow	2.3	abc 1.7	d 3.9	abc 2.3	ab 4	a 1.9
Purple Elite	4	ab 5	a 4.7	a 1	b 4.3	a 2.1
Purple Haze	4	ab 3.3	abcd 3.7	abc 3	ab 4	a 4
Rainbow	4	ab 3.3	abcd 3.3	abc 2.3	ab 4	a 3
Yellowstone	3.7	abc 5	a 4.3	a 1.5	b 4.3	a 4.1

Grower Trial Feedback

Dragon was the first to size up across all trials, and had excellent flavor and uniformity, though less preferred for mixed bunches due to Danvers shape. Favorite varieties for mixed bunching were Purple Haze, Gold Nugget, Red Samurai and Nectar (an orange variety not trialed).

Dragon, Cosmic Purple and Purple Haze showed best weed competition. Alternaria affected Gold Nugget, Malbec and Purple Haze most severely. Yellowstone had strong tops as did Red Samurai (though the latter bordered on bolty), while Rainbow and Purple Elite had weak tops.

Dragon, Purple Haze and Gold Nugget scored best on flavor/palatability ratings on the research site and in grower trials. In general, yellow varieties were mild and appealing, while red varieties had the strongest/most unappealing flavor. Compared to other reds, Red Samurai and OSA Red stood out as having much better flavor. Dragon, Red Samurai and Gold Nugget seemed to hold flavor or gain in sweetness after storage.

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