

# CARROTS

*Daucus carota*

## Final Crop Analysis

### Estimated Harvest goals:

Market	Total Yield Goal [lbs/units]	Notes
Big Y	1348 lbs	
CSA	2100 lbs	
Farmers Market	210 lbs	
Dining	1450 lbs	
Student Businesses	595 lbs	This is being generous

### Cultivars/varieties and seeds:

Cultivar	Source	Amount	Cost	Org or Untreated?
Bolero	Johnny's	100,000	\$224	untreated
Purple Haze	Johnny's	25,000	\$58.75	untreated
Rainbow	Johnny's	25,000	\$58.75	untreated

### **Reasons for selecting these cultivars:**

Bolero has been a constant on the farm so far. It is known to have a good flavor, store well, and has a very "classic carrot" look to it.

I thought it would be cool to add Purple Haze to have a darker color within our carrots. This specific purple carrot was also marked as an AAS winner.

Rainbow would also add to the diversity of color in our carrots. I was deciding between rainbow and Malbec since they had both been grown in past years. I chose rainbow over Malbec because it was listed as being more flavorful.

### **Did the variety description meet your expectations? Why or why not?**

The bolero carrots have come out looking and tasting great. However, some of the bolero we've harvested have been on the smaller side with different shapes and entanglements that made them not Big Y quality. The purple haze were overall good as well and had less issues with funky shapes but their taste was not as sweet as the bolero. The rainbow carrots were not super good. Many of them were overly hairy and grew to be cracked down the middle or at the tops.

### **Would you recommend these varieties again?**

I would definitely recommend bolero carrots to next year's crew.

I recommend keeping the purple haze or a different purple/red variety of carrots to keep things interesting. I do not recommend the rainbow carrots.

**Make suggestions for two other varieties you think would be interesting to try in 2020. List your reasons.**

Sugarsnax 54 from Johnny's Seeds have long, slender roots that are high in beta-carotene. They are listed as being sweet, tender, and smooth.

Gold nugget also from Johnny's Seeds appears to be a very bright, almost neon yellow carrot. It is listed as having a uniform shape and being flavorful.

**Farmer Notes:** *Not my own notes, but Amanda says that the farm has never grown the gold nugget variety so that could be a fun experiment!*

### **Direct seeding**

Planting #	Seed date	Seeder Used	Settings Used	Notes on germination
1	5/15	Jang seeder	A roller with the setting X12	Our germination rate was good overall
2	6/20			
3	7/15			

**Farmer Notes:** *During the second two seed dates, 6/20 and 7/15, we planted 3 beds each. Only one bed was planted on the first seed date 5/15. Some of the greens on our carrots started to bolt in August which was bizarre. It is likely that they were planted too early which caused some of the carrots to grow faster than others and go to seed earlier than they should have.*

### **Planting Information:**

**Expected yield/ft:** 1lb/foot

**Direct seed or transplant:** Direct seed

**In-Row Spacing:** X12 setting seeds at 2-5"

**Between Row Spacing:** 12-15"

**Number of Rows Per Bed:** 3

**Bed Feet planted:** 9 beds, 2700 feet

**Field Planted In:** A

**Number of succession plantings:** 3

**Broadcast Fertility:** 4/16/19 Composted Chicken Manure 5-4-3 1000 lbs/acre

**Additional Fertility:** No

**Cultural practices:**

We used the Jang seeder with a roller with the setting X12. 2 successions 6/18 and 7/16

No row cover

No black plastic

We frequently crawled the carrots

We thinned them as we crawled them about 2-3 times but we were not all consistent about thinning unfortunately.

Once the carrots were big enough we were able to use the basket weeder implement on the tractor that got between the three rows of carrots so we only had to hand weed directly around the plants.

**Notes on Irrigation:**

No drip tape was placed on the carrots and they fared well.

**Diseases observed:**

It appeared that our rainbow carrots had root knot nematode.

The roots were often either extra thick, hairier, or stubbier than other carrots. I also think some of our carrots may have gotten cavity spots on them but it may have just been wireworm damage.

**Potential Disease Threats:**

**Alternaria leaf blight:** Symptoms first appear on the upper leaf surface as small, circular, tan spots with white centers. These spots enlarge, turn light brown and form a slight depression.

**Black root rot:** Caused by the fungus *Thielaviopsis basicola* is a very persistent and damaging disease for growers of bedding plants, herbaceous perennials and some woody species — including poinsettias.

**Cavity spot:** Cavity spots are small elliptical lesions (usually less than 10mm across) often surrounded by a yellow halo. Infection can take place anywhere along the carrot root and lesions start as pinhead-size spots.

**Insect Pests observed:**

**wireworm**

**Damage caused:** holes and bite marks/ actual worms inside the carrot

**How was it scouted or observed:** not scouted

**Action(s) taken:** discarded the affected carrots

**Potential Insects:** What should farmers of the future expect to see? Report more than one pest if applicable.

**Wireworm:** Wireworms can also tunnel into parts of the roots or stems of young plants causing stunted growth and wilted leaves.

**Cutworm:** They primarily feed on roots and foliage of young plants, and will even cut off the plant from underneath the soil. In most cases, entire plants will be destroyed; they do a lot of damage in no time at all.

**Do you think the production practices needed for this crop was worth the yield that we received?**

While it felt like we were endlessly crawling the carrots at times it was well worth it. Carrots are a staple item to all of our markets and crawling was our best group bonding time.

***Farmer Notes:** We should have been more consistent with our thinning of the carrots because we ended up with some patches of beautiful carrots that were evenly spaced and others that were so clumped together they took on shapes we could not sell.*

**Harvest & Storage:**

**When was the crop ready for harvest? How did you know?**

We had carrots as a summer production crop as well so we had many successions of them being harvested throughout the season. The fall carrots were harvested in early September. You can check to see if they are ready to harvest by pulling up a few and checking to see if they are the diameter and length you're aiming for. We aimed for about 6 inches in length and the diameter changed depending on the variety.

**How was it harvested?**

-Carrot harvests were typically done with all hands on deck so we could quickly knock out an order or a few rows to store for future orders. However, you can get by doing a small order with 2-3 people harvesting.

-The carrots were harvested either using a fork to loosen up the soil followed by people pulling the carrots out by hand or using a tractor implement called the undercutter to lift a whole row out at once.

-Depending on the market we would either bunch the carrots with rubber bands while keeping the tops on or pull the tops off and bag up the loose carrots.

CSA, Dining, and Student business were all harvested as loose carrots.

Big Y and Farmers Market were typically bunched.

Additionally when we had the capacity to do so we would have a separate bag of "uglies" to donate to Bob at Not Bread Alone or the Food Bank.

**How was it washed at the wash station?**

The root washer.

**List different post-harvest practices for each market (if any)**

Carrots were washed for all markets.

**List different shipping practices for each market (if any)**

CSA/Farmers Market: Lock lids

Student Business: Bushel box

Big Y: Lock lids

Dining: Bushel box

**What different or improved harvest and shipping recommendations can you make?**

None that I can think of.

**Storage and post-harvest handling:**

**Curing:** Not needed

**Washing before storage:** We washed some before storing them and others sat in bags in the cooler before getting washed and packed. Both methods work relatively the same it's just a matter of when you have time to wash.

**Storage Requirements:**

32-38 degrees, RH of 98%, and duration depends on the variety so it's recommended to check for rot every few weeks (we typically sold ours before that point though).

**How should this crop be processed for long term storage:**

Either unwashed or topped in white bags inside the cooler or washed and topped in black totes in the cooler.

**Where your crop was stored this fall 2019?**

The cooler in the barn.

**How well did this crop fair in storage and how did it enter storage?**

The carrots that entered storage pre-washed did better than the ones we stored in bags with dirt on them. The ones in bags weren't as easy to clean after being stored but they all held up well in terms of staying crisp and fresh tasting.

**Were there any problems in storage?**

No issues of rot, pest damage, color issues, or condensation.

**What different or improved storage recommendations can you make?**

Labeling the date the carrots were harvested on the bags and when they were washed on the black totes. It was hard to tell at times which carrots we should prioritize selling first.

***Farmer Notes:*** I thought the most efficient method of harvesting the carrots was when we would use the undercutter first and follow behind filling green bins and then transferring them into white bags. It is best to not fill the green bins up past the halfway point in order to keep the weight low so it's easier to lift and dump them into the bags.

**Actual Yields and Sales: CSA**

<b>Date</b>	<b>Week #</b>	<b>Unit</b> lbs., bunches, bags	<b>Amount</b> <b>Per share</b>	<b>Total brought</b> <b>to CSA</b>	<b>Notes</b>
9/13	1	bunches	2 and 1	75 bunches	
9/20	2	each	5 and 3	446	
9/27	3	bunches	6 and 4	75 bunches	
10/4	4	each	6 and 3	513	
10/11	5	each	5 and 3	446	
10/25	7	Locktops	unknown	6 locktops	
11/1	8	each	6 and 3	513	
11/8	9	each	5 and 3	446	
11/15	10	-	Take what you want	All left	

**Other Markets – report total amount sold to each market over the season**

<b>Market</b>	<b>Price/unit</b>	<b>Total Units sold</b>	<b>Total amount of sales</b>
<b>Dining</b>	\$1.50/lb	1930 lbs	\$2,895
<b>Big Y Amherst</b>	\$1.50/lb	124 lbs	\$186
<b>Big Y Northampton</b>	\$1.50/lb	137 lbs	\$205.5
<b>Big Y South Hadley</b>	\$1.50/lb	129 lbs	\$193.5
<b>Big Y Greenfield</b>	\$1.50/lb	246 lbs	\$369
<b>Earth Foods</b>	\$1.50/lb	100lbs	\$150

**Total Gross Income Received From Your Crop: \$3,999**

**Review and Recommendations****What was different between what was done and what was planned?**

The dates we direct seeded the carrots changed from the original plan so that the earliest carrots going in the ground were on 5/15 (however my assumption is we harvested these for summer production) and the last seeding was on 7/15. In my original plan the first seeding was on 6/24 and the last on 7/29. Both the plan and the execution were done in three successions though. Other than that we stuck to the plan.

**What worked really well and should be continued?**

The bolero variety was the best looking and tasting so it should definitely be part of next years carrot varieties. I think growing a large amount of carrots was smart as all of our markets were interested in them. I would recommend growing more of the bolero in comparison to the other varieties as they were much more consistent and marketable to Big Y and dining.

**What changes would you recommend for next year?**

Set aside chunks of time where you are not just weeding the carrots but thinning them. We didn't always have a clear idea of when to thin vs weed. This resulted in parts of some beds being over populated with carrots when we were harvesting them; which caused some to become entangled with each other which is cute but also not bunchable.

**Should we grow this crop again? Why or why not?**

Yes, carrots are a must! We sell them to all of our markets and they were a staple item in the CSA shares. Since we sell them to every market it makes up for the tedious crawling during the summer months. I think any crop bringing in close to \$4,000 is a keeper. Plus they taste great!

**Farmer Notes:** *I think what made this program such an amazing experience for our crew was the amount that we invested ourselves into the farm and each other. It's natural to just view it as another class during the spring as you are doing a lot of tedious planning and not too much outdoor farming but that will change as summer rolls around. The farm becomes everyone's mutual baby which is exciting and also difficult. It can be hard at times to have a group of people all feel passionate about the same project, especially as opinions can clash and decisions can become harder to make. My suggestion would be to always maintain clear communication with each other and not be afraid to have open dialogues about tough decisions. Having a group meeting where everyone has the chance to voice their opinions and feelings goes a long way. In terms of juggling the farm with other classes and life in the fall, I would say take solace in that you are all in it together. Lean on each other for support when you need to and don't be afraid to let the crew, Amanda, and Jason know if you're struggling. That being said, show up, put in the most effort you can, and have fun because the year goes by WILDLY fast and you'll miss it when it's over. I think our crew built a great sense of community this season and I have faith that the 2020 crew will be able to do the same. Grow produce, lasting relationships, skills, and resilience yippiiii!*