

# CABBAGE

*Brassica oleracea var. capitata*

## Final Crop Analysis

### Estimated Harvest goals:

Market	Total Yield Goal [lbs/units]	Notes
Csa	1,400	
FM	100	
Big Y Amherst	250	
Big Y Northampton	340	
Big Y Greenfield	140	
Big Y South Hadley	300	
DC	225	
Earthfoods	50	

### Cultivars/varieties and seeds:

Cultivar	Source	Amount	Cost	Org or Untreated?
Farao	Johnny's	800	30.40	Org
Integro	Johnny's	800	25.67	Org
Bilko	Johnny's	400	9.73	Org

### Reasons for selecting these cultivars:

Farao is a standard green cabbage and Integro is a standard red cabbage that will withstand slightly cooler weather than Farao. I chose Bilko because it is a Chinese cabbage with different shape and taste.

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

I have not seen the Bilko produce heads yet. Farao has exceeded my expectations, heads of Farao are averaging 6" in diameter in the field! There is some damage on the Farao from flea beetles and the intercropping of rye in the first succession has caused retention of moisture in the bed and rotting on some cabbage heads. Integro is the best looking of the cultivars with very little damage and slightly smaller heads than farao.

### Would you recommend these varieties again?

I would recommend Integro again. I think that the Farao may be too large for the farmer's market or CSA share, though good for wholesale markets. I have yet to see how Bilko does.

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

I would suggest trying Tiara and Famosa in 2020. I think Tiara would be good for the CSA and Farmers Market because they produce much smaller heads (a miniature variety) which would mean higher density plantings and happy CSA members, I think a smaller cabbage is more marketable. I suggest Famosa because it is a savoyed cabbage which we did not grow in the 2019

season.

**How and when the crop was seeded/transplanted:**

**Greenhouse seeding**

Variety	Seed date	Tray size	Number of trays	Notes on germination
Farao	7/2 7/17	128	2	
Integro	7/2	128	2	
Bilko	8/12	128	1	

**Field Planting Info**

Planting #	Plant date	Number of row feet planted	Rows per bed	Planting method	Notes on survival in field
1 (farao&integro)	7/2	700	2	TP	
2 (farao)	7/17	350	2	TP	
3 (Bilko)	8/12	300	2	TP	

***Farmer Notes:** Amanda asked me to specifically point out that the seeding/planting dates for the cabbage worked quite well.*

**Planting Information:**

**Expected yield/ft:** 2lbs.

**Direct seed or transplant:** TP

**In-Row Spacing:** 10"

**Between Row Spacing:** 12"

**Number of Rows Per Bed:** 2

**Bed Feet planted:** ~825

**Field Planted In:** ALC-7

**Number of succession plantings:** 2

**Broadcast Fertility:** 6/17/19 Composted Chicken Manure 5-4-3 1000 lbs/acre Potassium Sulfate 500 lbs/Acre

**Additional Fertility:** 9/5/19 Blood Meal 100 lbs/A

**Cultural practices:**

Cabbage is a cole crop, and as such it does not need much in terms of protection (i.e. remay cover). We did however decide to seed winter rye into the cabbage rows this season, which did prevent weed growth, but also may have led to some rotting in the Farao cabbage (because they grow on the ground surface and the grass retains moisture).

**Notes on Irrigation:** This crop was not irrigated. All of the brassicas were sprayed with Pyganic on the 26<sup>th</sup> of July, and with Entrust and Dipel DF on the 30<sup>th</sup> to prevent flea beetle damage.

**Diseases observed:**

Flea beetle damage definitely occurred in the Farao variety, as well as the previously mentioned rot. On average I would estimate the first 2 outer layers of leaves were damaged with flea beetle bites. With the Bilko cabbage, there was a lot of caterpillar feces, which takes extra leaf peeling and washing. The Integro variety however, has remained fairly pest free (besides minor flea beetle damage), and I think this may be because it grows about 6-12" off of the ground.

**Potential Disease Threats:** Damping off and leaf/head rot tend to be the most common diseases to effect cabbage.

**Insect Pests observed:**

**Flea Beetles**

**Damage caused:** Leaf damage from feeding

**How was it scouted or observed:** Observed in the field on the crop

**Action(s) taken:** 3 types of pesticides applied one timed each

**Potential Insects:**

As with all brassicas, flea beetles are the major threat. Remy covering can help prevent large populations if crops are covered early, organic pesticides also accomplish this goal.

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

Overall the cabbage did well this season. If anything we could have done a better job with our spacing because we hand-planted the transplants, and there were some unnecessary gaps in the rows.

**Harvest & Storage:**

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

We harvested this crop for the first time on 9/20/2019 out of ALC-7. We first harvested the variety Farao, which produced the largest heads with an average of 6" in diameter. A week later we harvested the variety Integro, which averaged a head diameter of 4". When a cabbage is ready to harvest, it will be about the size that the variety pack told you it will be (1-3lbs/head) and the outer leaves will usually be a paler color, larger than the under layer of leaves, and they will usually be peeling back over themselves a little at the top of the head of cabbage.

**How was it harvested?**

I think that cabbage is best harvested with 4 people, 2 cutters and 2 packers, who move down the 2 rows for each bed. Cabbage is cut with lettuce knives (neon orange handle) and the cut should make a perpendicular plane in relation to the cabbage head (in others words make a straight cut at the bottom, and the cut is important to our markets so it is important to get it down quickly). After being cut the cabbage should be flipped with the "clean butt" facing up for the packers to grab, pack, and move out of the field.

On the last harvest of cabbage Jason drove the tractor down the beds with the forklift attached carrying one of the large bins we use to harvest squash and we just cut and placed the cabbage directly into that bin.

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

Cabbage was dunked if it was being washed for a wholesale market but for the CSA, we do not wash cabbage.

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

We do not wash cabbage for the CSA, but we dunk it in a tub of water for Big Y. It can also be necessary to make sure the cuts on the cabbage butts are clean if the cabbage is being sent to any other market besides the CSA or Farmer's Market.

**List different shipping practices for each market (if any)** For Big Y and storage at the Farmer's Market/CSA pickup we stored cabbage heads in lock-top bins (with the exception of the last few CSA pickups where we left the last succession of cabbage in the bin Jason had carried through the field with the tractor). For any dining, student business, or donation delivery we packed cabbage into wax 1 1/9-bushel boxes.

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

I think that if cabbage is going to be harvested for a market in which we would be sending heads in wax bushel boxes then it should be packed into the wax boxes in the field and the boxes can be dunked into the large tubs at the wash station.

**Storage and post-harvest handling:**

**Curing:** N/A

**Washing before storage:** No

**Storage Requirements:** 34-39° at 80-95%RH for 2 weeks to 2 months

**How should this crop be processed for long term storage:** For long term storage the outer leaves should be kept on, the cabbage remains unwashed, and bags or open bins are best so that moisture doesn't get trapped within the container.

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

ALC cooler.

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

Cabbage was stored mostly in lock-top bins, though during the last 2 weeks of CSA pickup the cabbage was kept in the squash harvest bins in the ALC barn.

**Were there any problems in storage?**

The cabbage stored well, there was flea beetle damage on the outer leaves, particularly with the Farao variety.

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

We moved the cabbage out of the cooler quickly enough that it did not need to be kept at a cooler temperature, but I think that if cabbage were to be kept for a longer period of time that the temperature in the cooler should be closer to 34-36° on average where it was usually closer to 40°.

### **Actual Yields and Sales: CSA**

Date	Week #	Unit lbs., bunches, bags	Amount Per share	Total brought to CSA	Notes
9/27	3	Lbs.		104	
10/11	5	Lbs.		104	
10/18	6	Lbs.		104	
10/25	7	Lbs.		104	
11/1	8	Lbs.		104	
11/8	9	Lbs.		104	

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

Market	Price/unit	Total Units sold	Total amount of sales
Big Y Amherst	\$1/lb.	87	\$87
Big Y Northampton	\$1/lb.	96	\$96
Big Y South Hadley	\$1/lb.	80	\$80
Big Y Greenfield	\$1/lb.	122	\$122

**Total Gross Income Received From Your Crop:** Wholesale Total: \$305

### **Review and Recommendations:**

#### **What was different between what was done and what was planned?**

The cabbage came in at the time that we wanted it to and we had what we needed for our markets. We had what we planned for.

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

Cabbage does not make us a lot of money, but it is a staple food for the CSA and I think it is a good vegetable to include in the shares.

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

Cabbage doesn't make us a lot of money, I would recommend raising the price to \$1.25/lb. and attempting to sell in bulk if possible, maybe to the warehouse in Springfield. If there isn't a good bulk market out there then I would suggest only selling special varieties like nappa cabbage to our markets outside of the CSA.

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

Yes. I think cabbage is expected at the CSA and it does offer a good amount of food for a lower price. Cabbage also has some longevity in the cooler which increases its value.