



Objective

To trial the most promising varieties identified through Phase III on-farm variety trials 2013-2014 **during the shoulder of the main season** (in New York: to harvest in mid-August) when heat stress is of greatest concern.

Ultimately, when broccoli varieties can be grown during the most heat-stressful part of the season, then broccoli will be available year-round in Eastern U.S.

Heat Stress



Varieties

To ensure unbiased rating results, all entries in Phase III on-farm trials were **coded**:

- **RJ: Green Magic** – Industry Standard (Sakata)
- **PR: Burney** – Bejo
- **WQ: Dura Pak 19** - Syngenta
- **GY (Experimental)** – undisclosed
- **Grower Standard** – **Emerald Crown** (1 rep only)

Site Information

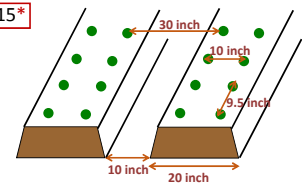
Dan Henry
W.D. Henry & Sons
7189 Gowanda State Rd
Eden, NY 14057



Wholesale ~120 acres of broccoli

Site Information

- Transplanted - plugs
- **Planting date: June 25, 2015***
- Raised beds:
 - Bed spacing: 10 inch
 - Rows per bed: 2
 - Bed width: 20 inch
 - Bed height: 4 inch
- **Plant spacing:**
 - In-row: 9.5 inches
 - Between rows: 10 inches (on bed) & 30 (between beds)
- **Plant population:** ~33,000 plants per acre
- *to target mid-August harvest; shoulder of main season



Trial Design

- Four replicates per variety
 - 2 beds x ~200 plants = 250-350 plants per rep
 - Only one rep of grower standard, Emerald Crown
- Harvest all heads 5-7 inches in diameter (including unmarketable) every 3-4 days
- 6 harvests per variety Aug-18 to Sep-12
- **Yield calculations** were based on number of plants accounted for (total harvested + total left in field), each plant = 1 ft² area
- Reps 1 & 3 had club root and were dropped from this analysis

Summary of 6 Harvests (Healthy Reps) (Aug 18 to Sept 12)

	Green Magic	Burney	GY (exp)	Dura Pak 19
Total Marketable 5.5 – 7" (box/A)	426	549	428	256
Unmarketable (box/A)	636	420	315	179
% Marketable (by head ct)	35.6%	50.7%	53.5%	52.1%
% Heads left in field* - Healthy undersized	2.7%	3.4%	5.2%	23.5%
% Heads left in field* - Heat stressed (undersized)	9.1%	8.0%	15.5%	30.4%
Average Head Size (lb)	0.67 lb	0.62 lb	0.51 lb	0.51 lb

*after the 6th harvest

Summary of 6 Harvests (1 Healthy Rep) (Aug 18 to Sept 12)

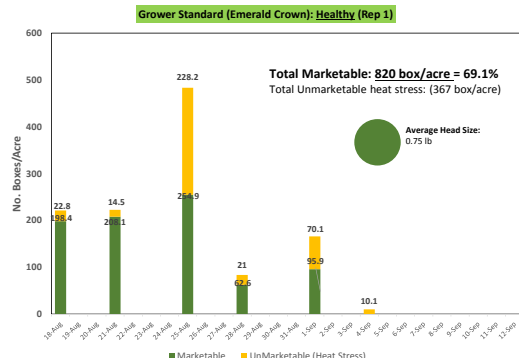
Grower Standard	Emerald Crown
Total Marketable 5.5 – 7" (box/A)	820
Unmarketable (box/A)	367
% Marketable (by head ct)	63.7%
% Heads left in field* - Healthy undersized	na
% Heads left in field* - Heat stressed (undersized)	na
Average Head Size (lb)	0.75 lb

*after the 6th harvest

Emerald Crown (Grower Standard)



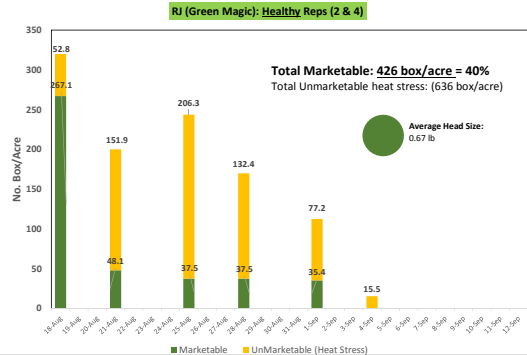
Grower Standard (Emerald Crown) Harvest (Healthy Rep 1)



RJ (Green Magic): Industry Standard



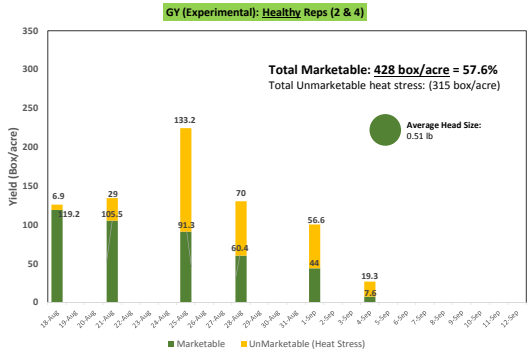
RJ (Green Magic) Harvest (Healthy Reps 2 & 4)



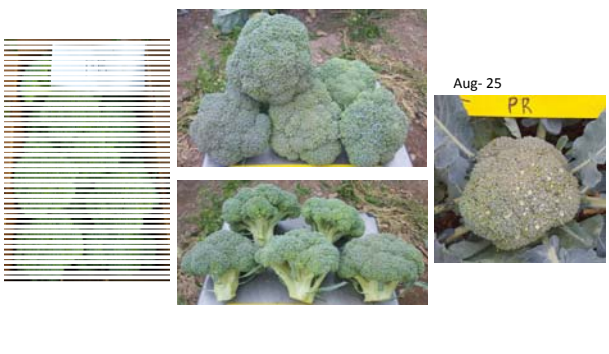
GY (Experimental):



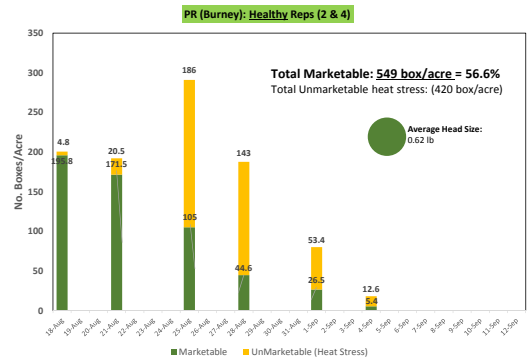
GY (Experimental) Harvest (Healthy Reps 2 & 4)



PR (Burney):



PR (Burney) Harvest (Healthy Reps 2 & 4)

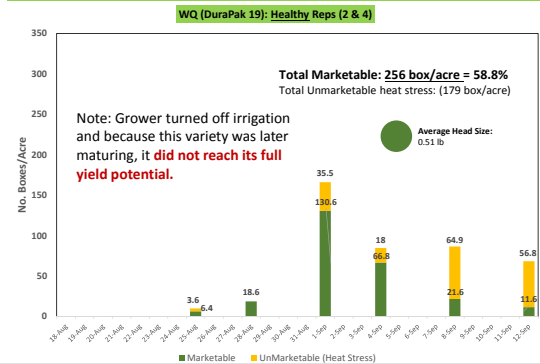


WQ (Dura Pak 19):

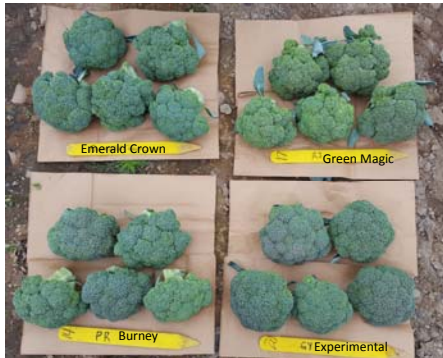


Unlike other varieties, WQ endured extra stress due to lack of irrigation

WQ (DuraPak 19) Harvest (Healthy Reps 2 & 4)



Harvest: Aug-25



Summary:

- This was a very tough harvest window. All varieties had high levels of heat stress.
- Burney, GY Experimental and Emerald Crown all performed better than Green Magic (426 box/A; 40% marketable), and had greater yields than Green Magic and greater than 50% marketable.
- Dura Pak 19 was not fairly judged in this trial. The grower turned the irrigation off, and because this was a later maturing variety, it never had the opportunity to reach its full yield potential.

Contact Information

Eastern Broccoli Project Lead:

- **Thomas Bjorkman, Ph.D.**
- Dept. of Horticulture, NYSAES, Cornell
- tnb1@cornell.edu
- 315-787-2218



Website:

<http://www.hort.cornell.edu/bjorkman/lab/broccoli/easternindustrymain.php>

Broccoli Harvest at W.D. Henry & Sons

