Growing the 2480 Graham

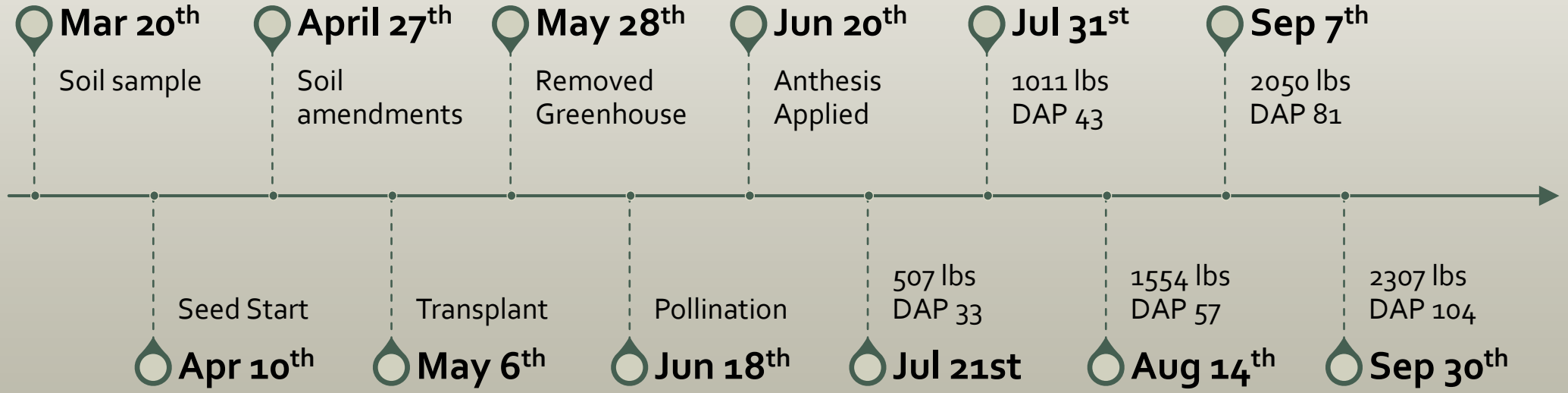
SNGPG Spring Seminar

April 1st, 2023

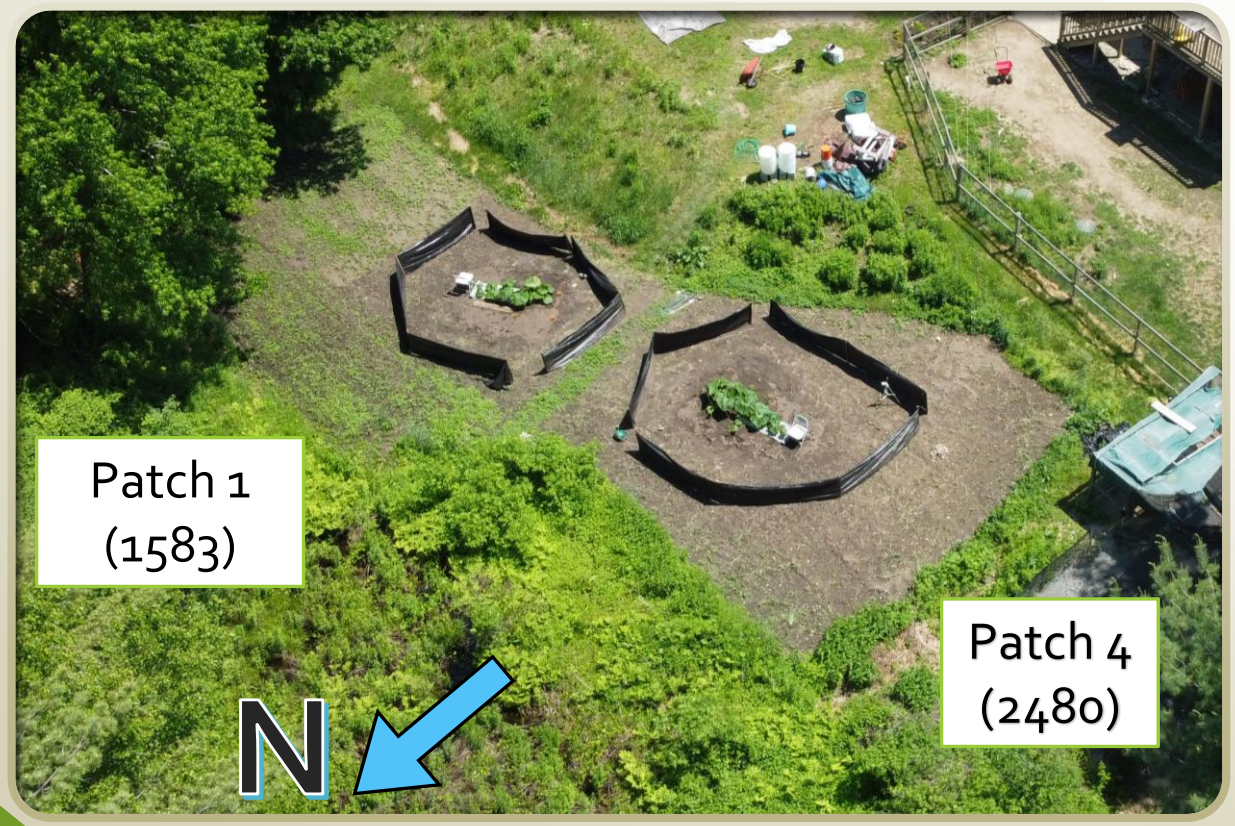
Introduction

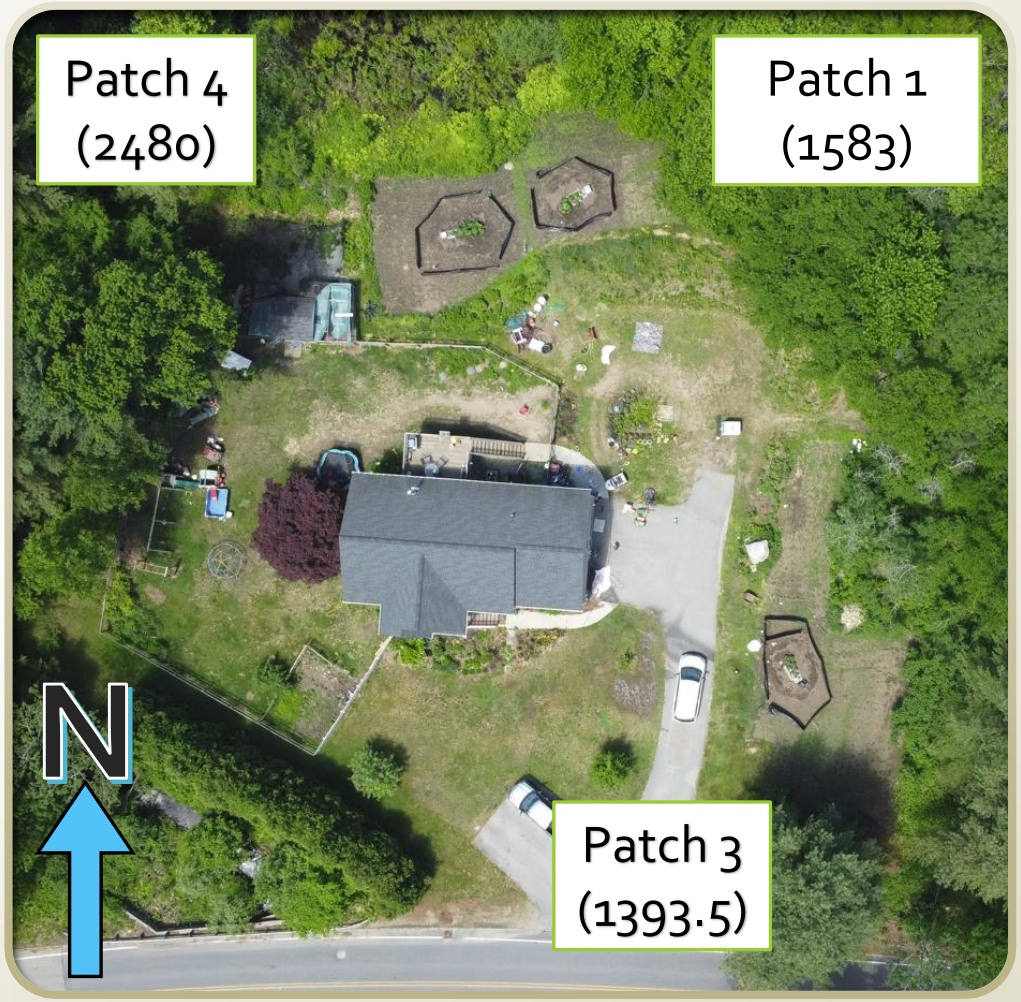
- Jamie Graham
- Growing since 2016
- Tyngsboro, MA

Timeline


Mar 20th
Soil sample
April 27th
Soil amendments
May 28th
Removed Greenhouse
Jun 20th
Anthesis Applied
Jul 31st
1011 lbs
DAP 43
Sep 7th
2050 lbs
DAP 81
Seed Start
Apr 10th
Transplant
May 6th
Pollination
Jun 18th
507 lbs
DAP 33
Jul 21st
1554 lbs
DAP 57
Aug 14th
2307 lbs
DAP 104
Sep 30th

Patches


Patch 1
(1583)
Patch 4
(2480)
N

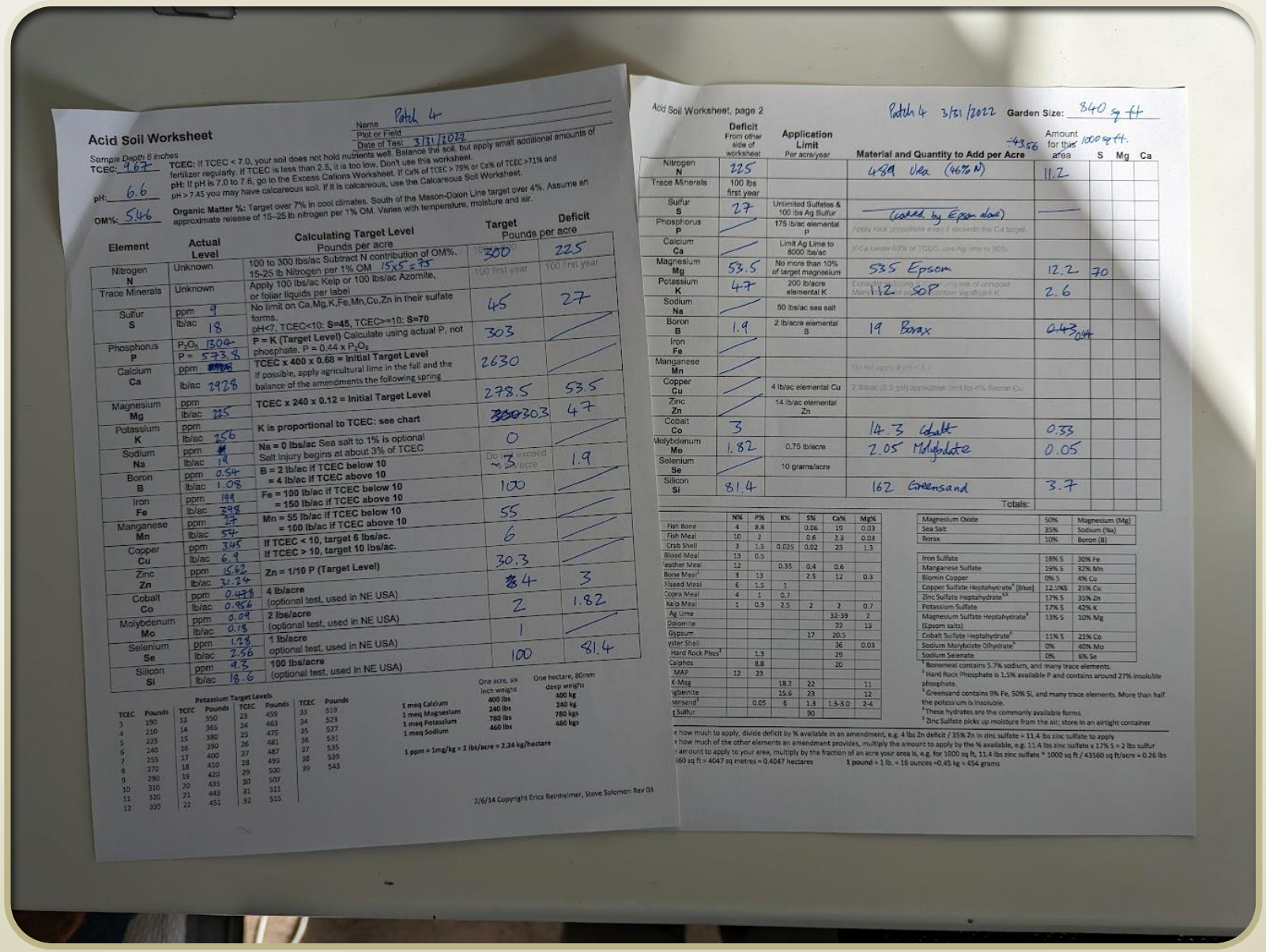

Patch 4
(2480)
Patch 1
(1583)
N
Patch 3
(1393.5)

Soil – Testing, Calculating, Amending

- **Fall Prep**: 10 yards leaf compost, Winter Rye Cover Crop
- **Soil testing**: Logan Labs, including micronutrients
- **Soil amendment calculations**: Worksheets in "Intelligent Gardener" by Steve Solomon

Soil Amendment Calculations

- On the left - Soil test results and calculating target amounts
- On the right - Calculating what amendments to add
- Target amounts based on TCEC (the amount of space in the kitchen closet)



Soil Amending – April 27th

- Nitrogen: Urea, Alfalfa Pellets
- Sulfur: Agricultural Sulfur
- Magnesium: Epsom Salts (Magnesium Sulfate)
- Potassium: Sulfate of Potash (SOP) 0-0-50
- Boron: Borax
- Copper: Biomin Copper
- Silicon: Greensand
- Zinc: Zinc Sulfate
- Manganese: Manganese Sulfate Monohydrate
- Cobalt: Cobalt Sulfate Heptahydrate
- Molybdenum: Sodium Molybdate
- Humic Acid: Soil Activator (35% Humic Acid)
- Kelp Meal and Azomite for other micro-nutrients

Seeds

- 2294.5 Noel
- 2200 Geddes
- 1832.5 Graham

The 1832.5

Seed Starting – April 12th

- Overnight soak in 20 parts water : 1 part hydrogen peroxide
- Small cups with seed starting mix, WOW, Azos, Rootshield Plus
- Seed starting mat with thermostat and germination chamber
- Re-potting after few days into 1-gallon pots

Planting Holes

- 4’ x 4’ planting holes
- Dug 1’ then broadforked
- Backfilled with patch soil
- WOW, Rootshield Plus, Azos, Pro Gro 5-3-4
- 48” soil heating cables ~6-8” deep
- Broadforked whole greenhouse area

Greenhouses

- 6′ x 8′ 2x4 wooden base
- PVC pipe
- New greenhouse film
- Zip ties, duct tape
- Metal stakes
- Wireless temperature monitor
- Space heater

Transplant – May 6th

- 2 per greenhouse
- Double planted at 45 degrees
- WOW, Azos, Rootshield Plus, WOW Starter Packs
- Bamboo for support
- Wireless temperature monitor

Back-Up Culled – May 24th

Greenhouse Removed – May 28th

Watering

- 275-gallon tank, 1.5 hp water sprinkler pump, ¾" hose, brass shutoff valve
- 30-50 gallons per day per plant
- Every day unless it rained
- Overhead by hand
- Avoiding crown and pumpkin
- Less water on older growth

Watering (early September)

Vine Burying

- Main Vine on white landscape fabric
- Secondary Vines in trenches
- Vine burying mix: WOW, Azos, Rootshield Plus, Bonemeal
- CloneX Rooting Gel on root nodes – encourage root branching
- Broadforking ahead of growth – deeper aerated soil
- No walking boards – apart from flower access

Young plant with stakes, weed fabric, chair

Pollination

- Two 1832.5 pollinations (#1 - June 17th, #2 – June 18th)
- 5 lobes
- Pollinated deeply (like bees do) – prevented strawberry shape problem?
- Cool environment – frozen bottles and cooler
- Blossom protection – hydrogen peroxide and fans
- Anthesis – extend cell division time

2480 Plant at DAP -1 (June 17th)

No vines terminated

1 day before pollination

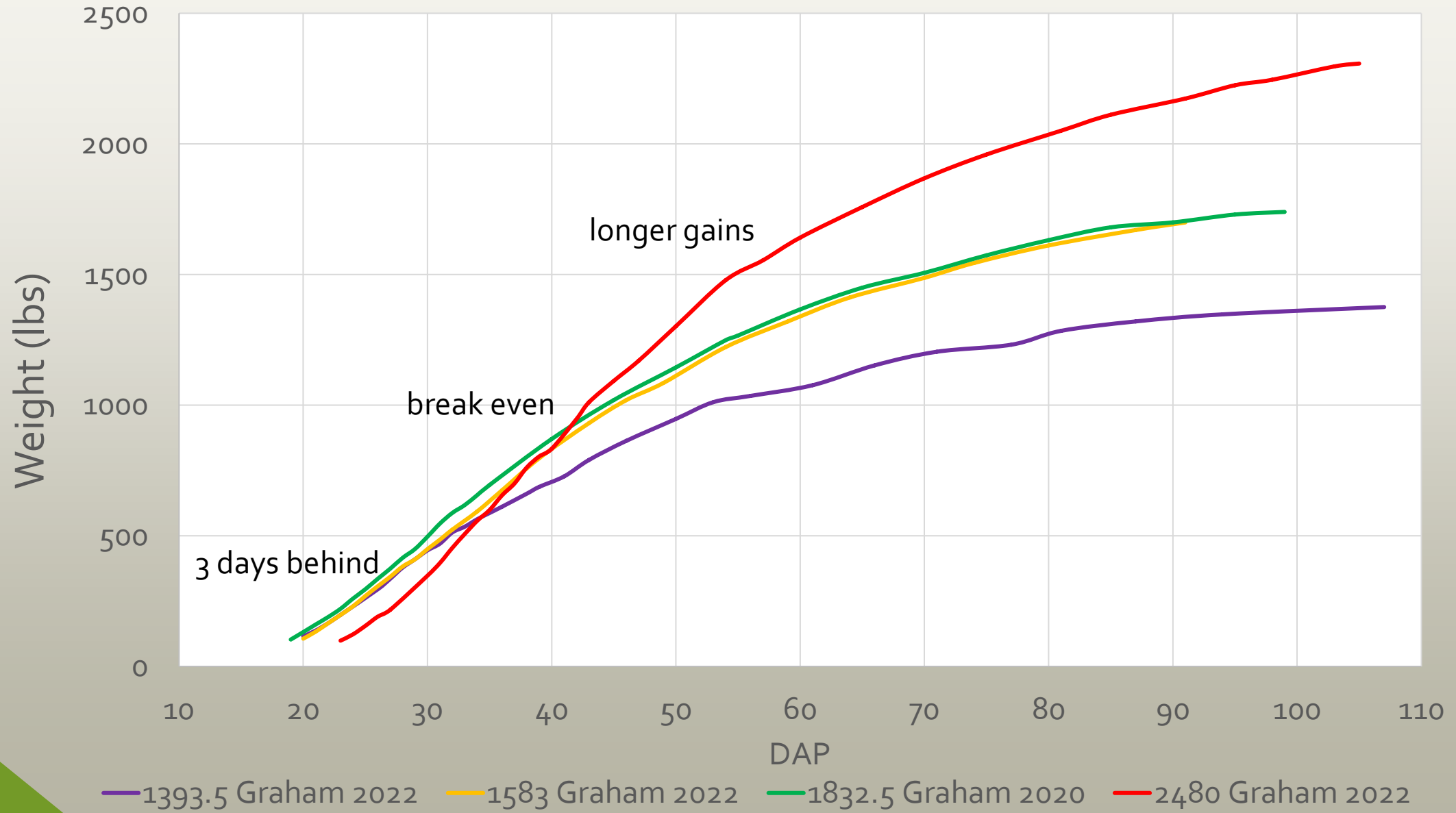
2480 Plant at DAP + 1 (June 19th)

No vines terminated

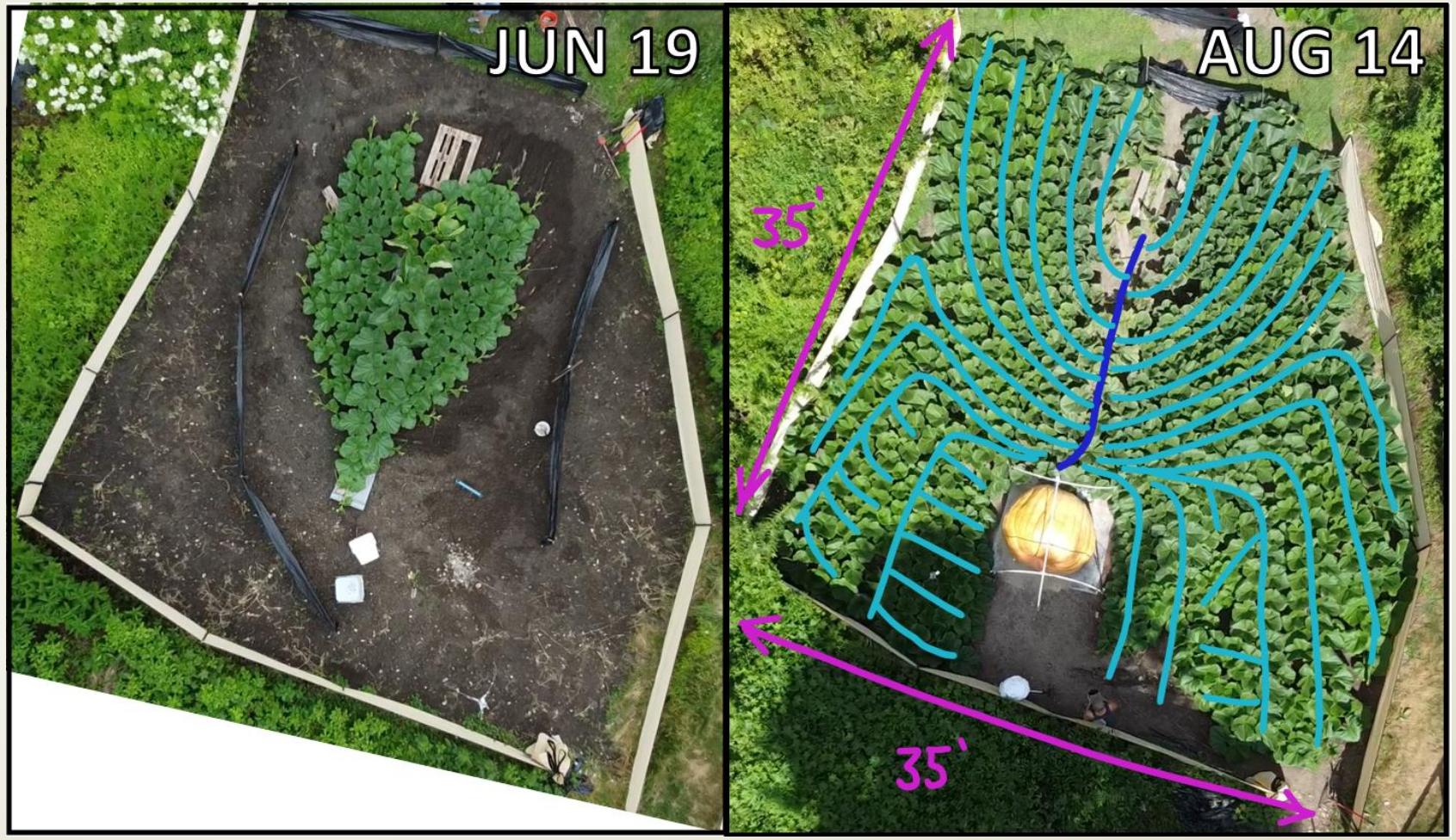
Anthesis Application

- Applied 48 hours after pollination to pumpkin surface
- Goal: Extend duration of cell division → more cells → bigger fruit
- Will I be using it again? Yes

Growth Chart



Vine Pattern



- Transplanted further into patch – less compaction
- Similar distance along each vine – the "diamond" technique

- Main vine termination – easier vine management, more power to secondaries
- Balancing distribution of plant – if the vine fails how much plant do you lose?

Main Vine Termination

Before
June 24th

After
June 25th

Main Vine Termination

June 25th

In-Season Fertilizing

- Masterblend 4-18-38
- Epsom Salts
- Calcium Nitrate 15.5-0-0
- Solubor
- Potassium Silicate (Agsil 16 H)
- 0-10-10 (General Hydroponics)
- 0-52-32 MOAB
- Neptunes Fish and Seaweed
- MammothP
- Five:Two Humic Acid Kelp

Disease and Insect Control

Patch pressure:

- Powdery Mildew
- Yellow Vine Decline (2017, 2021)
- Squash Bugs
- Cucumber Beetles
- Squash Vine Borers (SVBs)
- Aphids (greenhouses, and isolated location 2022)

Products used:

- Biologicals: Rootshield Plus, Actinovate
- Fungicides: TKO Phosphite (a.k.a. Companion Maxx), Milstop, Dalconil, Eagle 20
- Insecticides: Bonide Tree and Shrub, Criterion 75 WSP, Talstar, Permethrin

Aphids

- Single bad leaf in middle of plant
- Removed bad leaf
- Sprayed adjacent leaves with insecticidal soap
- Paid more attention to spraying

Fertilizer, Insecticide, Fungicide Schedule

Fertilizers	Masterblend 4-18-38	Every drench, Jun-early Aug
	Epsom Salts	Every drench, all season
	Calcium Nitrate 15.5-0-0	Every drench, Jun-Jul
	Solubor	Every drench, all season
	Potassium Silicate	2x per month, Jun-Aug
	General Hydroponics 0-10-10	Every drench, July
	MOAB 0-52-32	Every drench, late Jul-Sep
	TeaLAB Humic/Kelp	Every drench, all season
	Neptunes F&S	Every drench, all season
Biologicals	MammothP	Every drench, all season
	Companion	2x, June
	Actinovate	2x, June
Systemic Insecticides	Bonide Tree and Shrub	1x, late May
	Criterion 75 WSP	2x per month, Jun-Aug
Contact Insecticides	Talstar	Rotation every 10 days, Jun-Aug
	Permethrin SFR	
Systemic Fungicide	Eagle 20EW	Rotation every 10 days, Jun-Sep
	TKO Phosphite 0-29-26	Every drench, Jul-Sep
Contact Fungicides	Milstop	Couple of times in Aug and Sep
	Dalconil	Rotation every 10 days, Jun-Sep

Tissue Testing

- 1st test in late-June
  - Low Phosphorus, Sulphur, Manganese, Copper, Boron
- Corrections
  - Increased fertigation of Phosphorus, Epsom, Solubor
  - Couple applications of Biomin Manganese and Biomin Copper
- 2nd test mid-August
  - Phosphorus and Copper still low
  - Manganese and Boron improved
- Should have done one before pollination too

Tissue Tests:	Late June		Mid August	
PLANT NUTRIENTS	SUFFICIENCY RANGE	YOUR TEST RESULTS	SUFFICIENCY RANGE	YOUR TEST RESULTS
NITRATE NO_3 - ppm	8165	9111	5525	16449
NITROGEN N - %	-		-	
PHOSPHORUS P - %	0.81 - 1.2	0.45	0.81 - 1.2	0.39
POTASSIUM K - %	7.5 - 12.0	13.13	7.5 - 12.0	11.03
SULFUR S - %	.23 - .5	0.16	.23 - .5	0.24
CALCIUM Ca - %	.5 - 2.25	1.35	.5 - 2.25	1.68
MAGNESIUM Mg - %	.25 - .48	0.46	.25 - .48	0.59
ZINC Zn - ppm	42 - 75	55	42 - 75	56
MANGANESE Mn - ppm	25 - 75	8	25 - 75	42
COPPER Cu - ppm	13 - 45	8	13 - 45	10
IRON Fe - ppm	75 - 500	141	75 - 500	206
BORON B - ppm	24 - 70	21	24 - 70	32

Pumpkin Management - Platform

¾″ x 6′ x 6′ plywood, 2 layers mill fabric, play sand

July 7th – DAP 19
(not on the chart yet)

Pumpkin Management – Stem Split

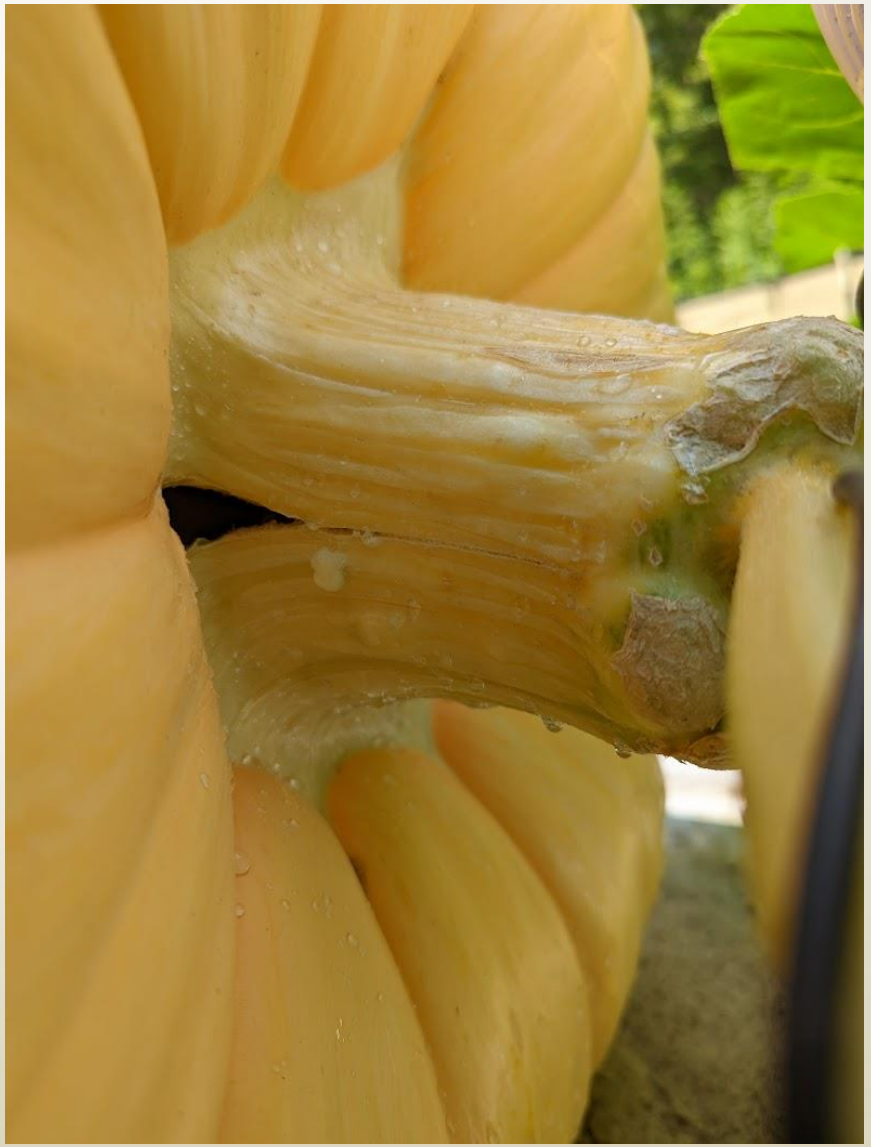
- July 22nd – DAP 34 - 557 lbs
- 2 stem splits at 3 and 6 o'clock
- Elongated cuts at splits and a vertical cut for drainage
- Hydrogen Peroxide, Sulfur
- Two fans for remainder of season
- (Thanks Woody!)

Pumpkin Management – Stem Split

July 22nd - 7:40am

Pumpkin Management – Stem Split

The same day - 1:30pm



Pumpkin Management – Stem Split

At seed harvest

Pumpkin Management – Vine Stress Release

- Pumpkin moved 3-4 times
- Pulling mill fabric
- Come-Along & Straps

Plant – August 14th

Sep 9th – DAP 83 – approx. 208olbs

Sep 25th – DAP 99 – approx. 2250lbs

Late Season Protection

- Blankets
- Mouse Traps from early August
- Mouse Deterrent Granules and Spray
- Chili Spray (for Bears)
- Quilt Batting (mouse and rabbit protection, insulation)

Day before harvest (Sep 29th)

Pumpkin Harvest

- New metal tripod – thanks Alex!
  - 2-piece legs
  - Tested to 3600 lbs
- 2-ton chain hoist
- New rigging rope
  - 1/2”, 19,500 lbs breaking strength, spliced loop

Lifting the 1583 Graham

2022's Pumpkins

"Penny"

1393.5 Graham

(2200 Geddes x 1832.5 Graham) -2%

"Sir Seed"

1583 Graham

(2294.5 Noel x 1832.5 Graham) -7%

2022's Pumpkins (continued)

2480 Graham *"Bear Swipe"*
(1832.5 Graham x 2294.5 Noel) +7%

This Season

- No major changes – just doing things better
- Earlier tissue testing and deficiency correction (e.g. phosphorus)
- Better pumpkin positioning / platform for adjustment
- Seeds: 2907 Paton, 2480 Graham, 1461 Rodebaugh (Ruby)
- Terminate main vines again
- Use Anthesis again

Conclusion

SOIL BALANCING

CONSISTENT WATERING

CONSISTENT FUNGICIDES AND INSECTICIDES

ATTENTION TO NITROGEN

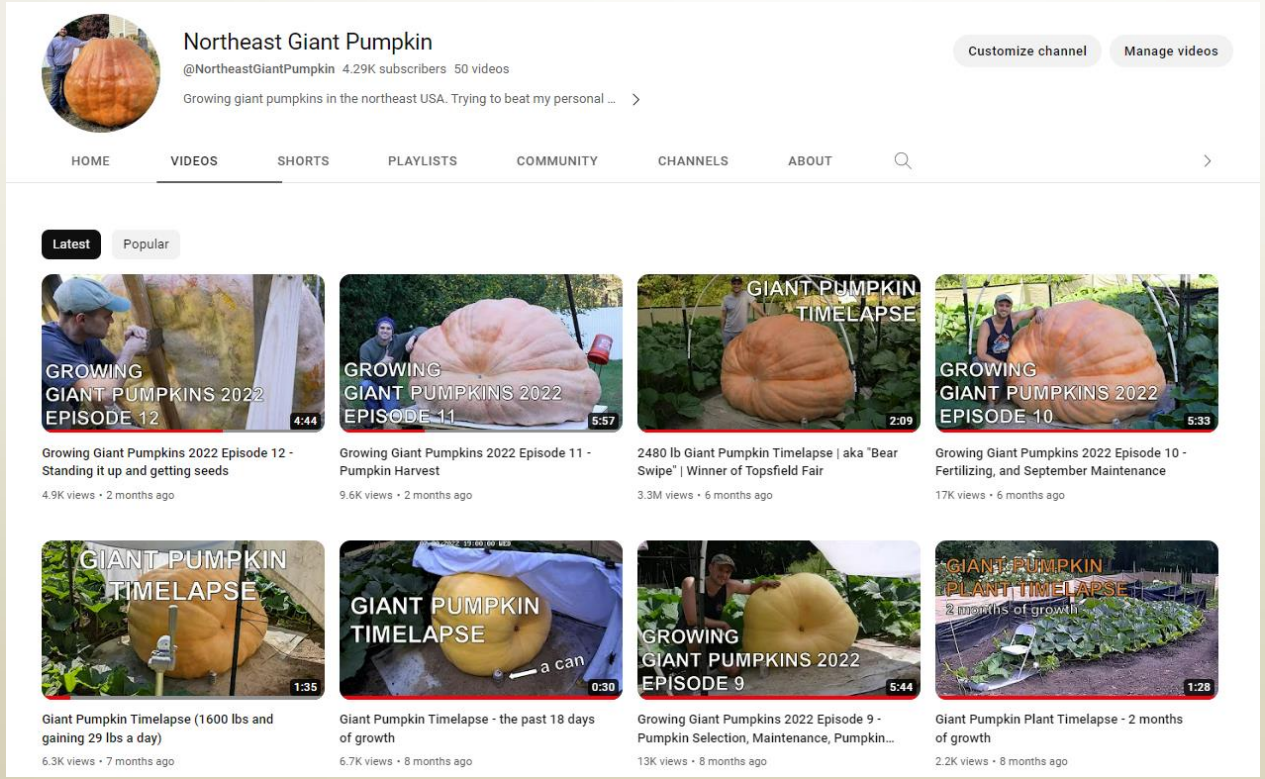
ANTHESIS

Videos

YouTube: https://www.youtube.com/@NortheastGiantPumpkin

TikTok: https://www.tiktok.com/@bigpumpki

Instagram: https://www.instagram.com/northeastgiantpumpkin



Appendix

Growth Chart

2480 Graham Growth Chart June 18th pollination				
Date	DAP	OTT	Est. Lbs.	Daily Av. Lbs.
11-Jul	23	160.5	99	
13-Jul	25	188	156	28.3
18-Jul	30	247	348	38.4
23-Jul	35	296	599	50.3
28-Jul	40	331.5	833	46.8
2-Aug	45	364.5	1093	52.0
7-Aug	50	388.5	1302	41.8
11-Aug	54	407	1478	44.0
17-Aug	60	424	1641	27.2
22-Aug	65	436	1758	23.4
27-Aug	70	447.5	1868	22.0
1-Sep	75	456.5	1959	18.2
7-Sep	81	465	2050	15.2
17-Sep	91	477.5	2173	12.3
24-Sep	98	484	2245	10.3
1-Oct	105	490	2307	8.9