

BRUSSELS SPROUTS: VARIETIES, TECHNIQUES & OPPORTUNITIES



Dr. Dan Drost

Vegetable Specialist
Utah State University
dan.drost@usu.edu

Feb 23, 2022

Overview of Presentation

- Variety Selection
- Plant Nutrition
- Crop Uniformity

- Marketing Options
- Conclusions



Variety Selection

(maturity, uniformity, quality)

Cultivar	Maturity*	Source	OP/F1	USU Test Years	
Hestia	100	Gurney's	F1	2020	2021
Marte	110	Seedway	F1	2020	2021
Dagan	118	Johnny's	F1	2020	2021
Attis	90	Seedway	F1	-	2021
Dimitri	105	Seedway	F1	-	2021
Scorpius	112	Seedway	F1	-	2021

Hestia (100d)



Marte (110d)



Dagan (118d)



Attis (90d)



Dimitri (105d)



Scorpius (112d)



Transplants

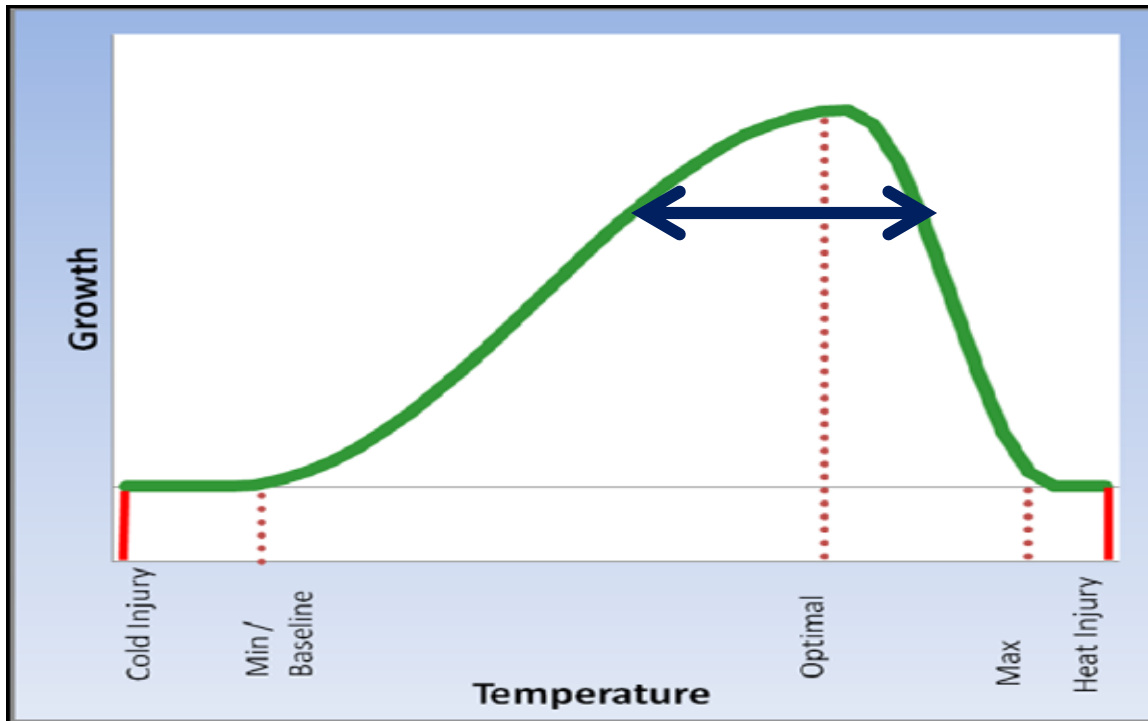
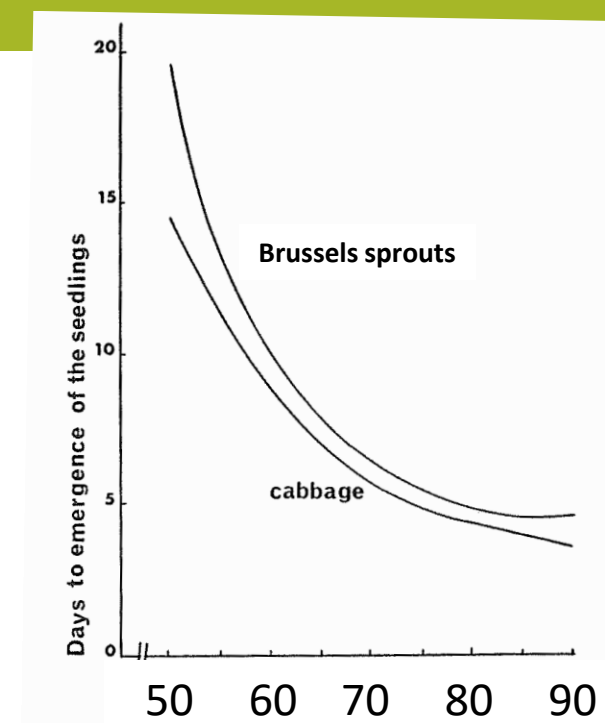
Keys to success!

- Seed Germination
 - 60-90°F (range); **70-80°F** (optimum)
 - Moist and use good, sterile soil mix, trays=128's
 - Seeding depth (ideal: ¼" - no more than ½")
 - Size: **3-4** leaves; **6-8** weeks;
root ball holds together



Growth Requirements

- Minimum Temperature: **40F**
- Maximum Temperature: **95F**
- Optimum Range: **50-80F (75F)**
- ***Establishment Most Sensitive***



kale > Brussel sprouts > cauliflower > cabbage > broccoli > kohlrabi

LOGAN	Ave. High (°F)	Ave. Low (°F)
May	68	40
June	78	47
July	88	53
August	87	51
September	76	42
October	63	31
November	46	24

May 28, 2021



July 7



July 23



August 16



Brussels sprouts Nutrient Needs

- Soil Test results needed (*get one soon*)
- Try to get $\text{NO}_3\text{-N}$ and soil OM for root zone
- N applied – $(3.6 * \text{NO}_3\text{-N}_{\text{soil}}) - (1.5 * \text{OM}_{\text{soil}})$

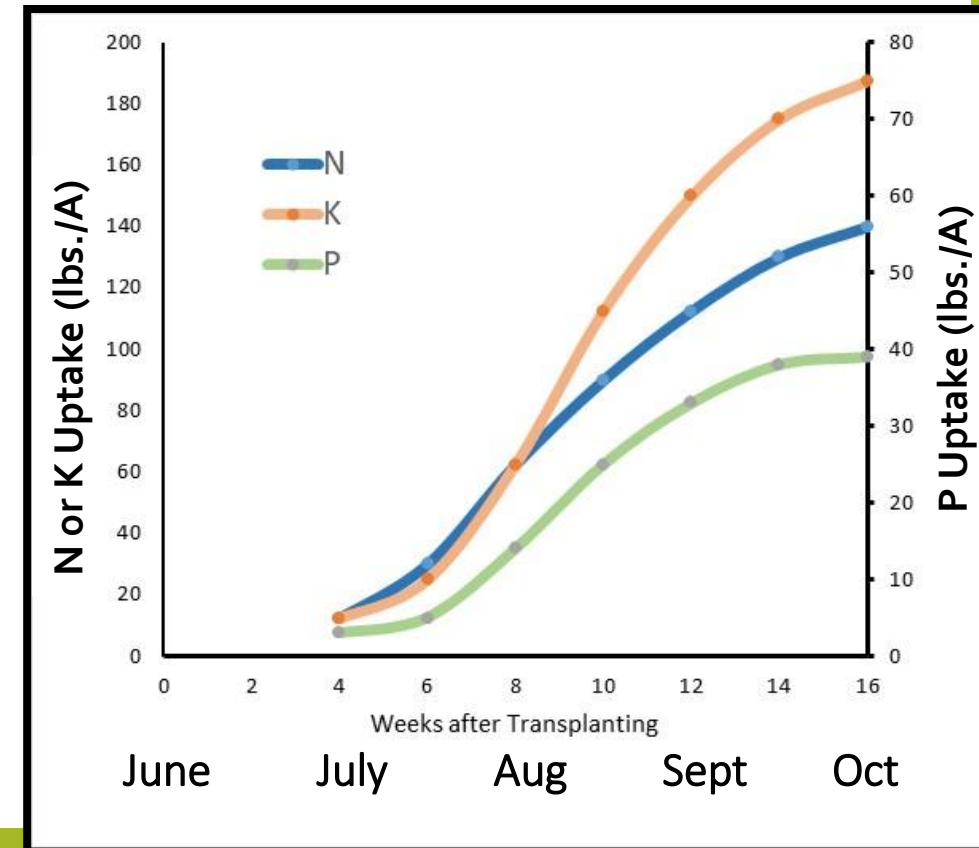
$$150 - (3.6 * 8 = 29) - (1.5 * 2 = 3) = 150 - 29 - 3 = \mathbf{118 \# N/A}$$

- If unknown, then generally look at

150 # N/A;

125 # P_2O_5 /A;

200 # K_2O /A



Timing & Nitrogen Rates

- Pre-plant (50 # N/A)
Covers first 2 weeks of growth
- Sliding scale (weekly injections)
5, 10, or 15 # N/week
- General recommendations
Seasonal (150# N/A)
N-Range 125-250 (various sources)
P&K per soil test
- Findings (2020-21)

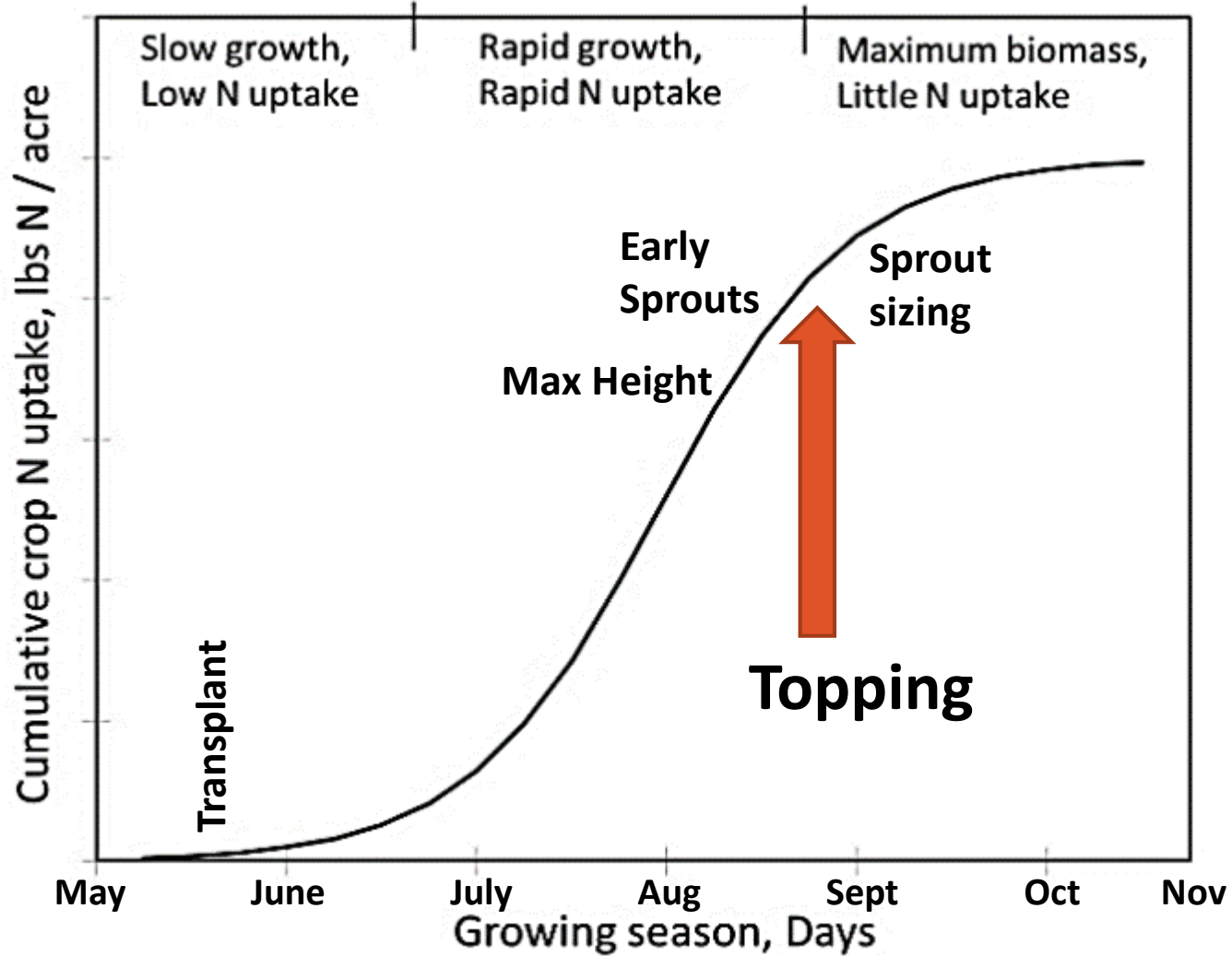
Increasing nitrogen

- = increase Mkt yield
- = less Small sprouts
- = more Cull sprouts

	+5	+10	+15
Start Day	Low-N	Med-N	Hi-N
21-May	50	50	50
18-Jun	55	60	65
30-Jun	60	70	80
8-Jul	65	80	95
15-Jul	70	90	110
22-Jul	75	100	125
29-Jul	80	110	140
5-Aug	85	120	155
12-Aug	90	130	170
19-Aug	95	140	185
26-Aug	100	150	200
2-Sep	105	160	215
9-Sep	110	170	230

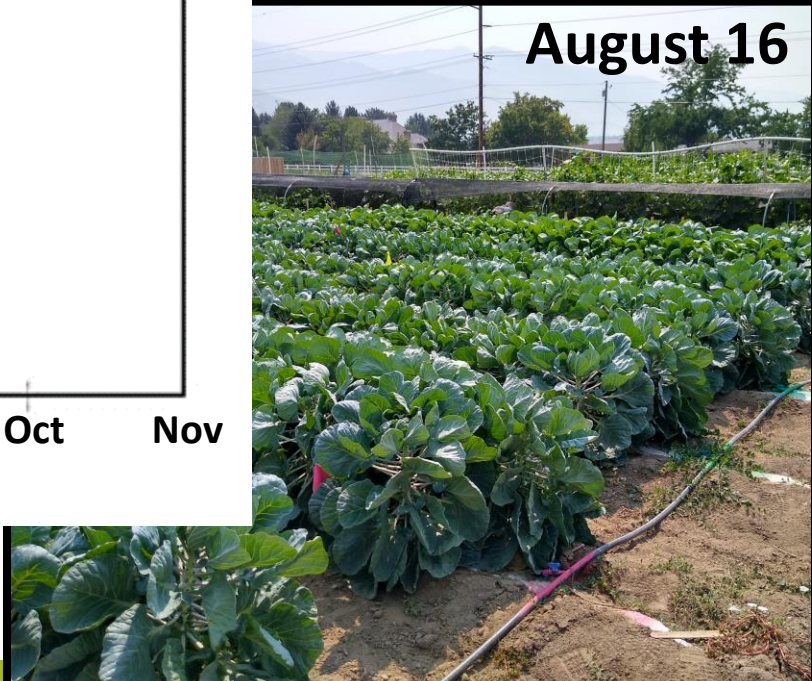
May 28, 2021

July 7



July 23

August 16



Nitrogen Effect – No Difference Noted

Use 125-150 lbs. N/A

30 September



18 October



Irrigation: Brassica Crops

- Soil Type (water holding capacity)
- Crop Water Use (critical during all of growth)
- Soil Water Monitoring
- Water Budgets
- Quite Drought Tolerant
- Drought Slows Growth/Yield
- Non-uniformity
- Bitter off flavors
- Causes Tipburn



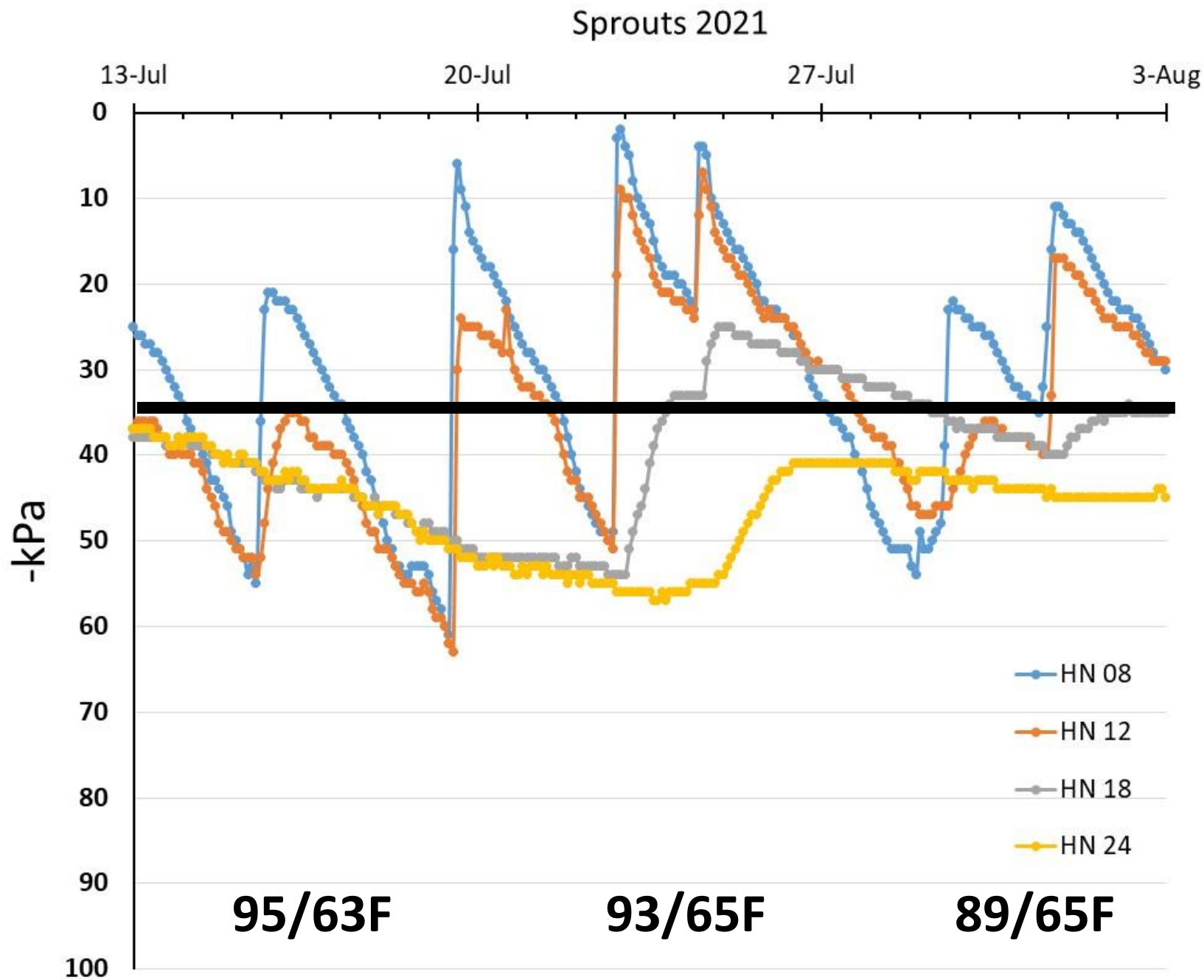
Water Needs

- Drip or Furrow best
- 25-30" seasonal
- Root depth: 36-48"
- Monitor if possible

Soil Water
Content
-kPa

Keep soil
water at/or
above -35kPa

Air Temps



Topping for Uniformity

Mid-August

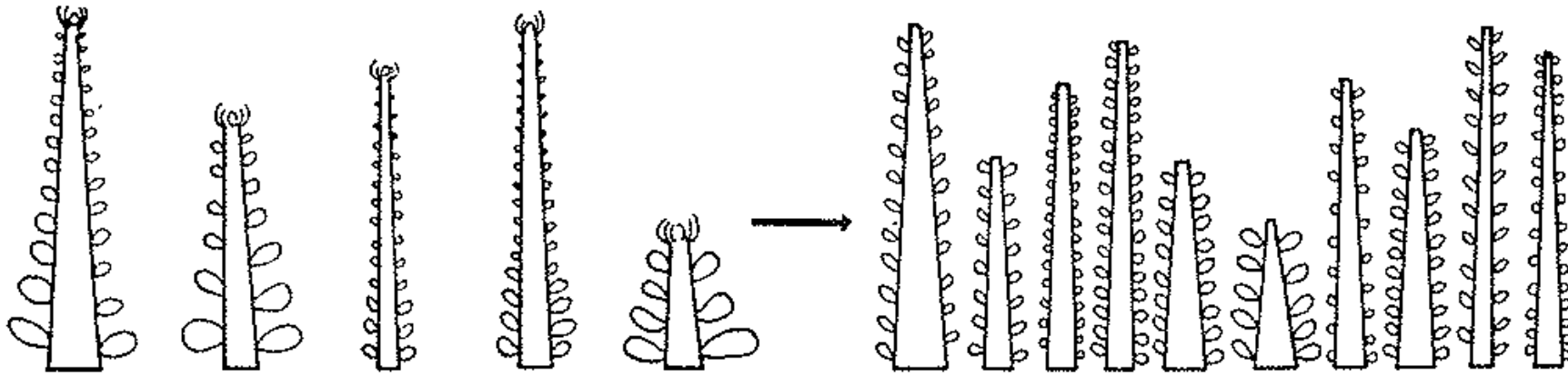


Late October



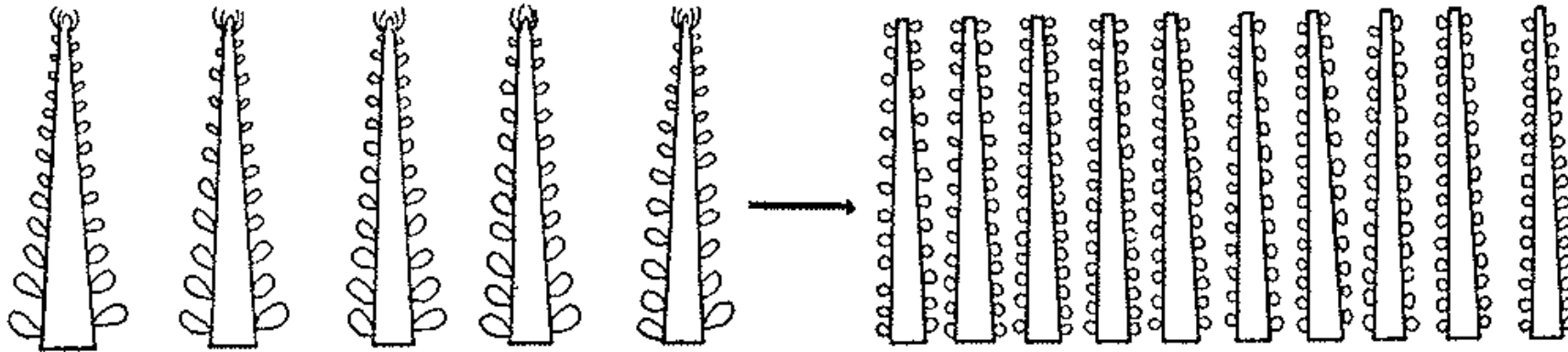
In most Utah locations – Top late-August (cooler areas) to mid-September (warm areas)

Brussels Sprouts: Getting uniformity in harvest



Usual harvest method · Open Pollinated

Single harvest method Open Pollinated



Usual harvest method



Yield (lbs./plant) and Quality

Cultivar	Topped (no/yes)	Yield# (1-2.5")	Small# (<1")	Cull#*	% usable	
					2020	2021
Hestia (100d)	no	1.40	0.22	1.26	47	60
	yes	1.68	0.14	1.23	56	60
Marte (110d)	no	1.61	0.23	1.09	49	70
	yes	1.75	0.18	1.24	56	67
Dagan (118d)	no	1.05	0.25	1.11	39	60
	yes	1.52	0.14	0.92	56	70



Average yield (2020 & 2021) – pounds/plant

* Over size, damaged, diseased, insects, soft, etc.

Marketing Opportunities

- Earliest harvest – early October
- Late in the Farmer's Market season
- **\$2.50-3.50/lb.** (~20-25 sprouts/lb.)
(45-55 sprouts/stalk)
- Stalks = **\$4.00-8.00** each
- Provide recipe options (versatile)
- Store **32F + 95-100% RH**;
Shelf life: 3-5 weeks;
Ethylene-sensitive.
- Leave in field over-winter??




Conclusions


- Select Varieties carefully
- Key Establishment Issues
- Timely Nutrient Application
- Understand Water Needs
- Top for uniformity!
- extension.usu.edu/productionhort/



Horticulture



EXTENSION
UtahStateUniversity




extension.usu.edu

March 2015 Horticulture/Vegetables/2015-02


Vegetable Transplant Production

Dan Drost, Extension Vegetable Specialist

Horticulture



EXTENSION
UtahStateUniversity




extension.usu.edu

August 2017 Horticulture/Irrigation/2017-01pr


Drip Irrigation for Commercial Vegetable and Fruit Production

Tiffany Maughan, Niel Allen, and Dan Drost

Horticulture



EXTENSION
UtahStateUniversity



extension.usu.edu

August 2016 Horticulture/Fertilizers/2016-01

Calculating Fertilizer for Small Areas

Tiffany Maughan, Grant Cardon, and Dan Drost

Thank You

UTAH VEGETABLE PRODUCTION AND PEST MANAGEMENT GUIDE



<https://extension.usu.edu/productionhort/>