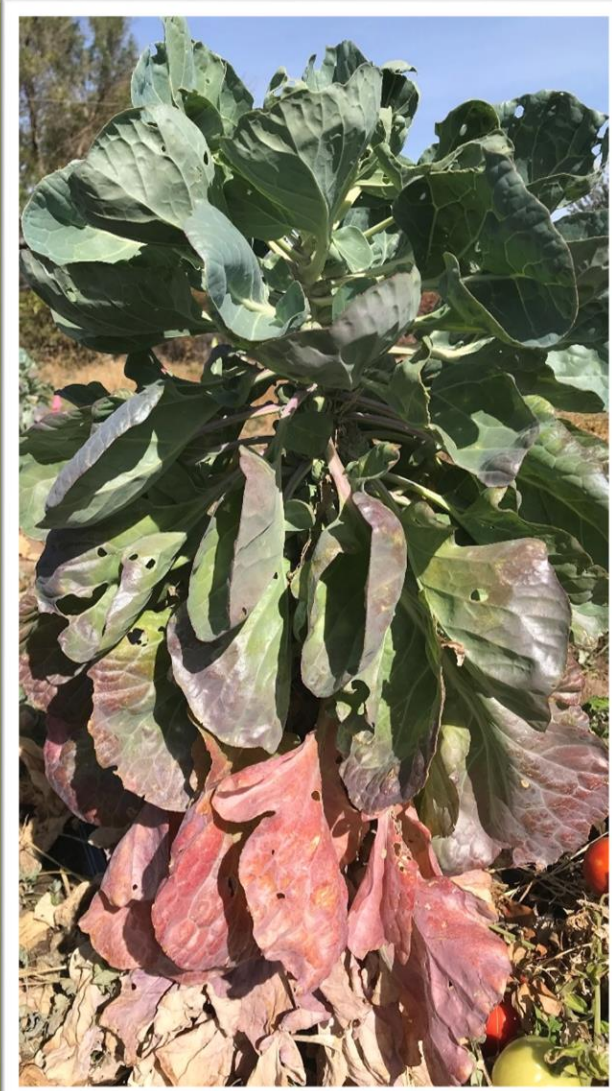


BRUSSELS SPROUTS: ACHIEVING CONSISTENT PRODUCTIVITY



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Overview of Presentation

- Establishment Approaches
- Variety Selection
- Plant Nutrition
- Irrigation
- Crop Uniformity
- Weeds
- Conclusions



Transplants

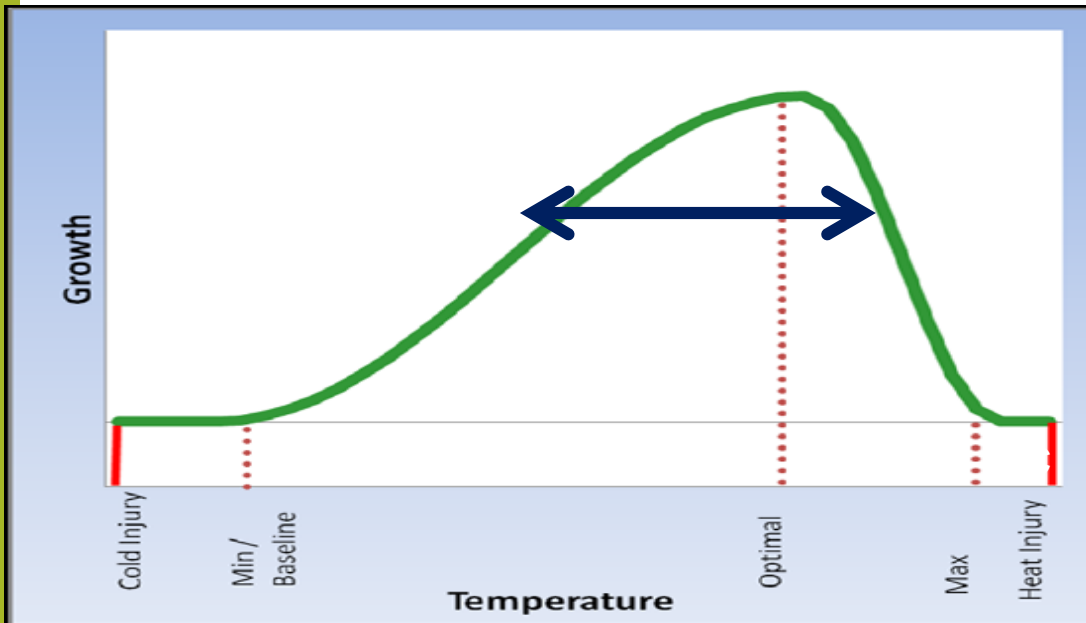
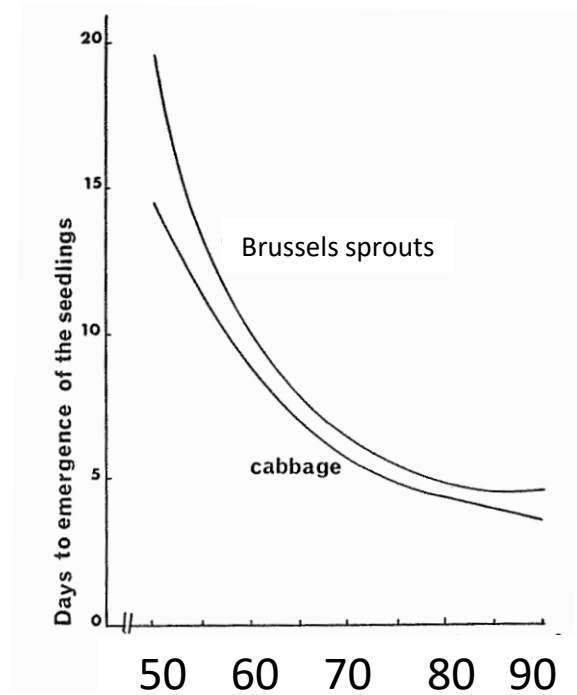
Keys to success!

- Seed Germination
 - 60-90°F (range); **70-80°F** (optimum)
 - Moist and use good, sterile soil mix, 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

Variety Selection

(maturity, uniformity, quality)

Cultivar	Maturity*	Source	OP/F1	USU Tests
Churchill	90	Gurney's	F1	
Dagan	118	Johnny's	F1	2020
Divino	105	Johnny's	F1	
Gustus	105	Seedway	F1	
Hestia	100	Gurney's	F1	2020
Jade Cross	85	Harris	F1	
Marte	110	Seedway	F1	2020

* - days from transplanting

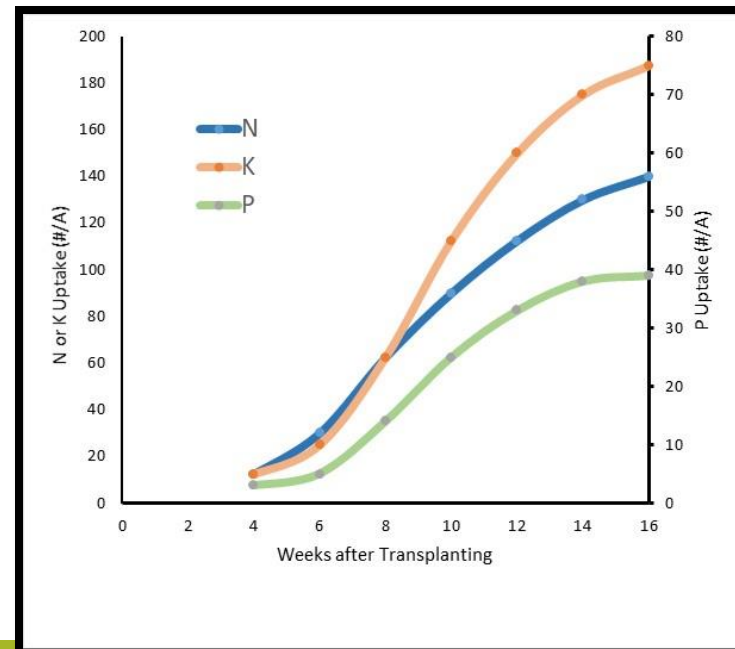
Nutrient Needs

- Soil Test results needed (***get one soon***)
- Try to get NO₃-N and soil OM for root zone
- N applied – (3.6 * NO₃-N) – (1.5 * OM)
- If unknown, then generally look at

150 # N/A;

125# P₂O₅/A;

200 # K₂O/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

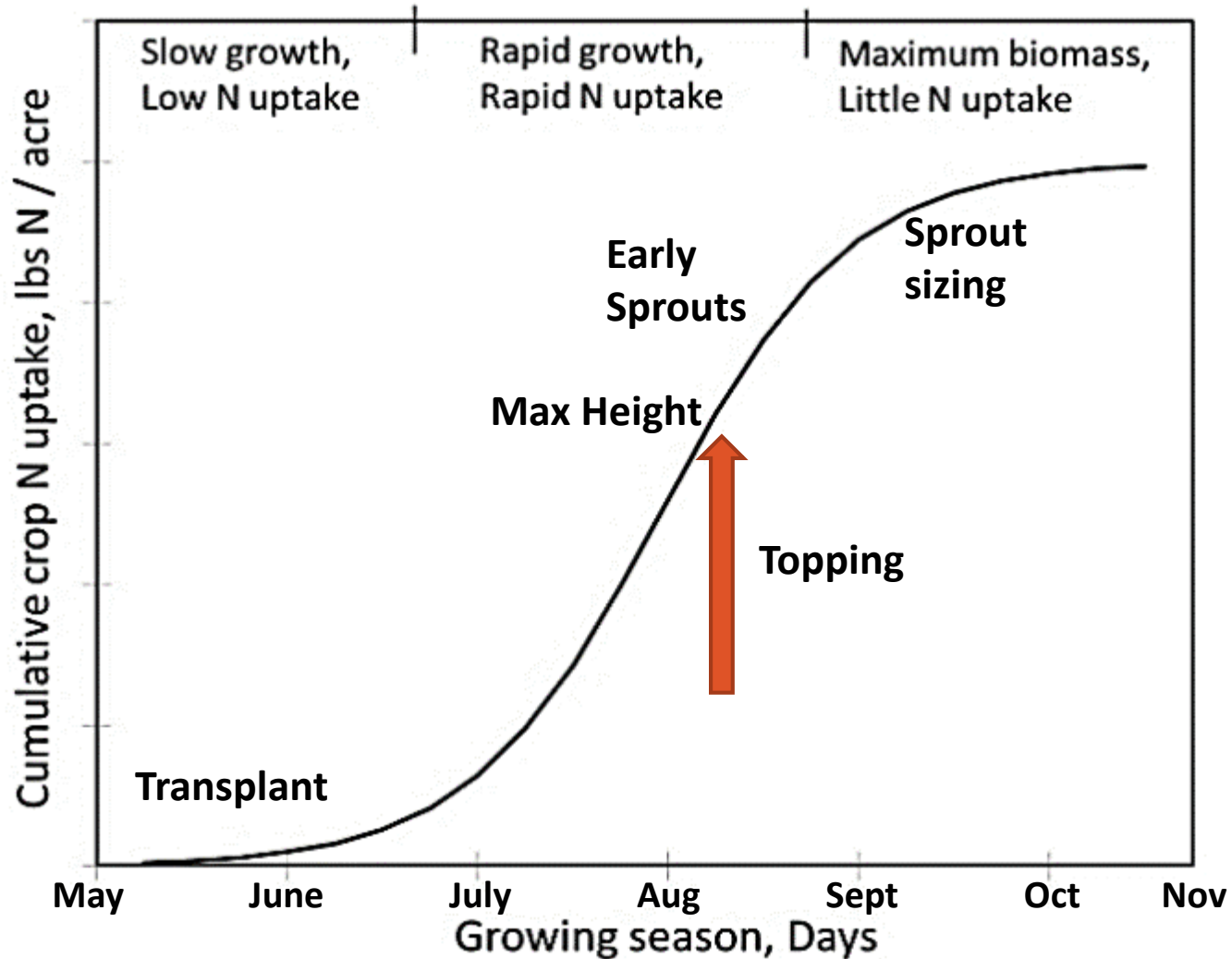
- General recommendations
Seasonal (150# N/A)
Range 125-250
(various sources)
P&K per soil test

- Findings (2020)

Increasing nitrogen
= increase Mkt
= less small
= more culls

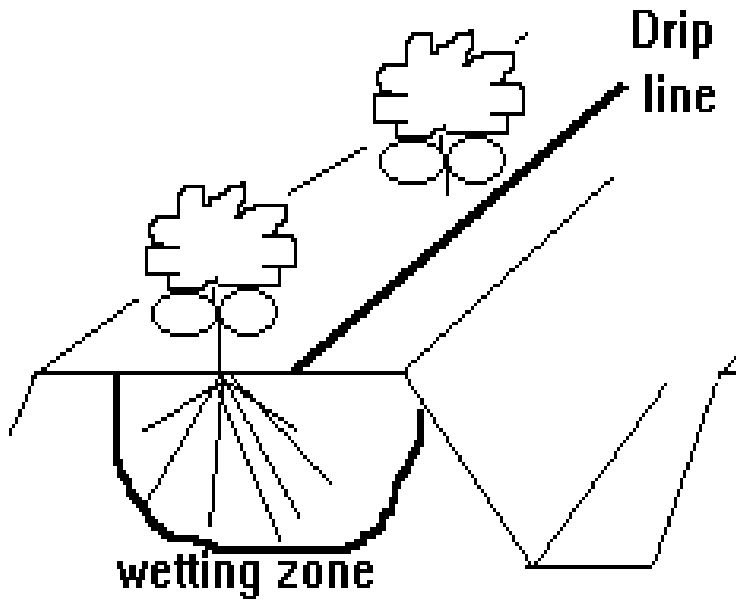
Start (1-M)	50	50	50
15-May	55	60	65
22-May	60	70	80
29-May	65	80	95
5-Jun	70	90	110
12-Jun	75	100	125
19-Jun	80	110	140
26-Jun	85	120	155
10-Jul	90	130	170
31-Jul	95	140	185
14-Aug	100	150	200
TOTAL	100	150	200

Timing Nitrogen Needs to Growth



Irrigation: Brassica Crops

- Soil Type (water holding capacity)
- Crop Water Use (critical during all of growth)
- Soil Water Monitoring
- Water Budgets
- Quite Drought Tolerant
- 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



Topping for Uniformity

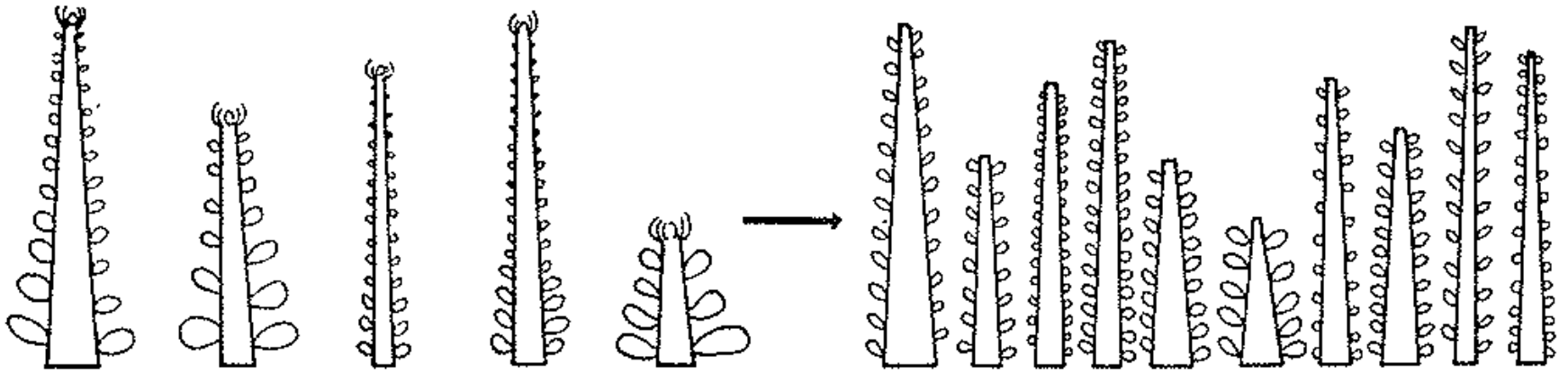
Mid-August



Late October



Brussels Sprouts: Getting uniformity in harvest



Open Pollinated

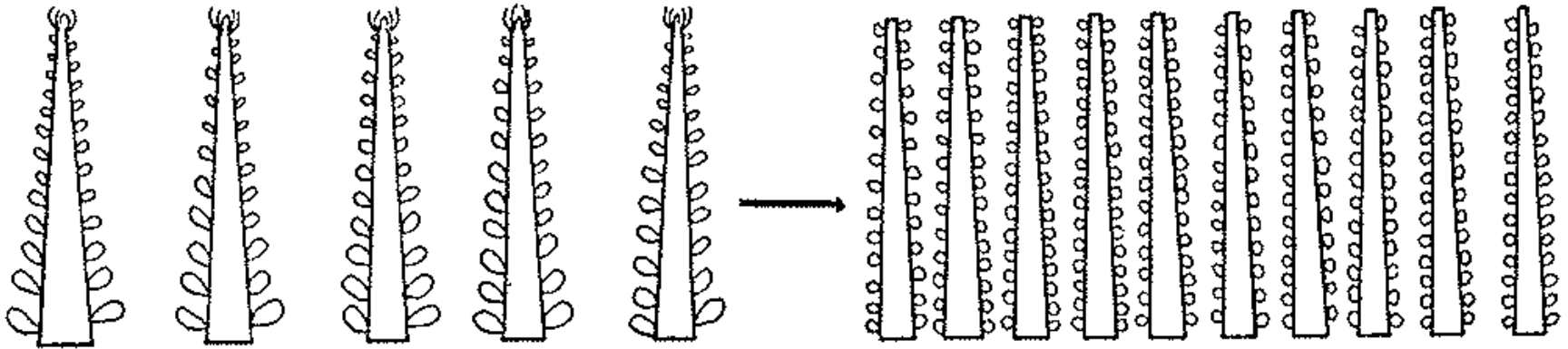
Open Pollinated

Usual harvest method →

Single harvest method →

F1 Hybrid

F1 Hybrid



Yield and Quality



Cultivar	Topping (no/yes)	Yield (1-2.5")	Small (<1")	Cull*	% usable
Hestia (e)	no	1.15	0.27	1.57	47
	yes	1.48	0.18	1.28	56
Marte (m)	no	1.26	0.35	1.43	49
	yes	1.31	0.31	1.70	56
Dagan (l)	no	0.53	0.34	1.34	39
	yes	0.96	0.23	0.94	56

* damaged, diseased, insects, soft, etc.

Weed Management

- Mechanical Methods
- Various Mulches
- Herbicides



Herbicide Options

- Stale Bed
 - Flaming, glyphosate, paraquat
- Pre – transplant
 - emerge
 - AIM (5-6 qt./A)
 - DACTHAL (6-14 lbs./A)
 - DEVRINOL DF (2 lbs./A)
 - PREFAR 4E (5-6 qt./A)
 - PROWL (1.0-2.1 pts./A)
 - SELECT 2E (0.5-1.0 oz./A)
 - TREFLAN (1-1.5 pt./A)
- Post – transplant
 - emerge
 - AIM (3.0-4.5 pt./A) - broadleaf
 - DACTHAL (0.5-0.75 oz./A) - broadleaf
 - POAST 1.5EC (6-8 oz./A) - grasses
 - SELECT 2EC (1 qt./A) - grasses
 - STINGER (4-8 oz./A) - broadleaf

Conclusion

- Understand Establishment Issues
 - Investigate Early Production
 - Apply Nutrients Appropriately
 - Understand Water Needs
 - Deal with Weeds early!
-
- extension.usu.edu/productionhort/

Horticulture



extension.usu.edu

March 2015

Horticulture/Vegetables/2015-02

Vegetable Transplant Production

Dan Drost, Extension Vegetable Specialist

Horticulture



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August 2017

Horticulture/Irrigation/2017-01pr

UTAH VEGETABLE PRODUCTION AND PEST MANAGEMENT GUIDE



COOPERATIVE EXTENSION

Drip Irrigation for Commercial Vegetable and Fruit Production

Tiffany Maughan, Niel Allen, and Dan Drost