

Growing cucumbers in high tunnels

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Cucumber market types

- ❖ Slicers
- ❖ English / Japanese cucumbers
- ❖ Beit alpha/ Persian cucumbers
- ❖ Pickle



Cucumbers suitable for high tunnel production

Parthenocarpic: Produce fruit without pollination. The fruit is seedless

Monoecious: Plants have both male and female flowers

Gynoecious: Plants predominantly produce female flowers

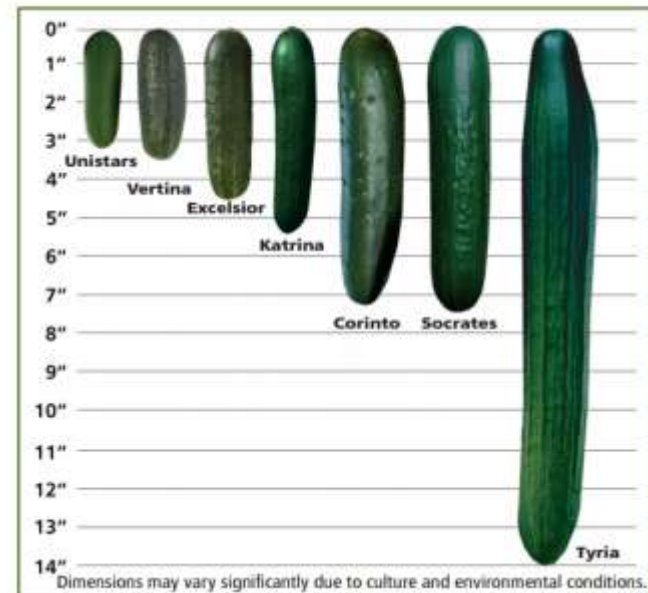
High yield;

Vigor;

Disease resistance (powdery mildew);

Outstanding quality

Greenhouse Cucumber Comparison Chart



Source: Johnny's selected seeds

Know the market prior to planting

Facts about cucumbers

- ❖ Best grow day T 70-90 °F, night T no lower than 65 °F.
- ❖ Under optimum environmental conditions, fast grow, fruit production begins 50-60 days after seeding.
- ❖ Great crop planning flexibility, suitable for both spring and fall crops



✓ 2016 spring cucumber trial

Variety	Type
Socrates	Large Beit Alpha, 7-8"
Excelsior	Pickling type 4-5"
Taurus	Long 9-10"
Diva	Slicing 5-7"

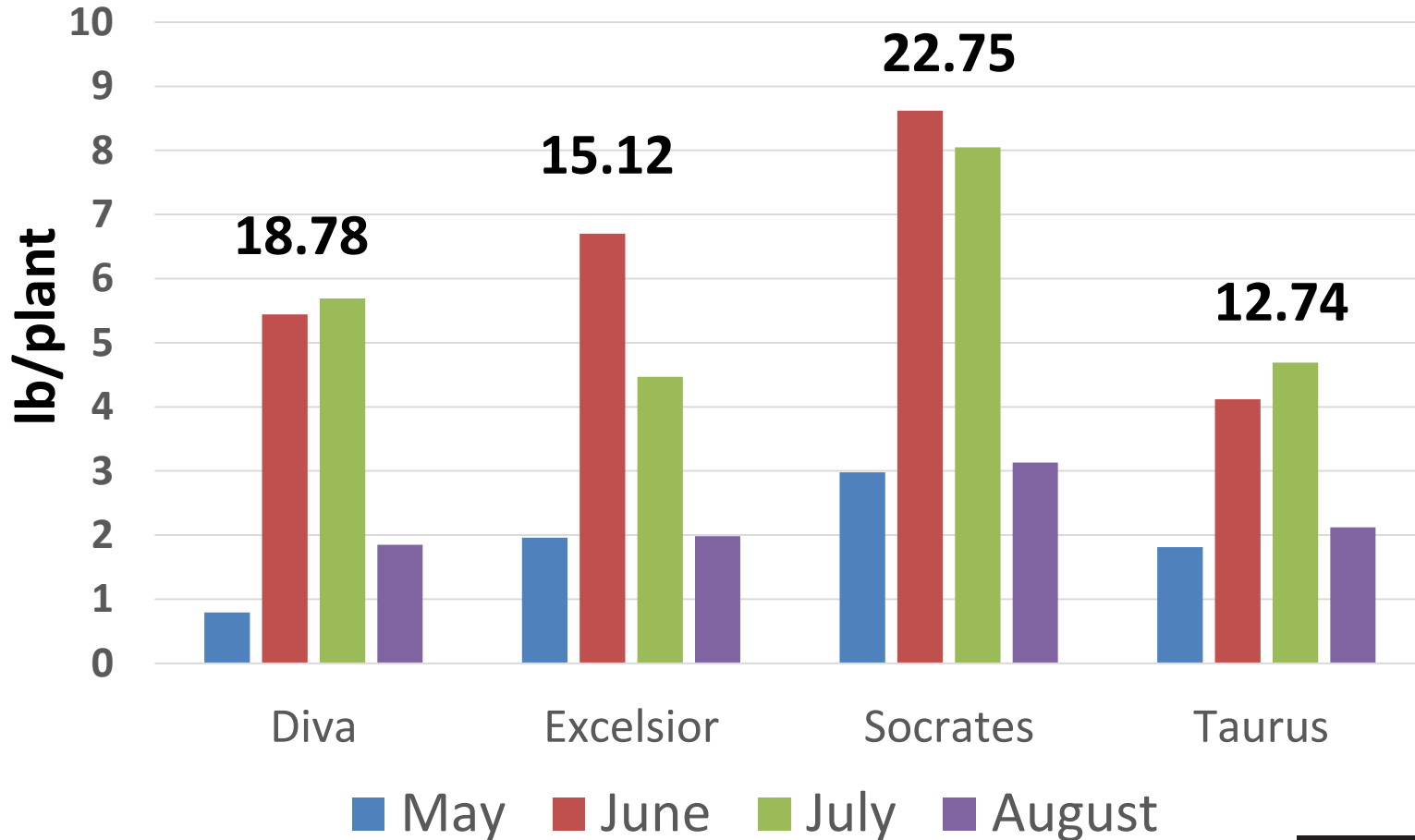


Crop season: April to August

✓ 2016 spring cucumber trial

Variety	Fruit number/plant	Weight (lb.)/plant
Diva	38	18.4
Excelsior	56	15.1
Socrates	61	22.7
Taurus	25	12.7

Harvest: end-May to early August



✓ Examples of fall planting

- West Virginia trial, Lewis Jett (Source: Midwest Vegetable Trial Report for 2011)

---Crop season: transplant Sep 3, harvest from Oct 10-Nov 10

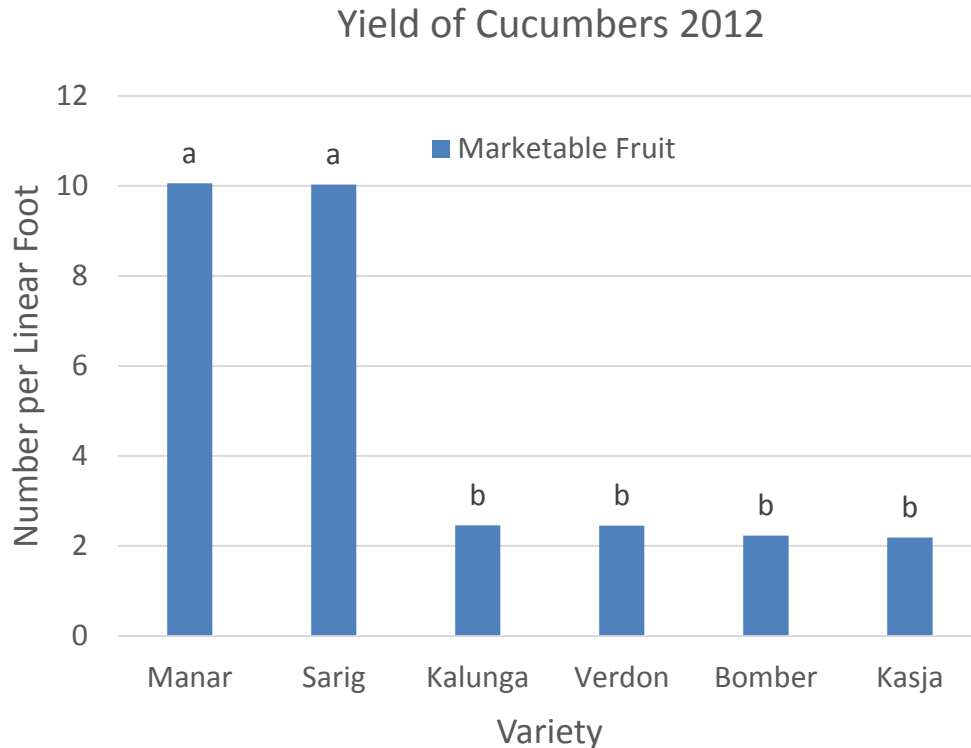
---Downy mildew negatively affected yield,

---Recommendation: establish crop in late July

Cultivar	Marketable cukes/plant (no.)	Avg. wt (lbs.)	Unmarketable cukes/plant (no.)
EXP 2856	5.9	0.5	0.7
Dasher II	2.5	0.4	0.7
Diva	2.0	0.4	0.4
P08040	6.3	0.7	0.7
P08051	4.9	0.6	0.7
Rocky	6.9	0.2	1.5
Socrates	5.2	0.5	1.3
Sultan	2	0.5	0
Tasty Green	2.8	0.8	0.8
Tyria	1.6	0.6	0.7
SE (Mean)	<i>0.4</i>	<i>0.2</i>	<i>0.7</i>

✓ Examples of fall planting

- SWPAC 2012, Shubin Saha, Dan Egel (unpublished)
 - Crop season: Late Jul. to Sep.
 - Powdery mildew, Downy mildew, two-spotted spider mites negatively affected yield



❖ Sensitive to low temperatures

44-83% transplants were lost after planting in the end of March in a high tunnel with soil temperatures in upper 50 °F



---Grafting makes a difference in early season cucumber production



Management

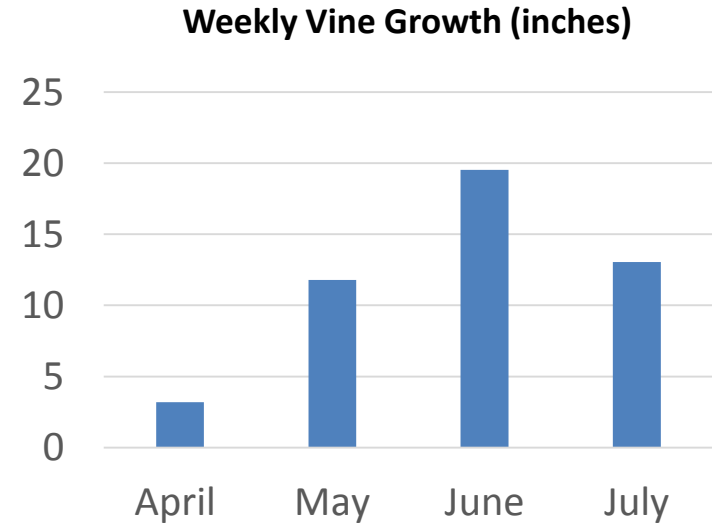
❖ Provide support

Mesh trellis vs. trained to a single leader

Cornell University Cooperative Extension



Trial comparing two methods of training cucumbers



Single leader plants yield 20% more fruit than trellised plants of the same variety. The overall labor only differed by 5%. (Cornell University Cooperative Extension)

❖ Pruning



Removing lower leaves



❖ Fruit thinning and timely harvest



❖ Water and fertility management

- Water intensive crop, daily watering is necessary



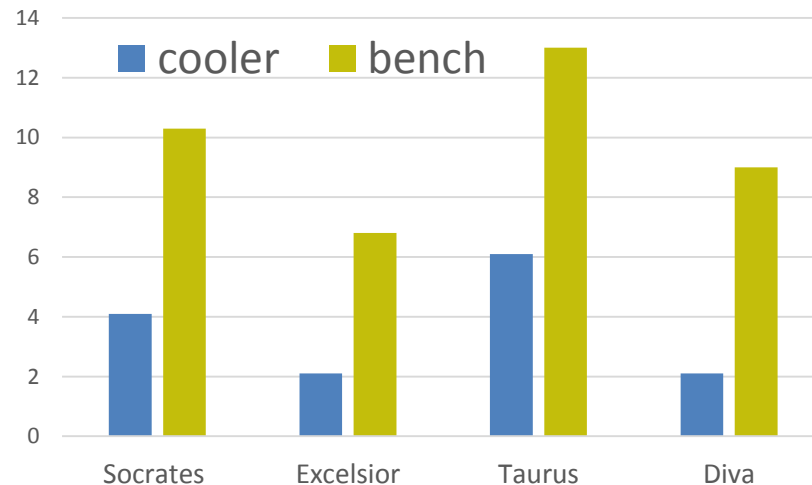
- Encourage root growth, particularly in early season
- Soil test. 30 lb/a N preplant, 5 to 7 lbs of N per acre per week during fruit production

❖ Post-harvest handling

- Sensitive to water loss
50-54 °F, 95% RH
- Chilling sensitive
- Ethylene sensitivity



Fruit weight loss in first 24 h (grams)



❖ Economics

Spacing: 1' in-row spacing, 6 rows

Variety	Marketable yield lb/plant	Yield (lb) in High Tunnel (30' × 96') (510 plants)	Revenue (\$1-2/lb)
Diva	13.78	7,028	\$ 7,028 – 14,065
Excelsior	15.12	7,711	\$7,711 – 15,422
Socrates	22.75	11,602	\$ 11,602 - 23,205
Taurus	12.74	6,497	\$ 6,497 - 12,995

15-20 labor hours per week during peak season

Questions & Comments



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