

Specialty Melons 2001-2010



John Strang

University of Kentucky
Dept. of Horticulture
jstrang@uky.edu

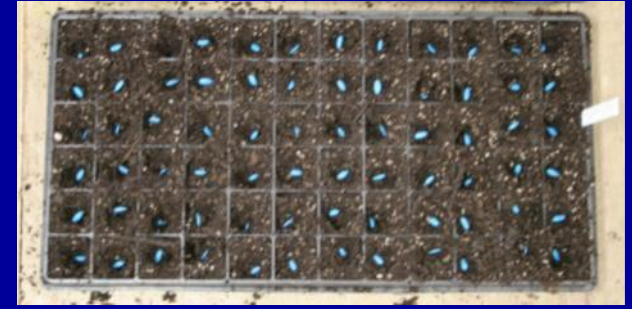


Characteristics of a Desirable Specialty Melon

- Has to grow under your conditions
 - Yield
 - Minimal disease losses
 - Minimal number of cull fruit
- Taste good and must have consumer acceptance
- Look good
- Decent shelf life

Specialty Melon Planting

- Plant after the last spring frost
- Orient rows with the prevailing wind to reduce wind damage if possible
- Transplanted (1/4-1/2 lb seed/A)
 - Start transplants 3 weeks before setting
 - 1-2 seed per cell (72 cell trays)
 - Transplant at 2-3 true leaf stage
 - One plant per cell 3' apart in row
 - Rows 6' apart



Harden plants off for a week before transplanting



Transplanting

- Use a waterwheel setter when transplanting into plastic



Photos courtesy Tim Coolong



Specialty Melon Fertilization

- Soil test
 - P 80; K 450; Mg 200 lb/A; pH 6.5-7.0
- Broadcast and till in recommended P, K, Mg & lime
- Nitrogen
 - 50 lb/A prior to planting
 - Starter fertilizer at transplanting
 - 70-100 lb/A total sidedressed 2X beginning at vining and prior to fruit formation

OR

Specialty Melon Fertigation

Total 70 lb N/A applied

Actual N/wk (lb/A)	Amm. nitrate (lb/A/wk)	Amm. Nitrate (lb/1,000 plts/wk)
8 lb 12 oz	26 lb 2 oz	7 lb 5 oz
	Calcium nitrate (lb/A/wk)	Calcium nitrate (lb/1,000 plts/wk)
	56 lb 7 oz	15 lb 9 oz

Fertigation begins 2 wks after transplanting or when vines begin to run

Magnesium Application

- Dolomitic limestone if pH needs to be raised
- Fertigate weekly (1-2 lb actual Mg)
 - Magnesium sulfate (epsom salts)
 - 10-12 lb/A
 - Magnesium oxide
 - 2-4 lb/A
- Foliar sprays of epsom salts are usually less effective



Magnesium deficiency

Bacterial Wilt



Photo courtesy Ric Bessin, U.K.



Cucumber beetle
damage

News Admire Label

CUCURBIT VEGETABLES – SOIL ^{1/} (continued)

Diseases Suppressed	Rate fluid ounces/Acre
Bacterial wilt (as vectored by various cucumber beetles) Leaf silvering resulting from whitefly feeding	7.0 – 10.5
Cucurbit Vegetables – Soil Applications Apply specified dosage in one of the following methods: 1. Chemigation into root-zone through low-pressure drip, trickle, micro-sprinkler or equivalent equipment; 2. In-furrow spray directed on or below seed; 3. Narrow (2" or less) surface band spray over seed-line during planting incorporated to a depth of 1 to 1 1/2" with sufficient irrigation within 24 hours of application; 4. Narrow band spray directly below eventual seed row in bedding operation 14 or fewer days before planting; 5. Post-seeding drench, transplant-water drench, or hill drench; 6. Subsurface side-dress on both sides of each row. ADMIRE PRO SYSTEMIC PROTECTANT must be incorporated into root-zone.	
Cucurbit Vegetables – Soil Application Restrictions Pre-Harvest Interval (PHI): 21 days Maximum ADMIRE PRO SYSTEMIC PROTECTANT allowed per crop season: 10.5 fluid ounces/Acre (0.38 lb AI/Acre)	
^{1/} Not for use on crops grown for seed unless allowed by state specific 24(c) labeling.	

New Admire Restrictions – Bee safety

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

See individual crops for specific pollinator protection application restrictions. If none exist under the specific crop, for foliar applications, follow these application directions for crops that are contracted to have pollinator services or for food/feed & commercially grown ornamentals that are attractive to pollinators:



FOR CROPS UNDER CONTRACTED POLLINATION SERVICES

Do not apply this product while bees are foraging. Do not apply this product until flowering is complete and all petals have fallen unless the following condition has been met.

If an application must be made when managed bees are at the treatment site, the beekeeper providing the pollination services must be notified no less than 48-hours prior to the time of the planned application so that the bees can be removed, covered or otherwise protected prior to spraying.

FOR FOOD CROPS AND COMMERCIALLY GROWN ORNAMENTALS NOT UNDER CONTRACT FOR POLLINATION SERVICES BUT ARE ATTRACTIVE TO POLLINATORS

Do not apply this product while bees are foraging. Do not apply this product until flowering is complete and all petals have fallen unless one of the following conditions is met:



- The application is made to the target site after sunset
- The application is made to the target site when temperatures are below 55°F
- The application is made in accordance with a government-initiated public health response
- The application is made in accordance with an active state-administered apiary registry program where beekeepers are notified no less than 48-hours prior to the time of the planned application so that the bees can be removed, covered or otherwise protected prior to spraying
- The application is made due to an imminent threat of significant crop loss, and a documented determination consistent with an IPM plan or predetermined economic threshold is met. Every effort should be made to notify beekeepers no less than 48-hours prior to the time of the planned application so that the bees can be removed, covered or otherwise protected prior to spraying.

Cucumber Beetle/Bacterial Wilt (3 Wks. Control)

Drench at transplanting

- **Platinum**

- Systemic insecticide
- Applied as a drench at transplant base
- Used maximum rate of 11 fl oz/A

or

- **Admire Pro**

- 7-10.5 fl oz/A

or

- **Belay 50 WDG**

- 9-12 fl oz/A



Sprayer nozzle removed

- **Three weeks later - weekly sprays**

- Mustang Max, Brigade, Asana, Battalion, Brigade, Danitol, Permethrin

or

- Assail, Venom

or

- Sevin

Rotate
sprays

Striped Cucumber Beetle



Anthracnose

- Disease free seed + crop rotation for 2-4 years
- Fungicide sprays when first symptoms appear or when the vines begin to touch in the row at the very latest.



Anthracnose Alternaria Leaf Blight

Cercospora Leaf Spot

- Mancozeb
- Fixed coppers
- Cabrio, Pristine, Tanos, Quadris
- Chlorothalonil, Floutronil
- Ridomyl Gold Bravo
- Gavel
- Thiophanate-methyl

Gummy Stem Blight



- Plant disease free seed
- Crop rotation
- Avoid overhead irrigation
- Fungicide application

Downy Mildew

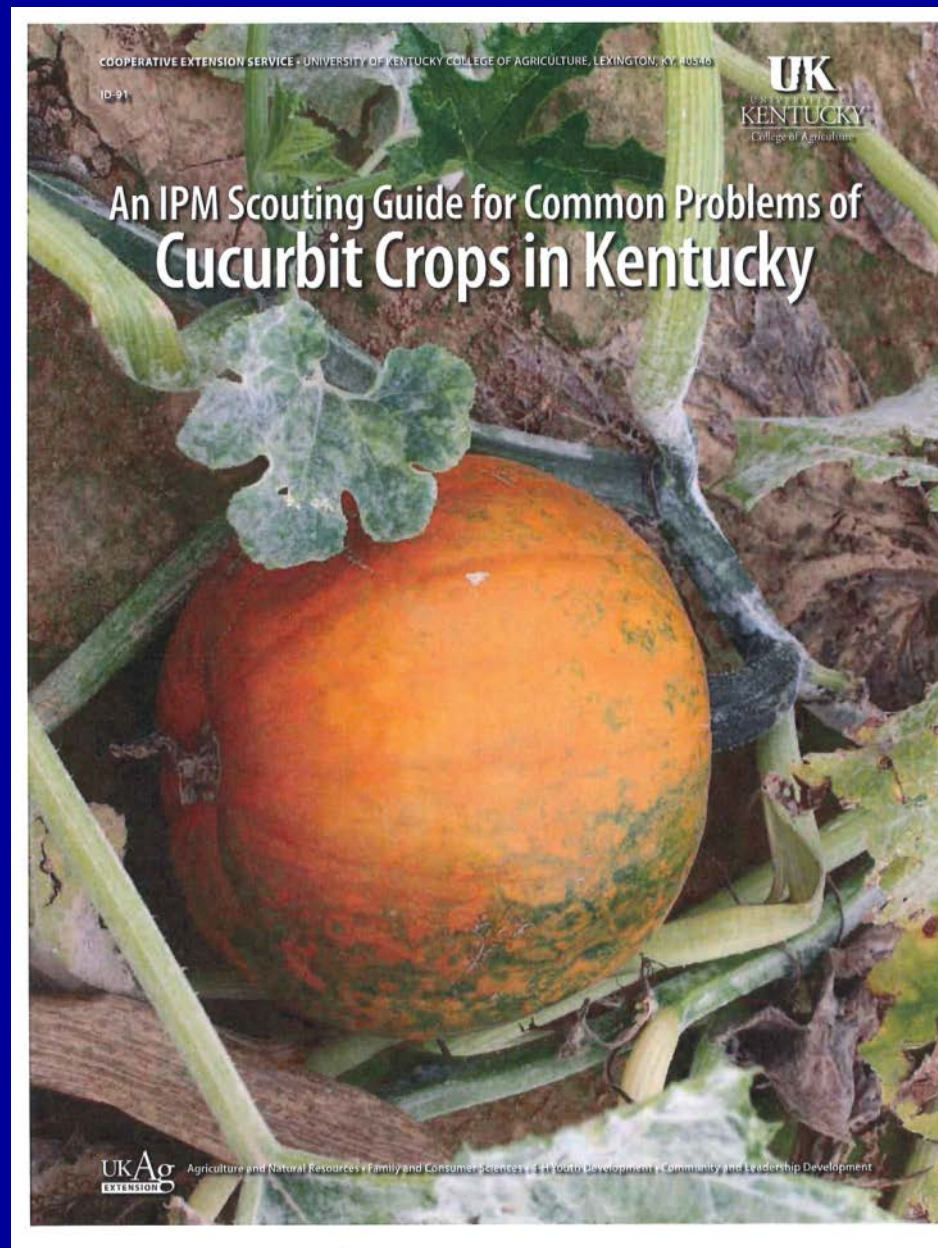


- Avoid overhead irrigation
- Sunny planting area with good air flow
- Begin fungicide applications before disease onset

Powdery Mildew

- Resistant varieties
- Scout and begin fungicide applications before disease onset





<http://www2.ca.uky.edu/agc/pubs/id/id91/id91.pdf>

Sample Fungicide Program

Weeks after transplanting	Fungicides
1,2	chlorothalonil or mancozeb
3	(Flowering) chlorothalonil + copper or mancozeb + copper
4	Quadris, Cabrio, Pristine, or Fontelis
5	Chlorothalonil or mancozeb + copper
6	Quadris, Cabrio, Pristine, or Fontelis
7	Chlorothalonil or mancozeb + copper
8	Chlorothalonil or mancozeb + copper
9,10	-

Begin applications of Quadris/Cabrio/Pristine if disease becomes severe. Tank mix Quintec, Torino or Rally if powdery mildew or Phytophthora blight becomes severe. Finish season with mancozeb

Insects

- Scout for
 - Aphids
 - Whiteflies
 - Spider Mites
- Apply recommended insecticide if populations begin building



Weed Control

- Pre-emergence
 - Banded spray between rows of plastic mulch
 - Not incorporated
 - Curbit
 - Strategy
 - Sandea –
 - Nutsedge
 - May be used after bed shaping and before laying plastic, 7 days before planting
- Post-emergence
 - Select Max (PHI 14 days)

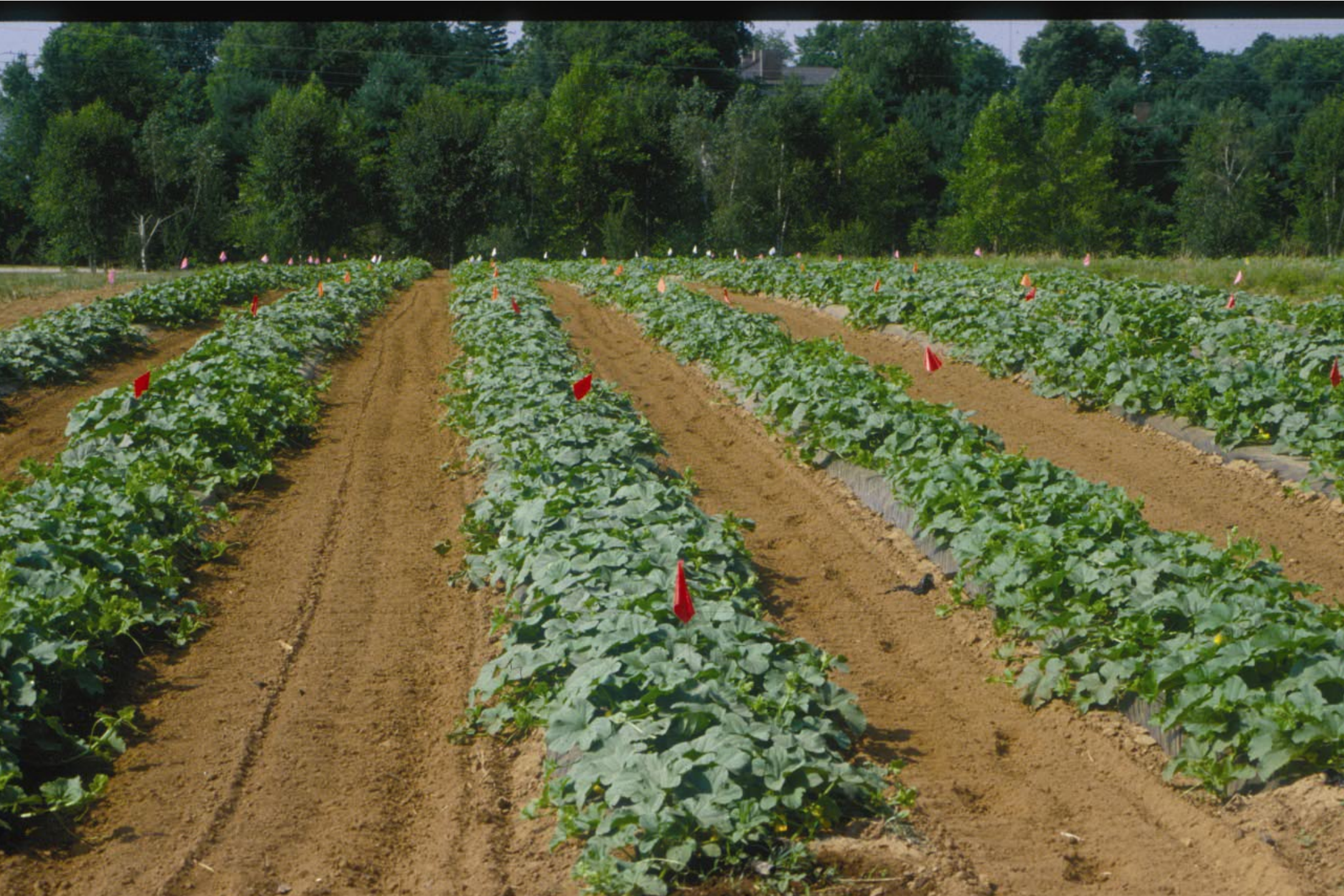


Strategy Injury











Muskmelons are self fertile,
but won't self-pollinate

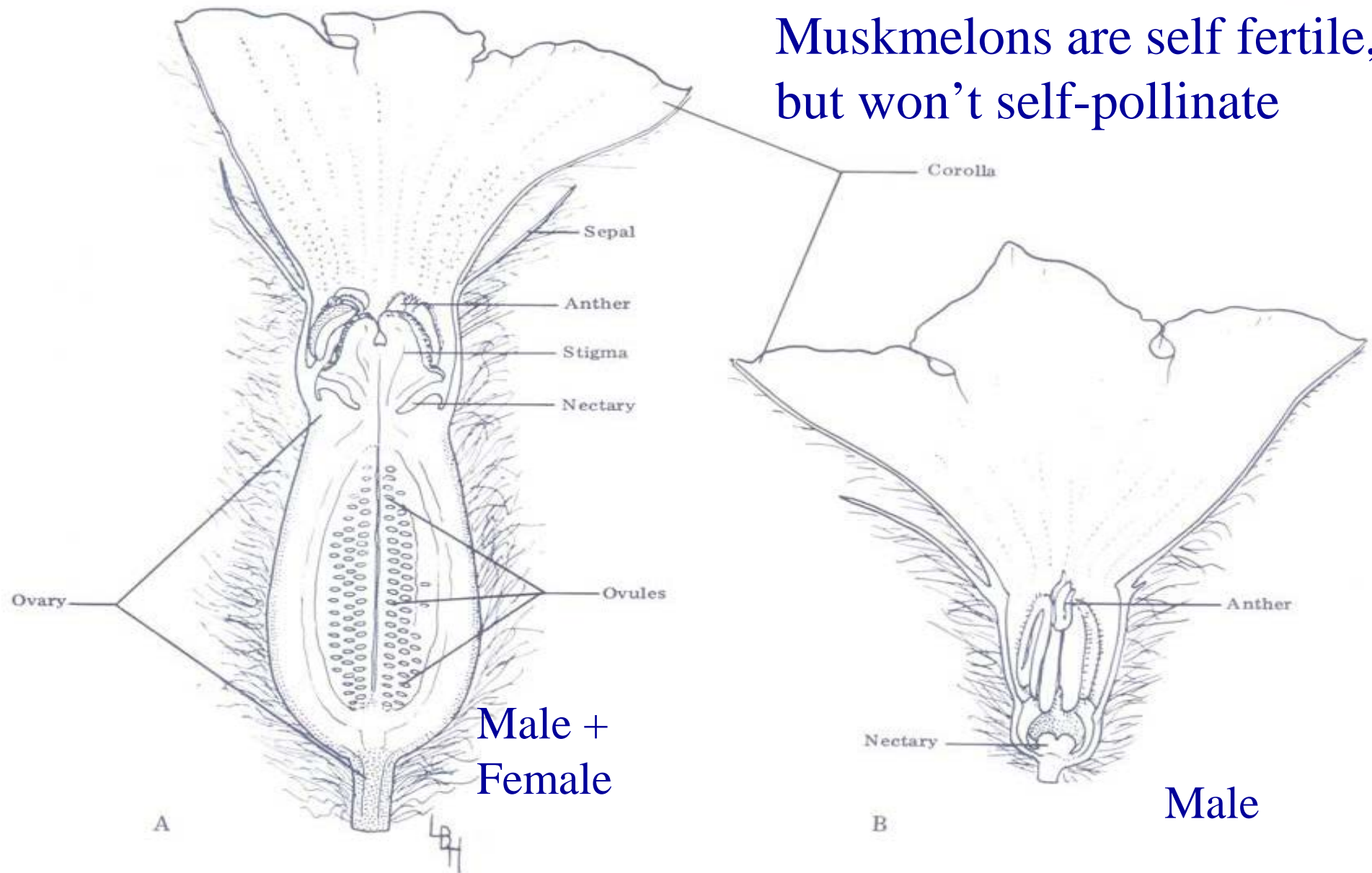


FIGURE 129.—Longitudinal section of muskmelon flower, $\times 4$. A, Hermaphrodite; B, staminate.

Pollination



- Melon size and shape are related to seed number
- If bees excluded – no fruit set
- Flowers only open one day
 - Opening delayed by
 - Cool temp.
 - High humidity
 - Cloudy weather
- Pollen collection
 - Begins when flower opens
 - Peaks ~ 11:00 a.m.
 - Ends before noon

Pollination



- Ideally - a bee visit every 15 minutes
- It takes at least 1 pollen grain for every seed
- Effective pollination period is only a few hours, less if it is very hot
- General recommendations are for 2 hives/A

Typical Protocol for Specialty Melon Variety Trials

- Hort. Research Farm, Lexington, KY
- Planted ~April 29
- Transplanted ~June 1
- Plant spacing 3' X 6'
- Each plot 21' long with 7 plants and 4 replications
- Raised beds, black plastic mulch with trickle irrigation

Melons & Weather

- Best tasting melons
 - Clear sunny skies
 - Dry weather
 - Quit irrigating about 4 weeks before harvest
 - Irrigate only when dry and don't over do it - Cracking
 - Cooler nights





Harvest



Harvest – Can be a Challenge!



Cantaloupe Full Slip



Dead vine
Do not harvest!



Melon Evaluation

- One melon from each plot was evaluated or 4 melons per variety.
- Evaluation
 - Yield (lb & no./A)
 - Fruit measurements
 - Cull %
 - Flavor
 - Sugar content
 - Color
 - Fruit shape
 - Netting
 - Characteristics that stood out



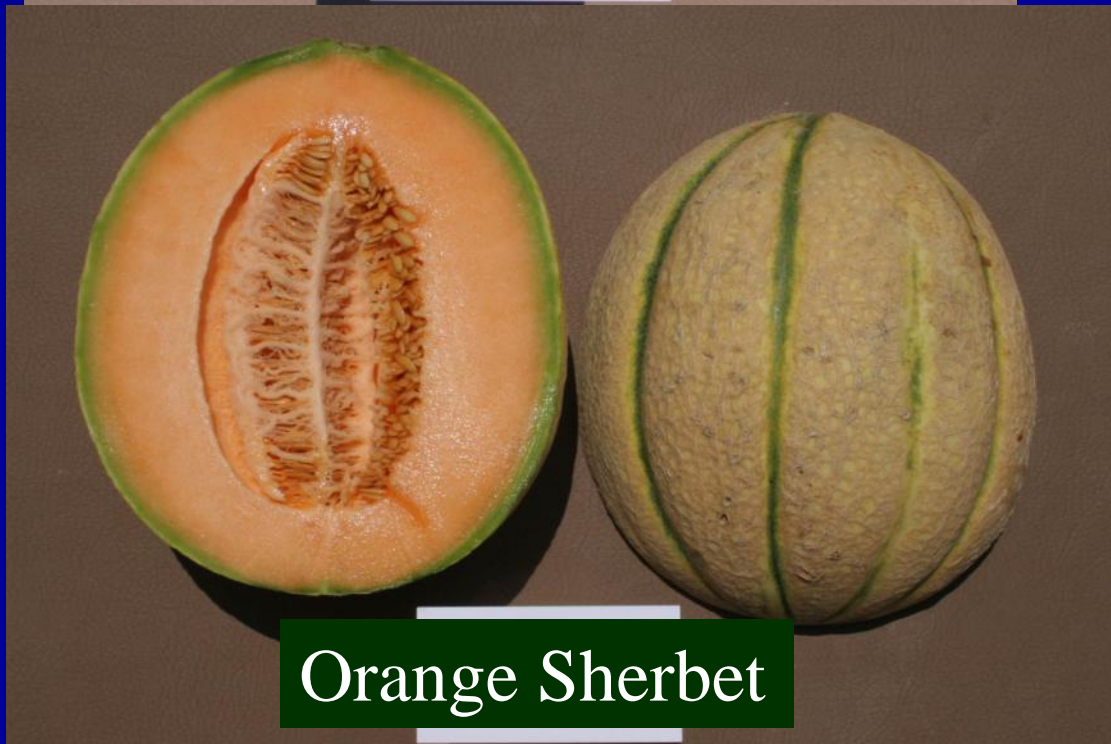
Tuscan Type Muskmelons

Cultivar (Seed Co.)	Days to harvest	Yield (cwt/A)	Avg. wt. (lbs)	Culls (%)	Flavor *
Orange Sherbet (Seedway) (Rupp)	83	549	7.2	4	4.4
Wrangler (Hollar)	80-85	305	3.3	1	4.8
*1 = poor 5= excellent					



Muskmelons

- Tested 3 years
- Small
- Outstanding quality and flavor
- Very attractive



- Best yield/acre of '08 muskmelons
- Largest muskmelon
- Excellent quality

New variety not evaluated
Napoli

Honeydews

Cultivar (Seed Co.)	Days to harvest	Yield (cwt/A)	Avg. wt. (lbs)	Culls (%)	Flavor *
Honey Brew (Rupp)	90	482	6.4	1	4.7
Summer Dew (Stokes)	90	451	6.3	0	4.4
Honey Yellow (Johnny's Seeds)	75	551	2.9	11	4.5
Honey Orange Johnny's Seeds)	80	499	4.7	3	4.2
Earlidew (Clifton)	75	462	4.6	3	4.7

* 1 = poor 5= excellent

Honeydews



- Top pick 5 of 5 years
- Consistently high yields
- Crisp flesh
- Problem with surface checking and foliage diseases in wet seasons
- 15.1 % SS



- One year evaluation
- Very good flavor rating
- Very good yield
- 16.2% SS

Honeydews



- Evaluated 4 years
- Very good taste
- Very sweet
- 14.6 % SS



- Performed well both yrs tested
- Harvest when dark yellow
- Occasional cracking on blossom end
- 16.6 % SS

Honeydews



- Earlidew
- Evaluated in 2008
- Very good taste
- Slips when mature
- Difficult to pick at high sugar content without serious checking and cracking
- 15.9 % SS

Skin checking is the primary problem with honeydews in the Midwest



Honeydews

- Harvest
 - Let them get ripe!
 - When rind turns to a cream color and becomes slightly waxy
- New Not Evaluated
 - Angelina
 - Dewlightful
 - Snow Leopard
 - Honey White
 - Dream Dew
 - Uncle Sam
 - #252 HQ
 - #262 HQ
 - #966 HQ
 - Moon Dew
 - Perla de oriente

Canary Melons

Cultivar (Seed Co.)	Days to harvest	Yield (cwt/A)	Avg. wt. (lbs)	Culls (%)	Flavor *
Camposol (Seedway)	80	425-615	5.8	1	4.6
Dorado (Stokes)	85	461	6.2	0	4.7
Amy (Clifton) (Harris)	70	615	4.2	2	4.2
* 1 = poor 5= excellent					

One of most popular specialty melons at farm markets
Excellent shelf life

Canary Melons



- Evaluated 2 years
- Consistently high yields
- Soft smooth flesh
- 13.9 % SS



- Evaluated 6 years
- Top consistent variety
- Very good flavor rating
- Very good yield
- 13.7 % SS

Canary Melons



- AAS Winner
- Attractive
- Some checking when ripe
- 14.1% SS
- Harvest
 - When exterior is a darker bright yellow color
- New Not Evaluated
 - Camino Europa
 - Brilliant
 - Tweety
 - Halo (hybrid)
 - Hibrix
 - Castle

Galia Melons

Cultivar (Seed Co.)	Days to harvest	Yield (cwt/A)	Avg. wt. (lbs)	Culls (%)	Flavor *
Arava (Johnny's)	77	769	5.6	3	4.0
Courier (Rupp) (Hollar)	85	787	4.8	1.8	5.0
Visa (Hollar)	75-80	702	4.2	0	4.1
* 1 = poor 5= excellent					

Galia Melons



- Arava
- Evaluated 6 years
- Consistently high yields
- Soft smooth flesh, slight vanilla aftertaste
- Good shelf life
- 13.8 % SS



- Courier
- Evaluated 2 years
- Small seed cavity
- Harvest at first slip
- 12.7 % SS

Galia Melons



- Visa
- Attractive
- 12.5% SS

- Harvest
 - When rind begins to turn a straw color
- New Not Evaluated
 - Sigal

Muskmelon X Galia Cross

Cultivar (Seed Co.)	Days to harvest	Yield (cwt/A)	Avg. wt. (lbs)	Culls (%)	Flavor *
Pixie (Johnny's) (Seedway)	80	553	3.2	4	4.2
* 1 = poor 5= excellent					



- Evaluated 3 seasons
- Very firm flesh
- Excellent quality
- 14.9 % SS
- Harvest when rind develops yellow highlights

Sensation Melon

Cultivar (Seed Co.)	Days to harvest	Yield (cwt/A)	Avg. wt. (lbs)	Culls (%)	Flavor *
Sensation (Hollar) (Johnny's) (Clifton) (Rupp) (Harris)	80	658	6.2	2	4.9
* 1 = poor 5= excellent					

Sensation Melon



- Evaluated 6 years
- Exceptional flavor
- Soft melting flesh
- Consistently good yields
- Good shelf life compared to other melons of this type
- Excellent vine disease tolerance
- Harvest when the fruit slips and the color changes
- Harvest at least 2X per week
- 13.8 % SS

Ananas Melons

Cultivar (Seed Co.)	Days to harvest	Yield (cwt/A)	Avg. wt. (lbs)	Culls (%)	Flavor *
Robust (Hollar)	90-95	614	8.1	0	4.1
Tamara (Hollar)	95	639	6.6	1	4.1
San Juan (Johnny's Seeds)	78	569	5.5	2	4.3
* 1 = poor 5= excellent					

Ananas Melons



- Robust
- Evaluated 2010
- Very good yield yields
- Soft smooth flesh
- Short harvest window and shelf life
- 11.3% SS



- Tamara
- Evaluated 2006
- Soft melting flesh
- Harvest at full slip
- Short harvest window and shelf life
- 11.5% SS

Ananas Melons



- San Juan
- Soft melting flesh
- Harvest at full slip
- Cracks at stem end if over mature
- Short harvest window and storage life
- 12.5% SS
- New Not Evaluated
 - Merlin
 - Tobago, mini hybrid

Piel de Sapo or Christmas Melons

Cultivar (Seed Co.)	Days to harvest	Yield (cwt/A)	Avg. wt. (lbs)	Culls (%)	Flavor *
Lambkin (Johnny's) (Stokes) (Harris)	68-70	406	4.9	0	4.6
* 1 = poor 5= excellent					

Piel de Sapo or Christmas Melons



- Evaluated 2010
- AAS Award winner
- Flesh, ranges from firm and crunchy to soft, granular texture
- Excellent flavor!
- 15.7 % SS
- Does not slip
- Harvest when yellow flecks appear and ground color turns to a creamy



Sancho is an older very large fruited (9.0 lb) variety, couldn't find in catalogues

Crenshaw Melon

Cultivar (Seed Co.)	Days to harvest	Yield (cwt/A)	Avg. wt. (lbs)	Culls (%)	Flavor *
Lilly (Johnny's) (Rupp)	78	760	9.4	3	3.1
* 1 = poor 5= excellent					



Crenshaw

- Lilly had coarse flesh
- Foliage very disease susceptible
- Many fruit decayed in field
- 11.4% SS



Bolero sunburned, but had much better flavor and quality
No longer in catalogues

Asian Melons

Cultivar (Seed Co.)	Days to harvest	Yield (cwt/A)	Avg. wt. (lbs)	Culls (%)	Flavor *
Sprite (Clifton Seeds)	80	550	1.3	1	4.4
Golden Liner (Evergreen Seeds)	65	359	1.6	0-17	3.5
* 1 = poor 5= excellent					

Asian Melons



- **Sprite** -Top pick 5 of 5 years
- Consistent yields
- Attractive, very sweet, crisp flesh
- Harvest
 - Rind becomes slightly waxy
 - Develops a yellow tinge
 - Small concentric cracks around blossom end
- 16.8 % SS
- Excellent shelf life
- Exceptionally well received by consumers

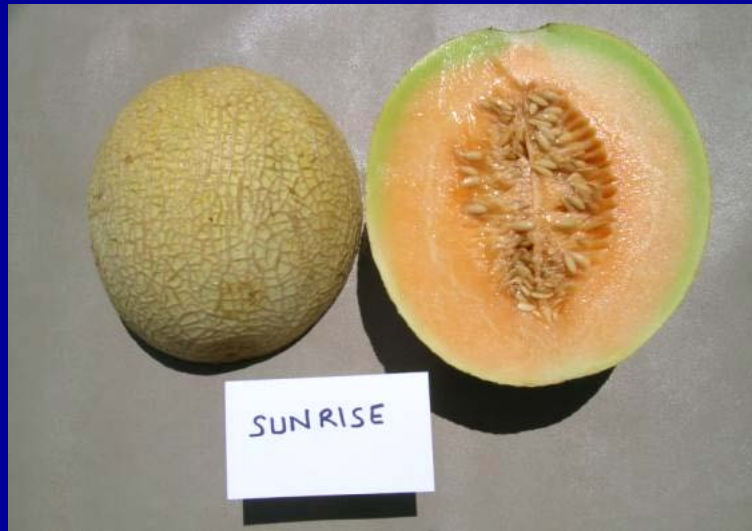
Asian Melons



- **Golden Liner** – Korean Melon
- Evergreen Seeds
- Two years evaluation
- Crisp flesh
- Vine susceptible to powdery mildew which kills the vine
- Attractive, flavor ok
- 14.5% SS, flavor ok, don't taste very sweet
- Harvest when fruit are uniformly yellow, some at slip

Asian Melons

(No longer sold)

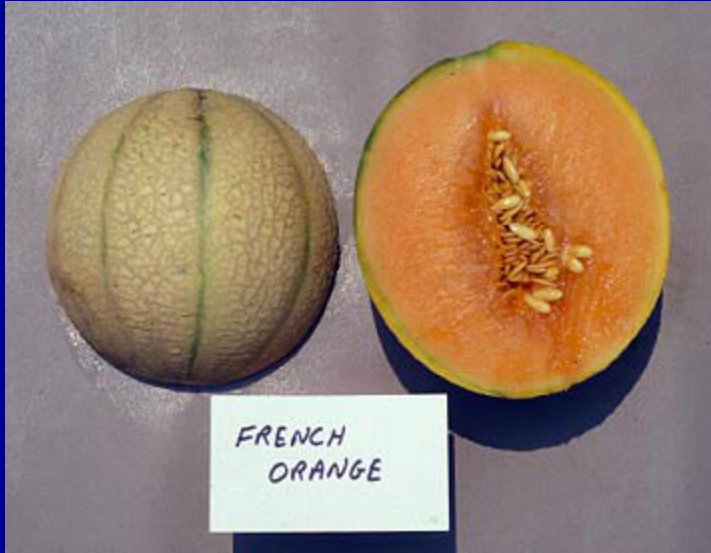


- Napoli - 5 of 5 years
- Consistently high yields
- Attractive very sweet crisp flesh
- Harvest
 - Rind becomes slightly waxy
 - Develops a yellow tinge
 - Small concentric cracks around blossom end
- 16.8 % SS
- Excellent shelf life
- Exceptionally eating quality

Charentais Melons

Cultivar (Seed Co.)	Days to harvest	Yield (cwt/A)	Avg. wt. (lbs)	Culls (%)	Flavor *
French Orange (Harris)	75	359	2.9	24.6	4.5
* 1 = poor 5= excellent					

Charentais Melons



- Outstanding intense cantaloupe flavor, very high quality
- Harvest at half slip, examine leaf opposite fruit which becomes pale, fruit has slight straw color
- Susceptible to cracking from rain and over irrigation
- Typically grown in green houses/high tunnels
- 11.5 % SS
- Newer unevaluated Charentais
 - Escorial
 - Savor
 - Da Vinci

Butterscotch or Charentais Like Melon

Cultivar (Seed Co.)	Days to harvest	Yield (cwt/A)	Avg. wt. (lbs)	Culls (%)	Flavor *
Serenade (Johnny's Seeds)	78	378	1.7	8.0	4.5
* 1 = poor 5= excellent					



16.8 % SS

Harvest when ground spot is light
orange/forced slip

Problem with skin appearance in some
years

Personal Sized Mini Melons

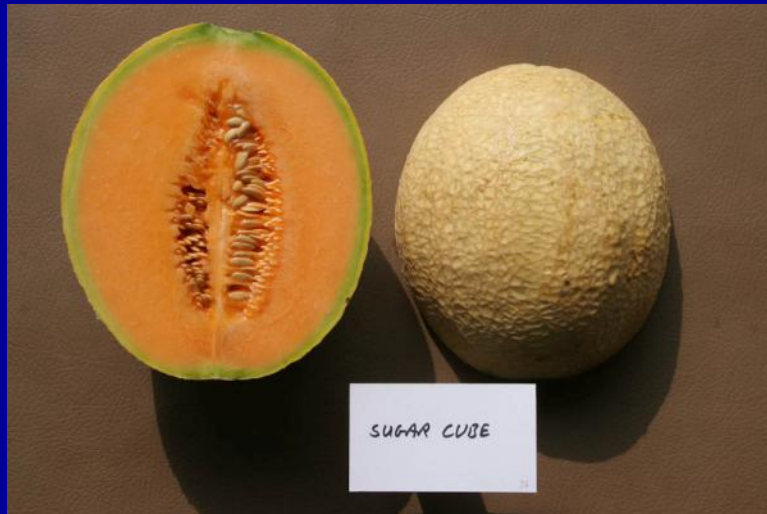
Cultivar (Seed Co.)	Days to harvest	Yield (cwt/A)	Avg. wt. (lbs)	Culls (%)	Flavor *
Lil' Loupe (Rupp & Harris)	76	437	2.3	0	4.2
Sugar Cube (Rupp)	69-81	489	2.9	1	4.2
Tasty Bites (Rupp) (Johnny's)	75-80	540	2.8	1	4.6
Mini Musketeers (Rupp)	75-80	457	1.6	2	4.4

* 1 = poor 5= excellent

Personal Sized Mini Cantaloupes



- Lil' Loupe
- Evaluated 2008 & 2010
- Excellent smooth, firm flesh
- Very nice
- 13.3% SS



- Sugar Cube
- Evaluated 2010
- Harvest at full slip
- Firm melting flesh
- Very good disease resistance
- Flavor variable
- 13.2% SS

Personal Sized Mini Melons



- Tasty Bites
- Evaluated 2010
- Harvest at slip
- Crisp flesh
- Nice flavor and aftertaste
- 13.7% SS



- Mini Musketeers, honeydew
- Evaluated 2010
- Harvest when cream colored and waxy with radial checking, before slip
- Crisp flesh, 14.8% SS
- Some light netting
- Some fruit split

Beet Variety Evaluation, 2009



University of Kentucky

John Strang, Amy Lentz, Chris Smigell, Pam Sigler, Kenny Seebold, Darrell Slone
and John Snyder

Red	Yellow	White	Processing
Solo	Touchstone Gold	Blankoma	Taunus
Excalibur	Burpee Golden		Cylindra
Merlin	Golden Beet		
Red Ace			
Kestrel			
Red Titan			
Red Cloud			
Ruby Queen			
Eagle			
Detroit Supreme			
Warrior			
Bull's Blood			
Chiogga			
Detroit Dark Red			
Early Wonder			
Moneta			
Red Heart			

Beet Variety Evaluation

- Planted May 29, 2009
- 100 seeds per 20 ft plot
- 22 inches between rows
- 50 lbs N/acre
- No fungicides, insecticides, or herbicides used



Beet Variety Evaluation

- Uniformity of size
- Uniformity of shape
- Exterior Appearance
- Soluble Solids
- Raw Flavor
- Disease rating



Cooked Beet Variety Evaluation

- Roots
 - Roasted, 400° F , 45 min
- Greens
 - Sauteed ½ tsp olive oil
 - Added ½ C water
 - Simmered until tender



Beet Variety Evaluation



Highest overall ranking in trial for all characteristics



Highest ranking for appearance and flavor of cooked greens

Beet Variety Evaluation

Best overall for appearance and flavor of cooked root and greens



'Merlin'



'Red Ace'



'Kestrel'



'Detroit Supreme'

Beet Variety Evaluation

Highest score for roasted root appearance and flavor



‘Excalibur’



‘Red Titan’

Beet Variety Evaluation

Best processing or cylindrical variety



Taunus

Best Tasting - Raw

- Solo
- Excalibur
- Merlin
- Red Ace
- Kestrel
- Red Cloud



Solo

Beet Variety Evaluation



‘Blankoma’ ‘Touchstone Gold’ ‘Golden Beet’ ‘Burpee Golden’

Beet Variety Evaluation



Attractive red and white zoning
New Var. - Chioggia Guardsmark

Chioggia

Blankoma



Beet Disease Evaluation



↑ Cercospora Leaf Spot

Lowest ratings:

Golden beets, Blankoma,
Bulls Blood, Chioggia,
Detroit Supreme, Taunus,
Cylindra and Early Wonder

Highest Pseudomonas infection
ratings:

Golden beets, Blankoma,
Chioggia, Taunus and Moneta

↓ Pseudomonas Bacterial Leaf Spot



Beet Antioxidant Analyses



- Doug Archbold, Sutapa Roy, Tim Woods, Tim Coolong, Amy Lentz, Chris Smigell and John Snyder



Sample Preparation for Betalain Analysis



Three roots
sampled for each
cultivar
Samples held at -20°F
until analyzed



Beet Cross Sections



Cultivar	Beta-cyanins ¹	Beta-xanthins ¹	Cultivar	Beta-cyanins ¹	Beta-xanthins ¹
Detroit Supreme	5.7	2.8	Red Titan*	3.3	2.1
Moneta	5.3	3.1	Excalibur*	3.1	2.2
Red Cloud	4.9	2.6	Kestrel*	2.9	1.8
Taunus	4.6	2.9	Detroit Dark Red	2.7	1.5
Red Heart	4.2	2.5	Red Ace*	2.6	1.4
Warrior	4.2	2.5	Bulls Blood	1.9	0.9
Cylindra	4.1	2.0	Chioggia	0.4	0.3
Solo*	4.0	2.2	Touchstone Gold	0.3	0.4
Early Wonder	3.9	2.3	Burpee Golden	0.3	0.4
Eagle	3.8	2.3	Blankoma	0.3	0.3
Ruby Queen*	3.7	2.4	Golden Beet	0.2	0.3
Merlin	3.3	2.0			
Fishers LSD (P≤0.05)	3.1	1.6		3.1	1.6

¹(mg/g DW) *Best Tasting

2013 Spring Red and Savoy Cabbage Variety Trial

- UK Hort Research Farm, Lexington
- John Strang, John Snyder, Chris Smigell, Lucas Hanks

Seeding date	12 February
Transplanting date	16 April
Harvest dates	2 July – 21 August
Plant spacing	1 foot
Row spacing	3 feet
13 Red, 8 Savoy varieties, 4 replications	

- ProMix BX medium
- 72-cell trays
- Water daily



Pre-planting

- Dacthal (14 lb/A) and Devrinol (4 lb/A) herbicides were pre-plant incorporated
- Goal (2 pt/A) herbicide applied to soil surface before planting
- 60 lbs. each of N, P, K applied as 19-19-19, and tilled in

- Planted in bare ground, no raised bed
- Trickle irrigation
- Weekly fertigations
- Coragen, Danitol, Brigade, Mustang Max insecticides
- No fungicides





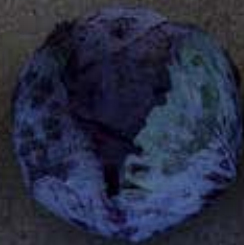
RUBY
PERFECTION



INTEGRAL



SUMMER RED 90



SCARLET KING



ALL SEASONS
RED



RONDALE



PRIMO



ROSSO



AZURRO



CAIRO



RED DIAMOND



RED JEWEL



SUMMER RED 80

Results – red varieties - Ranked by Yield

Red Variety	Source	Marketable Yield (lb / A)	Avg. Head Wt. (lbs)	Core Length (in.)
Rio Grande Red	Siegers	62,900 a*	4.0	3.8
Scarlet King	Siegers	62,100 a	3.9	3.6
Super Red 80	Johnny's	54,700 ab	3.3	3.0
Rondale	Stokes	50,700 abc	3.3	2.9
Red Dynasty	Siegers, Seminis	47,800 bcd	3.4	3.8

*Numbers followed by same letter are not significantly different

Results – red varieties - ranked by yield

Red Variety	Source	Marketable Yield (lb / A)	Avg. Head Wt. (lbs)	Core Length (in.)
Kosaro	Seedway	43,700 bcd*	2.9	2.7
Azurro	Seedway	43,300 bcd	3.1	3.1
Integro	Johnny's	41,200 bcd	2.8	3.3
Cairo	Seedway	39,800 cde	2.8	2.5
Primero	Seedway	36,600 cde	2.3	3.0

*Numbers followed by same letter are not significantly different

Results – red varieties - ranked by yield

Red Variety	Source	Marketable Yield (lb / A)	Avg. Head Wt. (lbs)	Core Length (in.)
Super Red 90	Clifton	35,100 de*	2.8	4.0
Red Jewel	Clifton, Sakata	34,360 de	3.1	2.8
Ruby Perfection	Johnny's	26,400 e	2.4	3.7

*Numbers followed by same letter are not significantly different



ALCOSA

CLARISSA

SAVOY ACE
IMPROVED

SAVOY BLUE

MILETTA

Results – savoy varieties - ranked by yield

Savoy Variety	Source	Marketable Yield (lb / A)	Avg. Head Wt. (lbs)	Core Length (in.)
Savoy King	Clifton	70,400 a*	4.5	3.9
Savoy Ace Improved	Rupp	58,800 ab	4.3	4.0
Savoy Blue	Stokes	56,800 ab	4.5	3.1
Clarissa	Seedway	51,200 ab	2.8	3.1
Alcosa	Seedway, Johnny's	46,500 ab	3.2	3.3

*Numbers followed by same letter are not significantly different

Results – savoy varieties - ranked by yield

Savoy Variety	Source	Marketable Yield (lb / A)	Avg. Head Wt. (lbs)	Core Length (in.)
Primavoy	Stokes	45,300 ab*	3.4	5.0
Miletta	Stokes	45,100 ab	3.0	3.3
Taler	Stokes	38,500 b	2.8	5.1

*Numbers followed by same letter are not significantly different

Consumer Evaluations*

Red varieties prepared as

- chopped & raw
- chopped & steamed
- 1-inch thick slices roasted

Savoy varieties prepared as chopped & raw

Panelists rated the preparations for

- Visual appeal
- flavor
- texture

*Pam Sigler, Elizabeth Buckner, Family & Consumer Sciences

Consumers Evaluating





Raw

Steamed

Roasted

Roasted



Placed in a single layer on a baking sheet covered with parchment paper
and coated with 1 Tbsp olive oil

Cabbage brushed with olive oil and roasted in a 400°F oven for 42 minutes

Results – red varieties - ranked by appearance

Red Variety	Appearance Raw	Flavor Raw	Flavor Steamed	Flavor Roasted
Super Red 80	4.4	2.9	3.3	3.0
Cairo	4.3	3.5	3.7	3.2
Rio Grande Red	4.1	4.1	3.8	4.5
Scarlet King	4.1	4.1	4.0	4.2
Red Jewel	4.1	3.6	3.5	3.2
Ratings (1-5): 1 = poor 3 = average 5 = excellent				

Results – red varieties - ranked by appearance

Red Variety	Appearance Raw	Flavor Raw	Flavor Steamed	Flavor Roasted
Kosaro	4.0	3.6	2.8	3.3
Integro	4.0	3.1	3.2	3.0
Rondale	4.0	4.1	4.0	4.3
Azurro	3.9	3.9	2.8	2.8
Ratings (1-5): 1 = poor 3 = average 5 = excellent				

Results – red varieties - ranked by appearance

Red Variety	Appearance Raw	Flavor Raw	Flavor Steamed	Flavor Roasted
Red Dynasty	3.8	3.4	2.5	2.5
Super Red 90	3.8	2.9	2.7	3.0
Ruby Perfection	3.1	3.6	3.7	2.5
Primero	2.8	3.3	2.5	3.3
Ratings (1-5): 1 = poor 3 = average 5 = excellent				

Core browning



Best Reds – Scarlet King



Scarlet King – mild, crunchy, slightly sweet, attractive
tasted good raw, steamed, roasted

Best Reds - Kosaro



Kosaro – mild, crunchy, slightly sweet, dark purple

Best Reds – Super Red 80



Super Red 80 – mild, crunchy, sweet, attractive

Best Reds - Rondale



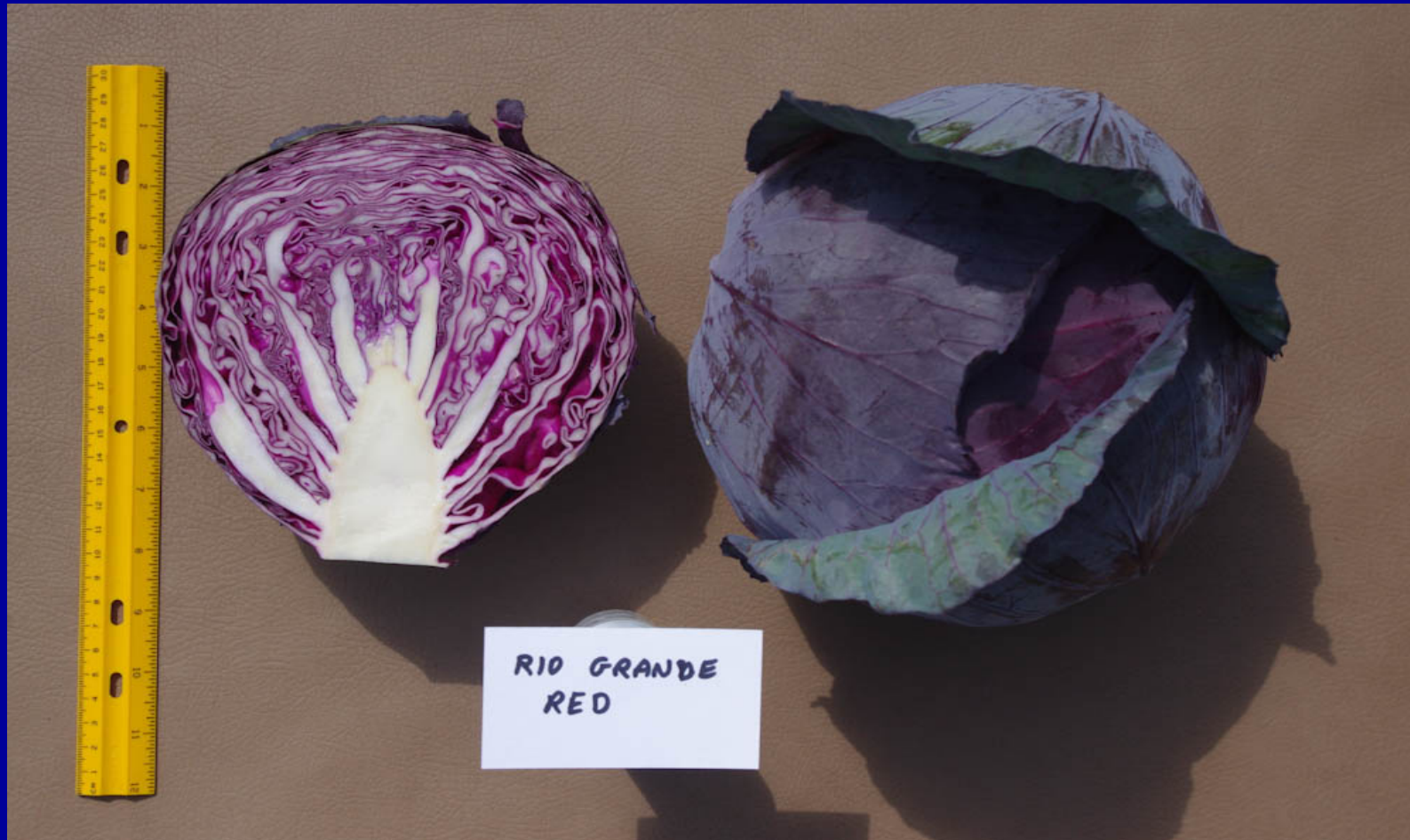
Rondale – mild, crunchy, slightly sweet
tasted good raw, steamed, roasted
very good texture when steamed, roasted
some with core browning

Best Reds – Red Dynasty



Red Dynasty – mild, crunchy, sweet

Best Reds – Rio Grande Red



Rio Grande Red – mild, crunchy, slightly sweet
tasted good raw, steamed, roasted
some with core browning

Results – savoy - ranked by appearance

Savoy Variety	Appearance Raw	Flavor Raw	Texture Raw
Savoy Blue	4.5	4.1	3.8
Savoy King	4.1	3.7	3.7
Clarissa	4.0	3.2	3.5
Miletta	3.8	2.7	3.6
Ratings (1-5): 1 = poor 3 = average 5 = excellent			

Results – savoy - ranked by appearance

Savoy Variety	Appearance Raw	Flavor Raw	Texture Raw
Alcosa	3.5	3.5	3.8
Taler	3.5	2.3	2.9
Primavoy	3.4	2.9	3.6
Savoy Ace Improved	3.1	3.8	3.9
Ratings (1-5): 1 = poor 3 = average 5 = excellent			

Best Savoys - Miletta



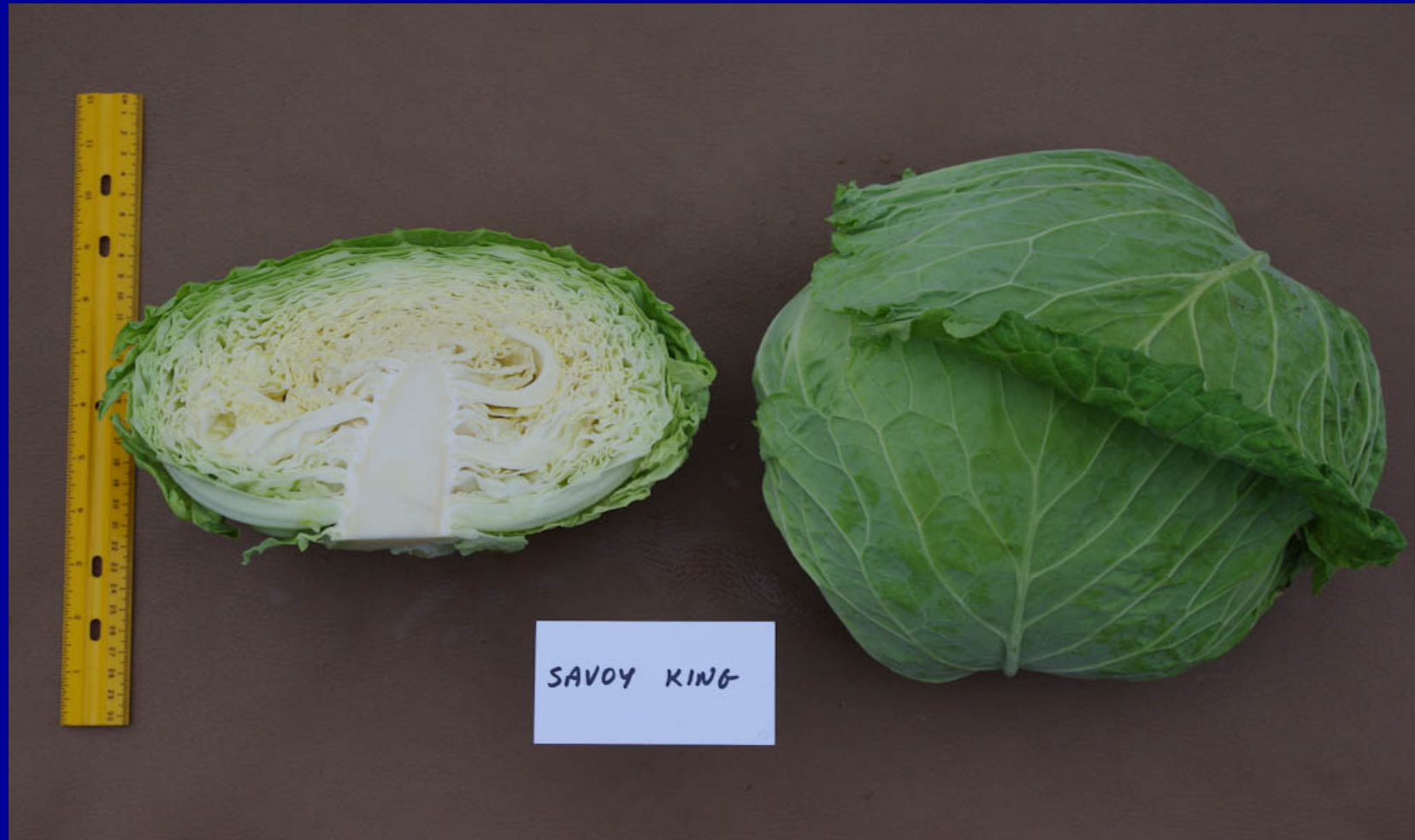
Miletta – mild, crunchy, slightly sweet
very attractive interior

Best Savoys – Savoy Ace Improved



Savoy Ace Improved – mild, crunchy, not sweet
very attractive interior

Best Savoys – Savoy King



Savoy King – mild, not sweet
highest yielding; very large heads

Best Savoys – Savoy Blue



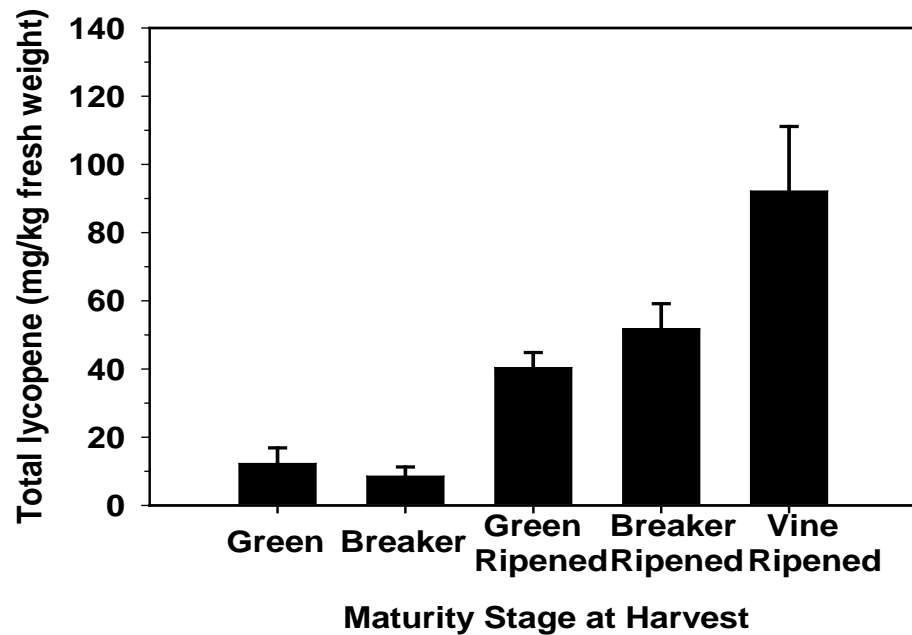
Savoy Blue – mild, slightly sweet, best tasting Savoy
very attractive - Tip burn

Best Savoys - Clarissa



Clarissa – crunchy, slightly sweet
very attractive, small heads

Mt. Fresh Tomato Lycopene Content



Mt. Fresh Tomato Phytochemical and Antioxidant Values

Stage	Total Lycopene (mg/kg FW)	Total Phenolics ¹	Antioxidant Activity FRAP ²
Green	12.3	19.5	0.24
Breaker	8.5	28.2	0.61
Green Ripened	40.4	39.1	0.85
Breaker Ripened	51.8	40.4	0.82
Vine Ripened	92.1	35.9	0.87
LSD (P=0.05)	30.3	7.0	0.37

¹Total phenolics expressed as mg chlorogenic acid/100 g fresh weight.

²FRAP total antioxidant activity expressed as umol ascorbic acid equivalents/g fresh weight.

