Pre-Harvest Factors that Affect Quality of Melons:
- Calcium
- UV Reflective Mulch

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SUMMARY
Overview General Information

Fall 2003 Experience: Yuma
- Calcium
- UV Reflective Mulch

MUSKMELON QUALITY
- Firms, well netted, well formed
- USDA grade 1: 8% Sugar (10 Brix best)
- ~15 days shelf life at 36-41°F.
- 4.4-2.6 lbs
- Strong orange for most muskmelon cv.
- High levels of Vit. C and B carotene

QUALITY AT HARVEST
- Last two weeks are critical
- Good leaf condition (no disease)
- Good supply of Mg
- No excessive irrigation or rainfall
- Harvested at one-half to full slip

QUALITY AT HARVEST
CALCIUM: BACKGROUND
- Work of Gene Lester
- Four applications AA Chelate or Mannitol Gcomplex
- Honeydew: Fruit firmness increased, same Brix
- Cantaloupes: Same firmness and Brix. Firmness was higher during storage
CALCIUM FACTOR
- Essential in cell division and elongation
- Fruit Growth!
- Primary building block for cell wall
- Exchange balance of other nutrients
- Decrease permeability to Sodium

1st Study: Yuma-Fall 03
- Four applications after flowering
- Quality: At harvest, fresh cuts

Effect of Calcium on Quality

Treatments
- CaCl₂: 0, 30, 60 mM
- (CaNO₃)₂: 0, 30, 60 mM
- NaCl: 0, 50, 100 mM (solution)
- Nutri-Cal
- CAN-17

Effect of Calcium Application on Soluble Solids---Gold Express

Effect of Calcium Application on Diameter and Resistance to Penetration---Gold Express

Effect of Calcium Application on Yield---Gold Express

No differences*
**Effect of Calcium Application on Juice Leakage of Fresh Cuts, 5 d after processing**

- Gold Express

![Graph showing juice leakage for different calcium applications and NaCl concentrations](image)

**FUTURE WORK**

- Environment Effect
- Other Interactions:
  - Titanium
  - Humic Acid

**More on Fresh Cuts and other melons**

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**UV REFLECTIVE MULCH**

- Effect on No. of Fruits

![Photos of UV reflective mulch in a field](image)

**UV REFLECTIVE MULCH: Effect on No. of Fruits**

- Reflective Control: No. Fruits / 10 plants
  - Reflective: 22
  - Control: 16

- LSD = 0.998

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**OTHER WORKS**

- Hymenopteran insects were found more in reflective mulch (Pereira et al., 2000).

- Higher CO₂ fixation (Ito et al., 1996)

- 100% increase in cantaloupe yield (Stapleton and Summer, 2000).
The effect of Reflective Mulching on yield

Weight (Lbs/10 plants)

LSD = 3.32

Mulch Control

The effect of Reflective Mulching on fruit weight

Weight (Lbs/fruit)

LSD = 0.15

Mulch Control

The effect of Jasmonic acid applied before transplanting on early flowering

No. Flowers after 9 d transpl. (in 10 plants)

LSD = 0.15

Jasmonic No-Jasmonic

Mulch No-Mulch

Confirm 1st year results

Evaluate effect on shelf life

Evaluate water usage

Western Vegetable Quality

http://cals.arizona.edu/crops/vegetables/

WestVeg News: Electronic Newsletter

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