Pre-Harvest Factors that Affect Quality of Melons:

- Calcium
- UV Reflective Mulch

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SUMMARY

Overview General Information

Fall 2003 Experience: Yuma

Caclium

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
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
CALCIUM: BACKGROUND

Work of Gene Lester

Four applications AA-Ca chelate or Mannitol-Ca complex

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

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Concentration (mM)</th>
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<tbody>
<tr>
<td>CaCl$_2$</td>
<td>0, 30, 60</td>
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<tr>
<td>(CaNo$_3$)$_2$</td>
<td>0, 30, 60</td>
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<tr>
<td>NaCl</td>
<td>0, 50, 100 (solution)</td>
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<tr>
<td>Nutri-Cal</td>
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<td>CAN-17</td>
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</table>
Effect of Calcium Application on Soluble Solids --- Gold Express
Effect of Calcium Application on Diameter and Resistance to Penetration ——cv. Gold Express

No differences*
Effect of Calcium Application on Yield---Gold Express
Effect of Calcium Application on Juice Leakage of Fresh Cuts, 5 d after processing---Gold Express
FUTURE WORK

Environment Effect

Other Interactions:

Titanium

Humic Acid

More on Fresh Cuts and other melons
UV REFLECTIVE MULCH:

Effect on No. of Fruits
Effect of UV Reflective Mulch on Number of Fruits in Muskmelon Plants

No. Fruits / 10 plants

LSD = 0.998

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

Higher CO$_2$ fixation (Ito et al., 1996)

100% increase in cantaloupe yield (Stapleton and Summer, 2000).
UV REFLECTIVE MULCH

The effect of Reflective Mulching on yield

![Graph showing the weight of Mulch and Control with LSD = 3.32.](image-url)
UV REFLECTIVE MULCH

The effect of Reflective Mulching on fruit weight

LSD = 0.15
UV REFLECTIVE MULCH

The effect of Jasmonic acid applied before transplanting on early flowering
FUTURE WORK

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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