

Pre-Harvest Factors that Affect Quality of Melons:

Calcium

UV Reflective Mulch



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Western Vegetable Quality

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 36-40°F.

4.4-26 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 Gchelate 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

CaCl_2 : 0, 30, 60 mM

$(\text{CaNO}_3)_2$: 0, 30, 60 mM

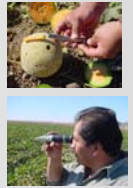
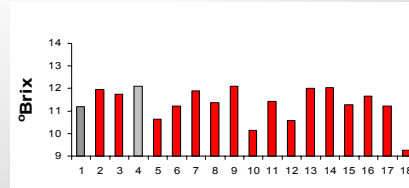
NaCl: 0, 50, 100 mM (solution)

Nutri-Cal

CAN-17



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



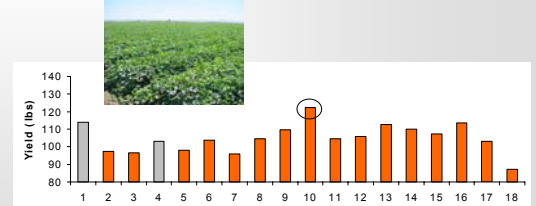
Effect of Calcium Application on Diameter and Resistance to Penetration--- v. Gold Express



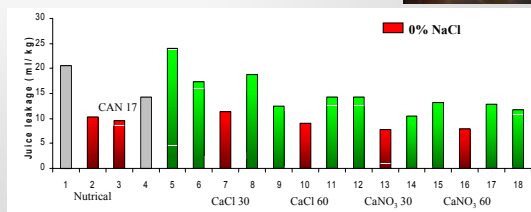
No differences*



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

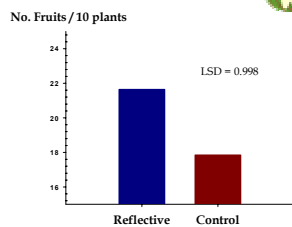


UV REFLECTIVE MULCH:

Effect on No. of Fruits



Effect of UV Reflective Mulch on Number of Fruits in Muskmelon Plants



OTHER WORKS



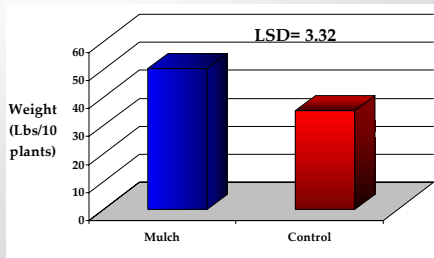
Hymenopteran insects were found more in reflective mulch (Pereira et al., 2000).

Higher CO₂ fixation (Ito et al., 1996)

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

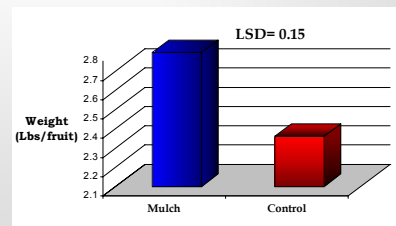
UV REFLECTIVE MULCH

The effect of Reflective Mulching on yield



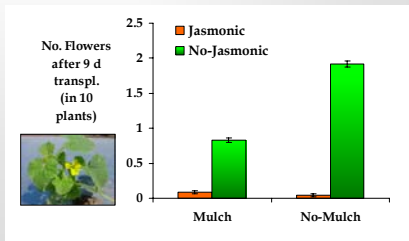
UV REFLECTIVE MULCH

The effect of Reflective Mulching on fruit weight



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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