CalFormate & OsmoShield - Citrus
Trial Report

CalFormate, High concentration calcium formulation based on calcium formate. The small size of calcium formate particle allows a quick penetration of the fruit skin.

Features

- Rich source of highly assimilable calcium
- Rapid uptake and translocation
- Small molecule compared to other calcium molecules
- Natural Osmoregulator to increase transport within the plant and mitigate stress
- Synergistic Boron

OsmoShield, 97% natural Glycine Betaine formulation providing an osmoregulation effect in the fruit cell. Counteracts Reactive Oxygen Species (ROS) during stress, and maintains calcium in cell walls for improved fruit firmness and reduced storage loss.

Features

- Glycine Betaine 97% from natural origin
- Increases the activity of antioxidant enzymes (↓ ROS)
- Maintains the integrity of the cell wall
- Has a positive effect on enzyme activity
- Decreases fruit dehydration and loss of firmness
- Osmoregulator that enhances tolerance to abiotic stress
- Enhances photosynthetic efficiency

ALWAYS READ AND FOLLOW LABEL DIRECTIONS

Does the pre-harvest application of CalFormate and Osmoshield to citrus provide post-harvest benefits?

METHODS

- Treatment with grower standard equipment and commercial maturity
- 2 rows per treatment with 2 buffer rows
- Harvest 6 fruit/tree, 5 trees/replicate, 3 replicates/treatment, Treated and Control (n=180)
- Test Timings: 50% pre-storage / 50% post storage at 0.5-1°C and after unrefrigerated transport (~50+10days)
- Tests: Weight, Skin Strength (penetrometer and sleeve), Total Soluble Solids (TSS), Titratable Acidicty (TA)
- Data Analysis t-test of differences with SPSS at α = .05

FINDINGS

CalFormate and Osmoshield applied to citrus in field was found to provide post-harvest benefits.
Statistical improvements were found over the storage period in treated fruit compared to untreated fruit, such as

- Positive changes in Brix:Acid Ratios (BAR) of between 8.7 and 27.7%
- Reduced loss of Titratable Acidity (TA) of between 1.7- and 15.85%
- Improved skin firmness of between 2.89 and 22.5%
- Positive trends were also noted:
  - Reduced weight loss of approx. 7%

RECOMMENDATION:
For maximum post harvest benefits to be achieved, application should commence at the very beginning of colour change.

Measure	Trentham Nadorcott	Nangiloc Nadorcott	Trentham Ippolito	Yelta Ippolito	Nangiloc Summer Gold
Spray Timing	✓	X	✓	X	✓
Brix: Acid Ratio (BAR)	+	NA	+	+*	+*
Total Soluble Solids (TSS)	+	-	-	-	+*
Titratable Acidity (TA)	+*	+	+	+*	+
Weight Change	+	-*	+	+*	-
Skin Strength	+	+ -*	+	+*	+*

✓ = On Time X = Late - = Negative Trend + = Positive Trend */*= Significant

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