

Kiplant ECKOSIL



**Bioavailable Orthosilicic Acid for Sunburn
Mitigation and Abiotic Stress Resilience in Mango**

**SAMGA RESEARCH SYMPOSIUM
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The Challenge: Abiotic Stress in Mango



Key Production Challenges

- High fruit surface temperatures and heat stress
- Periodic drought and water deficit
- Need for tools that improve plant resilience
- Increasing focus on sustainable, data-driven solutions



The Silicon Opportunity

- Silicon is well-established for improving abiotic stress tolerance
- Not all silicon products deliver the same level of performance
- Bioavailability, mobility, and formulation stability are critical success factors

SILICA (Si)

- Second most abundant element in the earth's crust
- Already present in the soil – insoluble silicate minerals.
 - Through processes in the soil – broken down & converted into a soluble form → Silicic Acid.
 - Silicic Acid forms → Mono, Di, Tri.

Monosilicic Acid → most preferred & most common form of plant available silica.

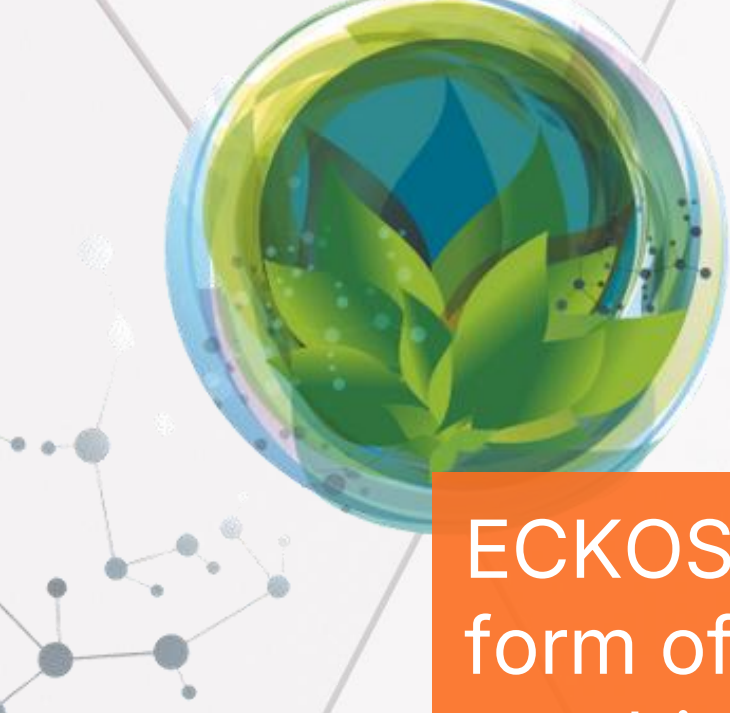


What Role Does Silica (Si) Play In Agriculture And Ultimately In Plants?

1. Structural Support
2. Disease Resistance
3. Stress Tolerance
4. Nutrient Uptake

Ultimately – it helps plants handle stress, improve production & quality





ECKOSIL

Advanced Silicate Technology

ECKOSIL delivers stabilized monomeric orthosilicic acid (H_4SiO_4) — the only form of silicon that plants can efficiently uptake and translocate internally — combined with chelated Fe, Zn, and Mo.



COMPOSITION

COMPONENT	CONTENT
Silicon (Si)	13,86 g/L
Silicon Dioxide (SiO2)	29,5 g/L
pH	1,5



TECHNOLOGY

Asfert Global's proprietary stabilization technology keeps silicon in its monomeric orthosilicic acid form. This prevents premature polymerization and ensures superior plant availability compared to conventional potassium silicate products.

ECKOSIL: Scientific Foundation

Not all silicon products are equal. The form of silicon determines uptake, mobility, and effectiveness



Structural Reinforcement

Orthosilicic acid deposits in cell walls and cuticle as silica phytoliths, increasing mechanical strength and creating physical barriers. This requires good internal mobility of the silicon source.



Water & Nutrient Regulation

Improves uptake and transport of Ca, P, K, Mg while reducing excessive transpiration. **Monomeric forms show better systemic movement and physiological impact.**



Physiological Enhancement

Supports antioxidant systems and stress gene expression. Research shows superior results when silicon is supplied in stable, bioavailable monomeric form.



An independent trial conducted by Experico and presented at the SAAGA Research Symposium provided results indicating ECKOSIL improves the uptake of Ca and B.





ECKOSIL: STRUCTURAL REINFORCEMENT



Orthosilicic acid
enters the cells



Deposited into cell
walls &
intercellular
spaces



Forms a matrix



Helps balance
rigidity of cells



Assists with
defenses against
mechanical
stresses

Turgor
pressure

Growth

Nutrient
transport

Fruit
firmness

Fruit
weight

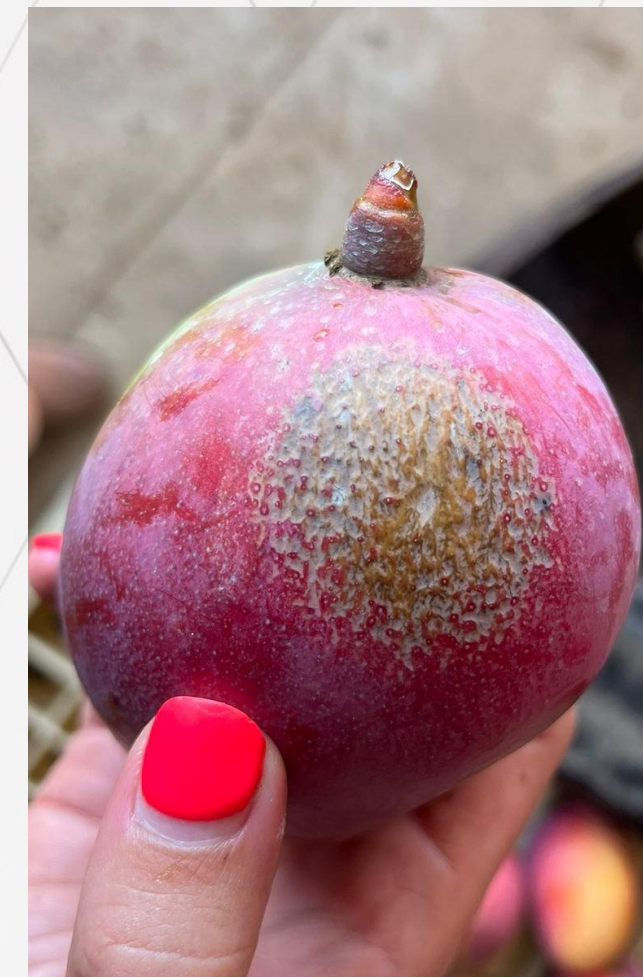
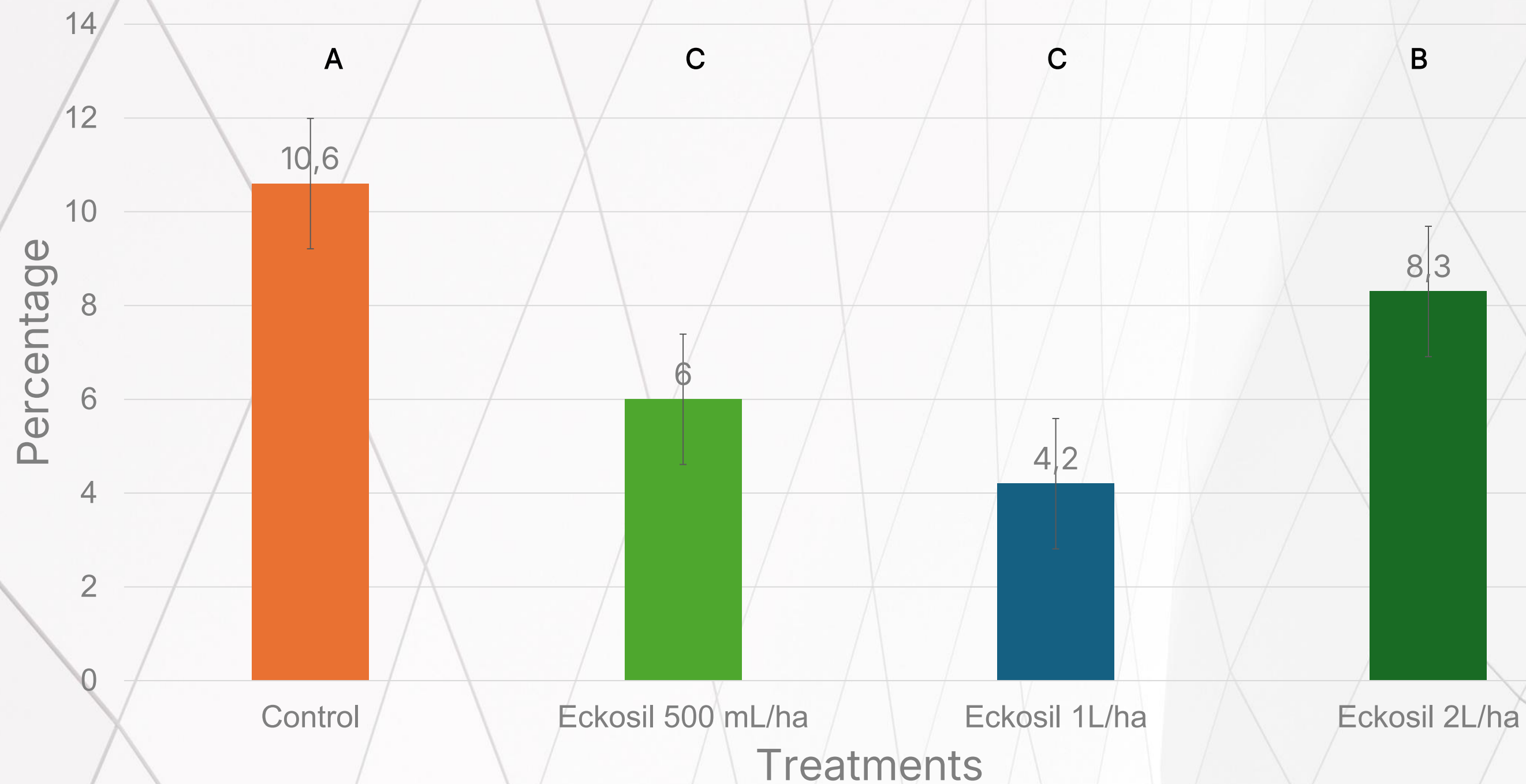
Fruit
quality

Shape

Rigidity

ECKOSIL : SUNBURN MITIGATION

Eckosil Mango Sunburn - Severe Sunburn Rating



ECKOSIL INCLUSION IN A SPRAY PROGRAM



Physiological Optimization

- Enhanced uptake and internal transport of key nutrients (Ca, P, K, Mg)
- Optimized transpiration and water-use efficiency
- Supports antioxidant systems and stress-responsive physiology

Fruit quality

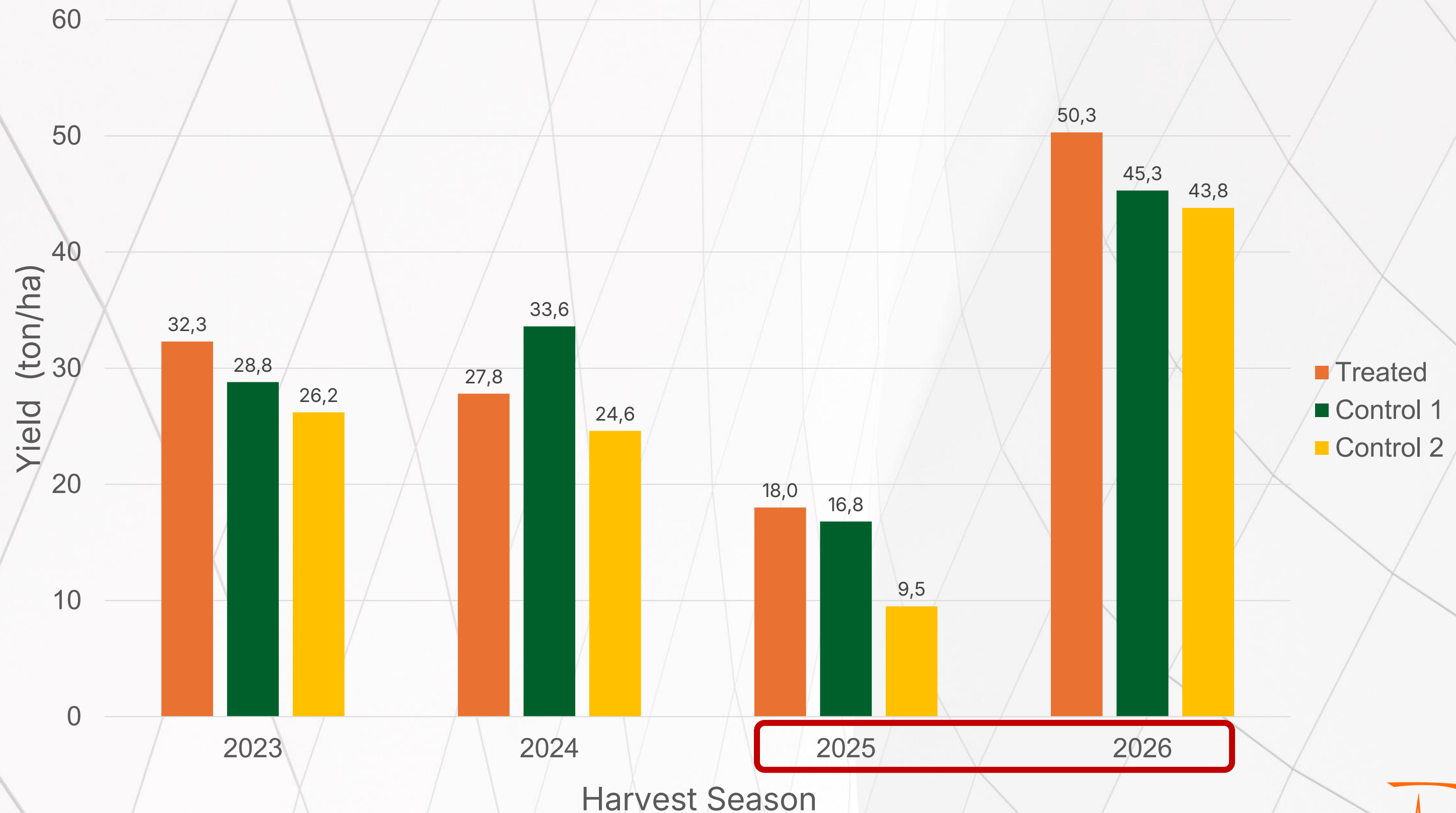


Yield



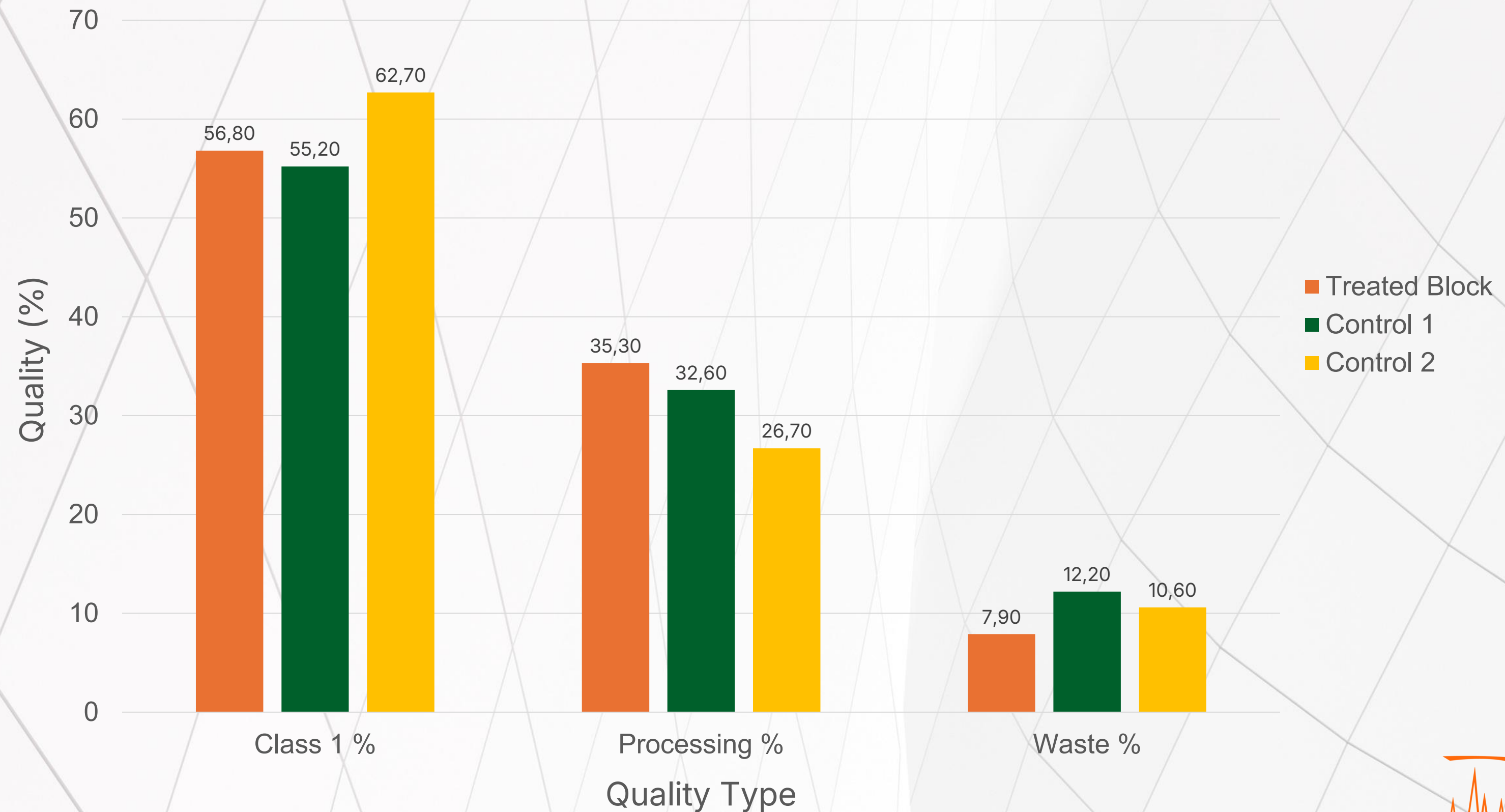
ECKOSIL IN A SPRAY PROGRAM

Yield (ton/ha) by Season



ECKOSIL IN A SPRAY PROGRAM

2026 Post HarvestData



ECKOSIL

Conclusion & Key Takeaways

1. Uses stabilized monomeric orthosilicic acid — the most bioavailable and mobile form of silicon — delivering both structural and physiological benefits.
2. It is highly efficient in terms of uptake efficiency and consistency.
3. Strong trial data shows meaningful improvements in stress resilience and fruit quality.
4. Zero visible residue, excellent tank-mix compatibility make it practical for South African mango production.

A premium silicate solution ready for integration in mango production programs.

The heartbeat
of Agriculture

Rooted in
Science

Thank You

