

Amorphous Silica – Viticulture and Drought Conditions.

Product Type: Certified Organic Soil Amendment

Core Ingredient: Amorphous Silica ($\text{SiO}_2 \cdot n\text{H}_2\text{O}$)

Application Method: Incorporated into soil under vine rows, through fertigation systems, or as a side-dress/topdress in new or existing vineyards

Target Benefit: Improved vine resilience, water and nutrient retention, and long-term soil health



Why Mineral Magic® in a Dry Season?

Drought or below-average rainfall stresses both young and mature vines, leading to reduced fruit set, smaller berries, and poor quality wine. Mineral Magic's unique properties help buffer against these challenges:

✓ **Water Retention & Efficiency**

- Holds up to 60% of its weight in plant-available water
- Acts like a soil sponge, reducing irrigation frequency
- Increases water-use efficiency in sandy and loamy soils

✓ **Nutrient Retention & Cation Exchange**

- High cation exchange capacity (CEC) improves retention of potassium, magnesium, calcium, and ammonium
- Reduces nutrient leaching—especially important under drip irrigation or in low-rainfall years

✔ Plant-Available Silicon (Si)

- Stimulates stronger vascular bundles, improving water uptake and translocation
- Increases photosynthesis efficiency and brix development
- Enhances pest and disease resistance through silica deposition (phytoliths) in cell walls

✔ Root Zone Health

- Encourages deeper root growth by loosening compacted soils
- Supports beneficial soil microbiology by maintaining a stable, oxygenated soil structure
- Buffers against salt accumulation, especially in vineyards relying on recycled or saline water

✔ Permanent Amendment

- One-time application provides long-term benefits without the need for reapplication
- Won't break down or wash away, unlike organic mulches or soft silicates

Observed Benefits in Viticulture

Vineyard Impact Area

Irrigation Efficiency

Fruit Quality

Canopy Health

Root Development

Soil Temperature
Buffering

Reported Outcome

Up to 30% reduction in water use

Higher brix, flavour intensity, and colour

Improved turgidity and reduced leaf scorching

Greater depth and density in the root zone

Cooler roots during extreme heat events

Application Recommendations

- **New Plantings:** Mix 1–2 kg per vine in the planting hole
- **Established Vines:** Apply 1000 kg/ha under vine rows or via incorporation
- **Drip Irrigation Support:** Apply in bands parallel to emitters for optimal uptake
- **Combine with Compost or Bio-Fertilisers:** For synergistic microbiome and nutrient benefits

Sustainability Benefits

- Certified Organic input
- Long-term soil health and carbon-conscious farming
- Supports WaterWise vineyard practices