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MBK Biochar Agronomic Framework – Vineyards

Application Rate, Mixing Instructions, and Soil Amendment Protocols

Why Biochar for Vineyards?

Biochar is a transformative input for vineyard soil health, water efficiency, and climate performance. For many growers, this may be your first time hearing about it. Biochar is created by heating plant matter in a low-oxygen environment, producing a highly porous, carbon-rich material that lives in the soil for centuries.

Vineyards benefit from biochar because:

- Vines have deep, long-term root systems, ideal for stable carbon enrichment
 - Many vineyards are in drought-prone or erosion-sensitive zones
 - Wine markets increasingly demand regenerative and traceable farming
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South Africa

- **Soil Fit:** Sandy-loam and erosion-prone coastal soils (e.g., Stellenbosch, Swartland)
 - **Biochar Use Case:** Reduces irrigation dependence, restores soil structure post-erosion, and aligns with regenerative viticulture goals
 - **Regulatory Link:** Supports B-BBEE climate incentives, GHG Protocol Scope 3 tracking, and South Africa's Carbon Tax offset eligibility
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What Biochar Can Do for Your Vines

- **Reduce irrigation needs** by up to 30–50% (improves moisture retention)
- **Cut fertilizer costs** (retains and slowly releases NPK near root zones)
- **Improve terroir expression** (supports microbial diversity and root development)

- **Strengthen ESG profile** through carbon-storing amendments traceable to third-party MRV systems.

Scientific Benefits (Field-Proven & Third-Party Verified)

Benefit	How It Works	Verified By
 Water savings	Porous structure holds water, reduces stress in dry climates	UC Davis (2022), Bordeaux AgroTech, SCS Global
 Nutrient retention	Reduces leaching, boosts fertilizer use efficiency	CREA (Italy), Wine Australia, DNV
 Microbial health	Hosts beneficial microbes, supports terroir soil expression	Verra Soil Protocols, Biochar Intl Network
 Soil structure	Enhances aeration, reduces compaction, and erosion	University of Lisbon, SCS Trials
 Carbon sequestration	Stores carbon >100 years, MRV-ready for Verra/Puro/Earth credits	IPCC, Gold Standard, DNV Assurance

Who This Is For

- Estate vineyards exporting to the EU, the U.S., or Japan
- Growers seeking organic, biodynamic, or regenerative claims
- Producers in drought or high-temperature regions

Application Guidelines (Per Acre)

Vineyard Type	MBK Biochar Rate	Frequency
Conventional (non-irrigated)	3–5 tons/acre	Every 4–5 years
Organic/Biodynamic	5–7 tons/acre	Every 3–4 years
High-efficiency/irrigated	2–4 tons/acre	Every 4 years

Mixing & Application

1. **Pre-Charge:** Mix biochar with compost or natural fertilizer for 10–14 days
2. **Incorporate:** Apply banded along rows or lightly till in shallow (6–8 inches)
3. **Moisture:** Apply on moist soil — ideal post-pruning or during compost application

Best Practices

- Combine with compost tea or worm castings for microbial synergy
 - Use in pre-plant, post-harvest, or rest cycle soil conditioning
 - Pair with cover crops (e.g., clover, rye) for structure and nitrogen retention
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MRV & Certification

- Submit a GPS-tagged application via the MBK Portal
 - Reference the MBK batch ID, timestamped with delivery
 - Optional: Upload soil test or visual documentation to support registry traceability
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MBK Support Includes:

- Vineyard-specific soil and climate calibration
- Access to Verra, Gold Standard, and Puro onboarding
- Third-party verification pathways via SCS Global and DNV

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Note: MBK, as the certified carbon credit issuer, retains exclusive rights to claim and sell credits. Buyers may not resell or double-claim these credits but may use verified soil data for Scope 3 ESG reporting, regenerative branding, and export compliance.