

Renew Biological Fertilizer in Vines between October 2009 and April 2011

Whole of block experiment at Meadowbank vineyard, Cambridge.

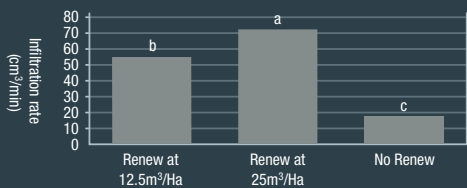
Renew biological fertilizer was applied to the soil surface in a 20cm wide strip underneath the dripper line.

Application of Renew biological fertilizer lead to:

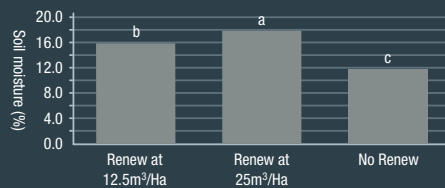
- ✓ Increased soil infiltration rates
- ✓ Improved soil water holding capacity
- ✓ Increased biological activity
- ✓ Increased soil depth
- ✓ Decreased soil bulk density
- ✓ Improved soil structure
- ✓ Improved nutrition
- ✓ Increased yield while maintaining quality

Renew biological fertilizer did not increase costs.

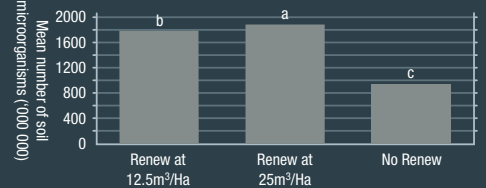
Mean water infiltration rate (cm³/min) between Feb & Dec 2010 (Isd = 6.17¹)



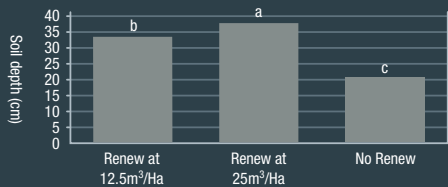
Mean soil moisture (%) at 10cm depth between Feb & Dec 2010 (Isd = 0.53¹)



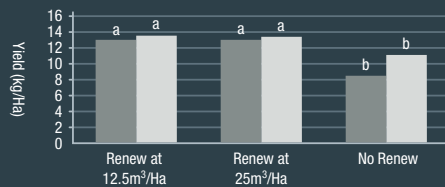
Mean number of soil microorganisms between Feb & Dec 2010 (log₁₀ Isd = 0.02^{1,2})



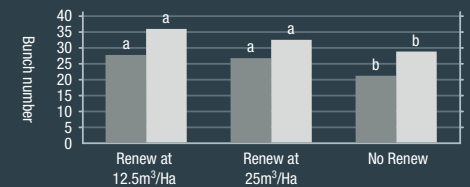
Mean soil depth at 4000kPa between Feb & Dec 2010 (Isd = 2.57¹)



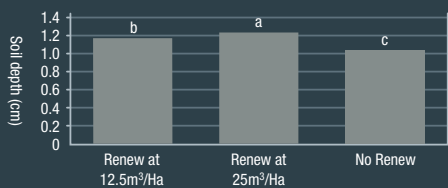
Mean yield at harvest in 2010 & 2011 (Isd = 0.85³ & 2011 (Isd = 1.63³))



Mean bunch number at harvest in 2010 (Isd = 1.81³) and 2011 (Isd = 2.68³)



Mean berry weight (g) in 2011 (Isd = 0.11³)



Soil analysis at harvest 2010

Analysis	Renew at 12.5m ³ /Ha	Renew at 25m ³ /Ha	Control
pH (1:5)	6.96	6.86	6.77
Total Organic Carbon (%)	1.52	1.50	1.11
Total Nitrogen (%)	0.09	0.13	0.06
Available Calcium (mg/kg)	1832	1718	1443
Available Magnesium (mg/kg)	334	329	285
Available Potassium (mg/kg)	164	132	79.9
Available Phosphorus (mg/kg)	141	105	88.9
Organic matter (%)	2.34	2.31	1.71
Cation exchange capacity meq/100g	13.6	13.4	11.8
Calcium (% CEC)	66.9	63.9	61.4
Magnesium (% CEC)	20.3	20.3	20.0
Potassium (% CEC)	3.10	2.50	1.70
Sodium (% CEC)	4.90	4.20	3.70
Al + H + other (% CEC)	4.50	9.10	13.0
Base saturation (%)	95.2	90.9	87.0
Soil bulk density (g/cm ³)	0.92	0.91	0.99

Mean Baume, pH and TA at harvest

Harvest	Measurement	Renew at 12.5m ³ /Ha	Renew at 25m ³ /Ha	Control
2010	Baume	12.7	12.3	13.2
	pH	3.24	3.23	3.26
	TA	7.73	7.90	7.67
2011	Baume	11.9	12.1	12.6
	pH	3.22	3.13	3.21
	TA	9.10	9.43	8.90

Petiole analysis at harvest 2010

Nutrient	Renew at 12.5m ³ /Ha	Renew at 25m ³ /Ha	Control
Nitrate (mg/kg)	115	107	82
Phosphorus (mg/kg)	452	477	634
Potassium (mg/kg)	1693	1744	2032
Calcium (mg/kg)	1187	1165	1289
Magnesium (mg/kg)	2749	2889	2890
Sodium (mg/kg)	218	200	239

¹ Data analyzed using Repeated Measures in Genstat for Windows 13th Edition.
² Data was log₁₀ transformed prior to analysis.
³ Data analyzed using General ANOVA in Genstat for Windows 13th Edition.

