

Supplement

Supplement 1

This appendix presents the textural characterization of the soil under both management practices studied.

- 5 **Table S1. Textural characterization of both treatments (OPM, optimized management; CM, conventional management).**

	Optimized (OPM)	Conventional (CM)
Sand (Coarse) (%)	5,3	7,6
Sand (Fine) (%)	28,4	26,1
Silt (%)	50,6	52,3
Clay (%)	15,6	14,0
Texture (USDA)	<i>Silt loam</i>	<i>Silt loam</i>

10 Supplement 2

The analysis of the soil microbial populations was carried out following (Preston-Mafham et al., 2002) from fresh samples, and by a study of the utilization patterns of different C sources with Biolog Ecoplates™ (Biolog, Hayward, CA, USA). The average well color development (AWCD) and the number of substrates used by the microbial community within the soil (NSU) were determined from the Ecoplates™.

15 Microbial biomass C (MBC) was measured fumigation as described by (Vance et al., 1987).

Finally, the organic C concentration of the samples was determined by wet oxidation with the Walkey and Black (1934) direct oxidation method.

Table S2. Biological indicators and organic C distribution among aggregate size-fractions. Mean \pm standard deviation of the mean (n=3).

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Soil structure indicators	Optimized (OPM)	Conventional (CM)
Biological indices		
NSU	22 \pm 0.58	17 \pm 2.08
AWCD	0.79 \pm 0.03	0.64 \pm 0.06
MBC (mg C/kg soil)	517.7 \pm 35.2	317.59 \pm 35.18
Organic carbon (mg C \cdot g⁻¹ soil)		
Magg, > 250 μ m	77.67 \pm 2.88	61.05 \pm 2.16
magg, 250 - 50 μ m	14.14 \pm 2.69	28.41 \pm 4.33
(s+c), < 50 μ m	3.33 \pm 0.79	5.51 \pm 1.26
cPOM, > 250 μ m	30.18 \pm 2.16	11.11 \pm 1.39
mMagg, 250 - 50 μ m	58.85 \pm 2.65	43.77 \pm 0.94
M(s+c), < 50 μ m	10.22 \pm 1.93	16.52 \pm 0.89