Fig. S1. Daily rainfall (mm), mean temperatures (°C) at the experimental site during the growing season (2017) (Source: ARPACAL).

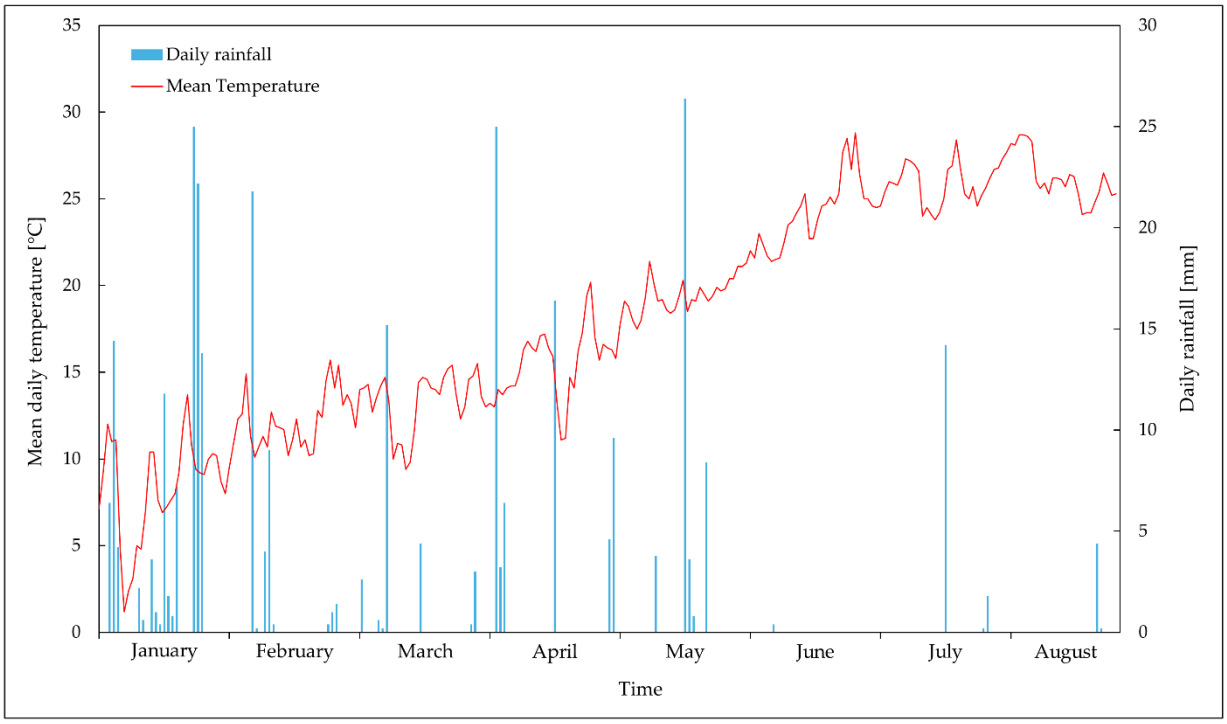

Fig. S2. Layout of the field experiment.

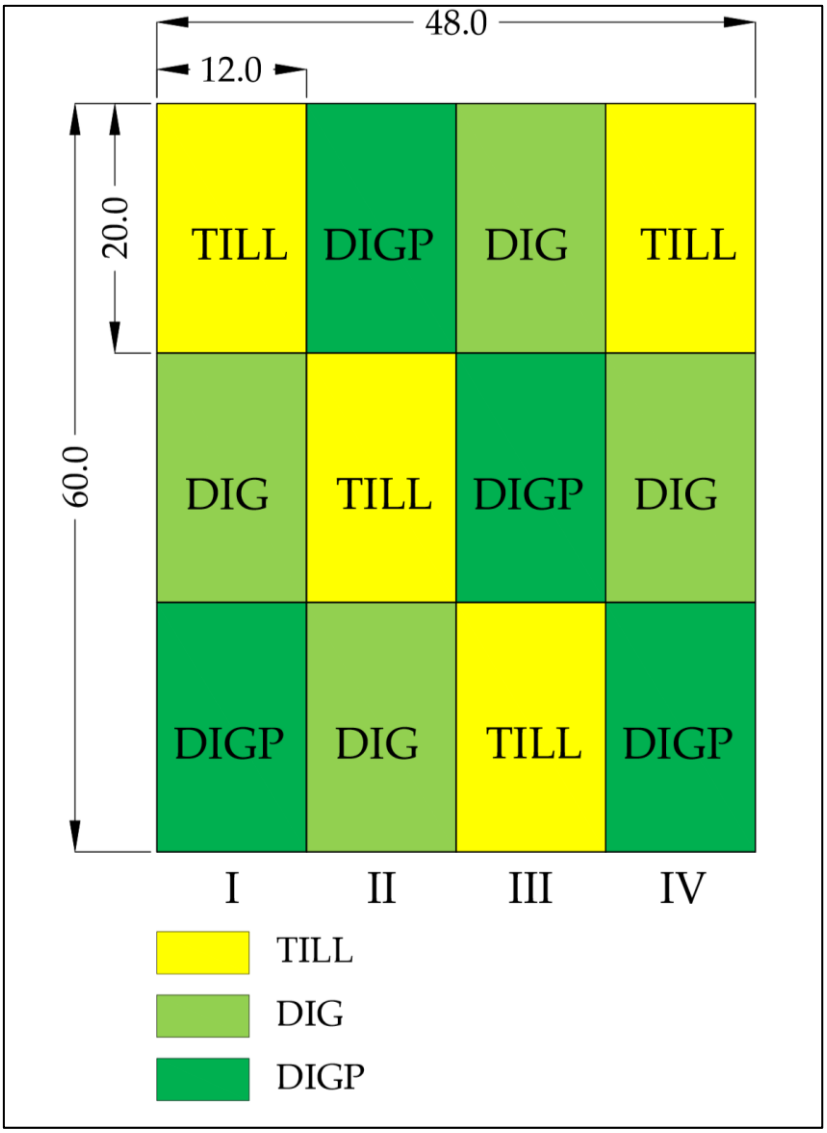

Table S1. Main physical and chemical properties of the olive orchard soil (0-20 cm soil layer). Values are means ± SD (*n* = *3*) expressed on a dry matter basis.

Soil variables	Value	Method	Instrument
Sand (%)	18.9	Pipette method [1]	Laboratory glassware
Silt (%)	36.1		
Clay (%)	45.0		
Bulk density (g cm^{-3})	1.48	Core method [2]	Inner cylinder, oven, balance
pH_{H2O}	5.44	Electrometric measurement [3]	pH meter WTW pH/0xi 340i (WTW, Weilheim, Germany)
$EC_{1:2}$ (dS m^{-1})	0.170	Electrode method [4]	EC meter WTW inoLab Cond7110 (WTW, Weilheim, Germany)
Total carbonates (g kg^{-1})	0.0	Calcimeter method [5]	Dietrich-Fruhling Calcimeter
CEC ($cmol_+$ kg^{-1})	51.9	Triethanolamine method [6]	Laboratory glassware
C_{org} (g kg^{-1})	21.30	Dry combustion [7] and Dumas methods [8]	LECO CN628 (LECO Corporation, MI, USA)
TN (g kg^{-1})	2.03		
P-Olsen (mg kg^{-1})	22.9	Olsen-Method [9]	FIAS 400 (PerkinElmer, Inc., Shelton, CT, USA)

[1] Gee, G.W.; Bauder, J.W. Particle-size Analysis. In *Methods of Soil Analysis: Part 1 Physical and Mineralogical Methods;* Klute A. Eds.; American Society of Agronomy, Inc. Soil Science of America, Inc.: Madison, Wisconsin, USA, 1986; Volume 4, pp. 383–411.

[2] Blake, G.R.; Hartge, K.H. Core method. In *Methods of Soil Analysis: Part 1 Physical and Mineralogical Methods;* Klute A. Eds.; American Society of Agronomy, Inc. Soil Science of America, Inc.: Madison, Wisconsin, USA, 1986; Volume 4, pp. 364–367.

[3] Thomas, G.W. Soil pH and Soil Acidity. In *Methods of Soil Analysis: Part 3 Chemical Methods*; Sparks, D.L., Page, A.L., Helmke, P.A., Loeppert, R.H., Soltanpour, P.N., Tabatabai, M.A., Johnston, C.T., Summer, M.E. Eds.; American Society of Agronomy, Inc. Soil Science of America, Inc.: Madison, Wisconsin, USA, 1996; Volume 4, pp. 475–490.

[4] Rhoades, J.D. Salinity: Electrical Conductivity and Total Dissolved Solids. In *Methods of Soil Analysis: Part 3 Chemical Methods*; Sparks, D.L., Page, A.L., Helmke, P.A., Loeppert, R.H., Soltanpour, P.N., Tabatabai, M.A., Johnston, C.T., Summer, M.E. Eds.; American Society of

Agronomy, Inc. Soil Science of America, Inc.: Madison, Wisconsin, USA, 1996; Volume 4, pp. 417–436.

[5] Loeppert, R.H.; Suarez, D.L. Carbonate and Gypsum. In *Methods of Soil Analysis: Part 3 Chemical Methods*; Sparks, D.L., Page, A.L., Helmke, P.A., Loeppert, R.H., Soltanpour, P.N., Tabatabai, M.A., Johnston, C.T., Summer, M.E. Eds.; American Society of Agronomy, Inc. Soil Science of America, Inc.: Madison, Wisconsin, USA, 1996; Volume 4, pp. 437–474.

[6] Sumner, M.E.; Miller, W.P. Cation Exchange Capacity and Exchange Coefficients. In *Methods of Soil Analysis: Part 3 Chemical Methods*; Sparks, D.L., Page, A.L., Helmke, P.A., Loeppert, R.H., Soltanpour, P.N., Tabatabai, M.A., Johnston, C.T., Summer, M.E. Eds.; American Society of Agronomy, Inc. Soil Science of America, Inc.: Madison, Wisconsin, USA, 1996; Volume 4, pp. 1201–1230.

[7] Nelson, D.W.; Sommers, L.E. Total Carbon, Organic Carbon, and Organic Matter. In *Methods of Soil Analysis: Part 3 Chemical Methods*; Sparks, D.L., Page, A.L., Helmke, P.A., Loeppert, R.H., Soltanpour, P.N., Tabatabai, M.A., Johnston, C.T., Summer, M.E. Eds.; American Society of Agronomy, Inc. Soil Science of America, Inc.: Madison, Wisconsin, USA, 1996; Volume 4, pp. 961–1010.

[8] Bremner, J.M. Nitrogen – Total. In *Methods of Soil Analysis: Part 3 Chemical Methods*; Sparks, D.L., Page, A.L., Helmke, P.A., Loeppert, R.H., Soltanpour, P.N., Tabatabai, M.A., Johnston, C.T., Summer, M.E. Eds.; American Society of Agronomy, Inc. Soil Science of America, Inc.: Madison, Wisconsin, USA, 1996; Volume 4, pp. 1085–1122.

[9] Olsen, S.R.; Cole, C.V.; Watandbe, F.; Dean, L. Estimation of Available Phosphorus in Soil by Extraction with sodium Bicarbonate. *J. Chem. Inf. Model.* **1954**, *53*, 1689–1699.