

Table S1. Main details of field experiments

MAT mean annual temperature °C, MAP mean annual rainfall (mm).

Aridity index (De Martonne 1926) was calculated with the formula Aridity index= MAP/(MAT+10). Aridity index classes were defined as Humid (30-60), Sub humid (20-30), Semiarid (15-20), Arid (5-15), and Strongly arid (< 5).

Soil texture group according to Soil Taxonomy. (C) coarse (sandy loam, sandy clay loam, loamy sand), (M) medium (clay loam, loam, silty clay loam, silt, silt loam), and (F) fine (clay, silt clay, sandy clay).

Irrigation treatment: see section 2.1 for details.

Reference	Region, province (year)	Aridity index class	Rainfall+irrigation mm	Marketable yield (Mg fresh weight ha ⁻¹)	Marketable yield (Mg dry weight ha ⁻¹)	Irrigation treatment	Soil texture group
Cantore et al. 2016	Apulia, Bari	semiarid	489.0	66.3	3.31	I100	M
Cantore et al. 2016	Apulia, Bari	semiarid	304.8	31.4	1.57	I50	M
Cantore et al. 2016	Apulia, Bari	semiarid	140.7	13.0	0.65	I0	M
Rinaldi et al. 2015	Apulia, Foggia	subhumid	771.6	120.1	6.80	ET125	F
Rinaldi et al. 2015	Apulia, Foggia	subhumid	675.6	119.6	6.30	ET100	F
Rinaldi et al. 2015	Apulia, Foggia	subhumid	575.6	97.5	5.68	ET75	F
Rinaldi et al. 2015	Apulia, Foggia	subhumid	494.6	95.1	5.75	ET50	F
Giuliani et al. 2016	Apulia, Foggia (2009)	subhumid	407.2	53.1	2.66	DI60	F
Giuliani et al. 2016	Apulia, Foggia (2009)	subhumid	454.0	63.9	3.20	RDI60-80-60	F
Giuliani et al. 2016	Apulia, Foggia (2009)	subhumid	604.7	84.9	4.25	FI100	F
Giuliani et al. 2016	Apulia, Foggia (2009)	subhumid	764.6	89.7	4.49	FaI	F
Giuliani et al. 2016	Apulia, Foggia (2010)	subhumid	414.3	38.1	1.91	DI60	F
Giuliani et al. 2016	Apulia, Foggia (2010)	subhumid	471.4	57.6	2.88	RDI60-80-60	F
Giuliani et al. 2016	Apulia, Foggia (2010)	subhumid	625.7	68.9	3.45	FI100	F
Giuliani et al. 2016	Apulia, Foggia (2010)	subhumid	768	75.9	3.80	FaI	F
Lovelli et al. 2017	Basilicata, Potenza (2002)	subhumid	252.0	21.4	1.49	T0	M
Lovelli et al. 2017	Basilicata, Potenza (2002)	subhumid	447.5	56.0	3.06	T1	M
Lovelli et al. 2017	Basilicata, Potenza (2002)	subhumid	540.3	70.5	3.62	T2	M

Lovelli et al. 2017	Basilicata, Potenza (2002)	subhumid	633.0	71.3	3.73	T3	M
Lovelli et al. 2017	Basilicata, Potenza (2002)	subhumid	587.1	66.5	3.57	T4	M
Lovelli et al. 2017	Basilicata, Potenza (2002)	subhumid	541.2	63.6	3.59	T5	M
Lovelli et al. 2017	Basilicata, Potenza (2003)	subhumid	137.6	8.4	0.72	T0	M
Lovelli et al. 2017	Basilicata, Potenza (2003)	subhumid	349.9	38.8	2.50	T1	M
Lovelli et al. 2017	Basilicata, Potenza (2003)	subhumid	466.0	47.5	2.63	T2	M
Lovelli et al. 2017	Basilicata, Potenza (2003)	subhumid	582.1	71.0	3.46	T3	M
Lovelli et al. 2017	Basilicata, Potenza (2003)	subhumid	574.7	65.2	3.17	T4	M
Lovelli et al. 2017	Basilicata, Potenza (2003)	subhumid	567.1	64.7	3.06	T5	M
Leogrande et al. 2012	Basilicata, Matera	semiarid	316.5	90.5	7.10	I1	M
Leogrande et al. 2012	Basilicata, Matera	semiarid	426.8	92.4	7.50	I2	M
Leogrande et al. 2012	Basilicata, Matera	semiarid	537.0	94.3	7.60	I3	M
Candido et al. 2015	Basilicata, Matera	semiarid	99.5	78.0	3.90	V0	M
Candido et al. 2015	Basilicata, Matera	semiarid	414.0	110.0	5.50	V50	M
Candido et al. 2015	Basilicata, Matera	semiarid	497.8	134.0	6.70	V100	M
Colla et al. 1999	Latium, Viterbo	humid	411.0	45.5	2.28	50-75	M
Colla et al. 1999	Latium, Viterbo	humid	446.0	48.4	2.42	50-100	M
Colla et al. 1999	Latium, Viterbo	humid	416.0	64.5	3.23	75-50	M
Colla et al. 1999	Latium, Viterbo	humid	492.0	64.5	3.23	100-75	M
Casa and Rouphael 2014	Latium, Viterbo (2006)	humid	460.8	20.9	1.05	DI	M
Casa and Rouphael 2014	Latium, Viterbo (2006)	humid	711.4	53.7	2.69	FULL	M
Casa and Rouphael 2014	Latium, Viterbo (2007)	humid	517.5	26.1	1.31	DI	M
Casa and Rouphael 2014	Latium, Viterbo (2007)	humid	760.8	59.4	2.97	FULL	M
Patanè et al. 2011	Enna, Sicily (2001)	subhumid	58.2	8.3	0.42	V0	C
Patanè et al. 2011	Enna, Sicily (2001)	subhumid	224.7	40.5	2.03	V50	C
Patanè et al. 2011	Enna, Sicily (2001)	subhumid	268.8	42.6	2.13	V100-50	C
Patanè et al. 2011	Enna, Sicily (2001)	subhumid	391.2	48.6	2.43	V100	C

Patanè et al. 2011	Enna, Sicily (2002)	subhumid	64.9	16.9	0.84	V0	C
Patanè et al. 2011	Enna, Sicily (2002)	subhumid	214.7	51.8	2.59	V50	C
Patanè et al. 2011	Enna, Sicily (2002)	subhumid	290.0	55.8	2.79	V100-50	C
Patanè et al. 2011	Enna, Sicily (2002)	subhumid	398.2	57.5	2.87	V100	C
Patanè and Cosentino 2010	Siracusa, Sicily	semiarid	399.1	51.0	2.14	LF	M
Patanè and Cosentino 2010	Siracusa, Sicily	semiarid	77.5	10.9	0.58	NI	M
Patanè and Cosentino 2010	Siracusa, Sicily	semiarid	222.0	47.3	2.08	LD	M
Patanè and Cosentino 2010	Siracusa, Sicily	semiarid	208.9	27.1	1.23	SF	M
Patanè and Cosentino 2010	Siracusa, Sicily	semiarid	126.9	24.3	1.19	SD	M