Supplementary Materials: Interaction of Tomato Genotypes and Arbuscular Mycorrhizal Fungi under Reduced Irrigation

Domenico Ronga [1,2,†], Federica Caradonia [1,*,†], Enrico Francia [1], Caterina Morcia [3], Fulvia Rizza [3], Franz-W. Badeck [3], Roberta Ghizzoni [3] and Valeria Terzi [3]

Table S1. Physiological parameters measured after treatment.

Genotype	Treatment	Irrigation	Chl[z]		Flav		NBI		Anth	
Everton	M-	full-watered	**22.32±3.7[y]**	**g[x]**	0.74±0.09	bc	38.98±3.3	defgh	0.22±0.003	abcd
		reduced	32.77±1.8	abcd	0.65±0.03	**c**	50.14±2.6	ab	0.19±0.003	bcd
	MF+	full-watered	**21.69±2.1**	**g**	0.72±0.05	bc	36.52±3.4	efghi	0.22±0.008	abc
		reduced	31.69±2.6	bcde	0.69±0.05	bc	45.67±3.2	bcd	0.19±0.009	bcd
	MR+	full-watered	27.75±2.4	cdefg	0.86±0.09	ab	32.83±5.0	fghi	0.24±0.033	**a**
		reduced	**39.35±6.6**	**a**	0.72±0.03	bc	54.58±5.6	a	0.20±0.015	abcd
H3402	M-	full-watered	25.67±2.7	defg	0.87±0.09	ab	29.75±4.2	i	0.24±0.014	**a**
		reduced	31.18±1.3	bcdef	**0.99±0.17**	**a**	32.18±4.9	ghi	0.23±0.015	abc
	MF+	full-watered	23.68±1.8	fg	0.75±0.09	bc	31.69±2.2	ghi	0.18±0.101	d
		reduced	33.88±1.8	**abc**	0.77±0.08	bc	44.16±3.6	bcde	0.20±0.085	abcd
	MR+	full-watered	23.95±1.1	fg	0.78±0.08	bc	30.90±4.12	hi	0.23±0.010	ab
		reduced	30.40±2.4	bcdef	0.77±0.15	bc	40.63±6.0	cdef	0.20±0.005	abcd
Pearson	M-	full-watered	25.80±0.6	defg	0.63±0.02	**c**	40.86±1.0	cdef	0.22±0.009	abc
		reduced	24.30±1.4	efg	0.61±0.04	**c**	39.71±4.0	cdefg	0.21±0.009	abcd
	MF+	full-watered	27.69±2.2	cdefg	**0.99±0.03**	**a**	31.13±10.5	hi	0.23±0.036	abc
		reduced	35.13±6.4	**ab**	0.73±0.09	bc	47.88±4.7	abc	0.18±0.021	cd
	MR+	full-watered	24.97±2.7	efg	0.72±0.17	bc	35.83±4.9	fghi	0.24±0.013	ab
		reduced	30.01±5.6	bcdef	0.63±0.03	**c**	47.37±7.9	abc	0.20±0.015	abcd

[z]Abbreviations: Chl = index of the leaf chlorophyll content measured using Dx4 Flav = index of the leaf epidermal flavonoid content measured using Dx4, NBI = nitrogen balance index, Anth = index of the leaf anthocyanin content measured using Dx4, M- = control without mycorrhizae, MF+ = seedlings inoculated with *Funneliformis mosseae*, MR+ = seedlings inoculated with *Rhizophagus intraradices*, G = genotype, M = mycorrhizae treatment, I = irrigation regime.

[y]Data are presented as mean ± standard deviation (SD, n = 5).

[x]Identical letters indicate differences among treatments or genotypes that are not statistically different by one-way ANOVA followed by DMRT at *P* < 0.05, ns = not significant.

Table S2. Morphological parameters measured at the end of the experiment.

Genotype	Treatment	Irrigation	H^z (cm)		D (mm)		H D^{-1}		LEAVES (no.)		LA (m^2 plant^{-1})		LMA (g m^{-2})	
Everton	M-	full-watered	32.12±1.4^y	ab^x	4.76±0.1	cdefg	67.59±3.8	ab	7.75±0.8	a	0.053±0.012	cde	9.15±0.1	def
		reduced	23.50±1.5	cd	4.20±0.2	hi	56.07±3.7	cde	6.83±0.4	cde	0.034±0.001	fg	13.52±2.2	bc
	MF+	full-watered	30.90±0.9	ab	5.16±0.3	abc	60.12±4.7	cde	7.70±0.4	ab	0.055±0.016	bcde	11.46±2.4	bcd
		reduced	25.40±1.0	c	4.32±0.3	ghi	59.11±4.1	cde	6.80±0.4	cde	0.041±0.012	efg	8.98±2.4	def
	MR+	full-watered	30.00±1.5	b	4.87±0.1	cdef	61.67±3.0	bcd	7.10±0.5	abcd	0.043±0.003	defg	10.72±2.9	cde
		reduced	24.25±1.0	c	4.49±0.4	defgh	54.57±6.5	defg	7.13±0.4	abcd	0.054±0.010	bcde	6.56±1.4	f
H3402	M-	full-watered	30.50±1.5	ab	4.95±0.3	cde	61.74±4.3	bcd	6.70±0.4	cdef	0.056±0.01	bcde	10.05±3.3	cdef
		reduced	24.30±1.1	c	4.42±0.3	efghi	55.04±2.7	def	6.50±0.2	def	0.058±0.006	bcd	13.06±2.4	bc
	MF+	full-watered	31.50±2.1	ab	5.01±0.2	bcd	62.91±2.9	bc	6.50±0.2	def	0.076±0.005	a	6.44±0.6	f
		reduced	19.60±3.1	e	4.11±0.4	hi	47.57±5.5	g	6.00±0.7	f	0.042±0.013	defg	17.31±4.1	a
	MR+	full-watered	31.12±1.4	ab	4.35±0.6	fghi	73.45±8.9	a	6.38±0.2	def	0.070±0.018	ab	9.18±2.0	def
		reduced	21.62±1.2	de	4.50±0.2	defgh	48.09±1.6	fg	6.50±0.2	def	0.055±0.002	bcde	10.95±1.7	cd
Pearson	M-	full-watered	30.38±1.5	ab	5.47±0.3	ab	55.72±3.0	cde	6.50±0.2	def	0.049±0.004	cdef	6.95±0.7	ef
		reduced	24.78±0.5	c	3.91±0.1	i	63.36±2.4	bc	6.10±0.5	ef	0.031±0.007	g	8.64±1.2	def
	MF+	full-watered	32.50±1.6	ab	5.61±0.2	a	57.89±0.8	cde	7.00±0.5	bcd	0.054±0.012	bcde	7.96±2.2	def
		reduced	25.40±1.5	c	4.38±0.2	fghi	58.20±5.9	cde	7.30±0.8	abc	0.032±0.009	g	14.84±4.5	ab
	MR+	full-watered	32.80±1.8	a	4.83±0.5	cdefg	68.44±5.9	ab	7.30±0.4	abc	0.062±0.007	abc	6.28±0.4	f
		reduced	23.80±0.6	cd	4.46±0.6	efgh	53.37±3.1	efg	6.480.8	def	0.043±0.008	defg	7.84±3.4	def

^{z}Abbreviations: H = height of seedlings, D = stem diameter of seedlings, H D^{-1} = height to diameter ratio, LN (no.) = number of leaves per seedling, LA = leaf area, LMA = leaf mass area, M- = control without mycorrhizae, MF+ = seedlings inoculated with *Funneliformis mosseae*, MR+ = seedlings inoculated with *Rhizophagus intraradices*, F = genotype, M = mycorrhizae treatment, I = irrigation regime. * = interaction.

^{y}Data are presented as mean ± standard deviation (SD, n = 5).

^{x}Identical letters indicate differences among treatments or genotypes that are not statistically different by one-way ANOVA followed by DMRT at *P* < 0.05, ns = not significant.

Table S3. Biomass parameters measured after treatment.

Genotype	Treatment	Irrigation	LDW[z] (g plant[-1])		SDW (g plant[-1])		RDW (g plant[-1])		TDW (g plant[-1])		ROOT/SHOOT	
Everton	M-	full-watered	0.49±0.11[y]	cdefg[x]	0.31±0.02	abc	0.34±0.04	cdef	1.13±0.13	cde	0.43±0.09	defg
		reduced	0.46±0.08	defg	0.11±0.01	h	0.37±0.14	cde	0.94±0.23	def	0.64±0.16	abc
	MF+	full-watered	0.60±0.09	bcd	0.29±0.04	abc	0.40±0.06	bcd	1.30±0.17	bc	0.45±0.06	bcdefg
		reduced	0.36±0.09	gh	0.21±0.06	defg	0.25±0.05	efg	0.81±0.19	efg	0.44±0.05	cdefg
	MR+	full-watered	0.46±0.13	defg	0.24±0.04	bcdef	0.31±0.11	def	1.02±0.25	cde	0.44±0.17	cdefg
		reduced	0.34±0.05	gh	0.24±0.08	bcdef	0.33±0.07	cdef	0.92±0.07	def	0.64±0.35	ab
H3402	M-	full-watered	0.52±0.11	bcdef	0.23±0.05	cdef	0.48±0.18	bc	1.23±0.32	bcd	0.62±0.16	abcd
		reduced	0.75±0.15	**a**	0.28±0.08	abcd	0.73±0.20	a	**1.77±0.40**	a	**0.71±0.11**	**a**
	MF+	full-watered	0.49±0.05	cdefg	0.27±0.01	bcde	0.37±0.04	cde	1.13±0.04	cde	0.49±0.07	bcdefg
		reduced	0.67±0.11	ab	0.26±0.12	bcdef	0.53±0.09	b	1.46±0.29	b	0.59±0.08	abcdef
	MR+	full-watered	0.63±0.08	abc	0.20±0.02	defg	0.39±0.14	bcde	1.22±0.37	bcd	0.45±0.07	bcdefg
		reduced	0.60±0.09	bcde	0.18±0.04	fgh	0.47±0.06	bc	1.24±0.19	bcd	0.61±0.04	abcde
Pearson	M-	full-watered	0.34±0.01	gh	0.19±0.04	efg	0.16±0.04	g	0.69±0.07	fg	**0.31±0.07**	**g**
		reduced	0.27±0.06	h	0.11±0.02	h	0.15±0.03	g	0.53±0.10	g	0.40±0.07	fg
	MF+	full-watered	0.42±0.10	fgh	0.32±0.07	ab	0.31±0.03	def	1.05±0.03	cde	0.42±0.04	efg
		reduced	0.44±0.07	efg	0.36±0.05	a	0.40±0.04	bcd	1.20±0.15	bcd	0.50±0.04	bcdefg
	MR+	full-watered	0.39±0.03	fgh	0.24±0.06	bcdef	0.22±0.07	fg	0.85±0.07	ef	**0.34±0.07**	**g**
		reduced	0.33±0.12	gh	0.14±0.04	gh	0.22±0.10	fg	0.69±0.25	fg	0.47±0.16	bcdefg

[z]Abbreviations: LDW = leaf dry weight, SDW = stem dry weight, RDW = root dry weight, TDW = total dry weight, Root Shoot[-1] = root to shoot ratio, M- = control without mycorrhizae, MF+ = seedlings inoculated with *Funneliformis mosseae*, MR+ = seedlings inoculated with *Rhizophagus intraradices*, F = genotype, M = mycorrhizae treatment, I = irrigation regime.

[y]Data are presented as mean ± standard deviation (SD, n = 5).

[x]Identical letters indicate differences among treatments or genotypes that are not statistically different by ANOVA followed by DMRT at p < 0.05, ns = not significant.

Table S4. Water use parameters measured after treatment.

Genotype	Treatment	Irrigation	TWU[z] (g H_2O plant^{-1})		WUE (g H2O g dry weight^{-1})	
Everton	M-	full-watered	421.60±61[y]	ab[x]	0.0027±0.0001	fg
		reduced	156.80±47	f	0.0061±0.0003	**bc**
	MF+	full-watered	456.60±47	a	0.0028±0.0002	fg
		reduced	166.60±48	ef	0.0049±0.0003	d
	MR+	full-watered	415.60±113	ab	0.0025±0.0002	fg
		reduced	208.10±13	ef	0.0044±0.0003	de
H3402	M-	full-watered	389.00±99	abc	0.0032±0.0003	fg
		reduced	248.00±40	de	0.0071±0.0009	b
	MF+	full-watered	378.50±59	abc	0.0031±0.0004	fg
		reduced	169.00±27	ef	**0.0086±0.0009**	**a**
	MR+	full-watered	346.40±99	bc	0.0036±0.0007	ef
		reduced	191.70±36	ef	0.0065±0.0003	b
Pearson	M-	full-watered	320.00±56	cd	0.0022±0.0003	g
		reduced	64.30±16	g	**0.0084±0.0015**	**a**
	MF+	full-watered	377.80±52	abc	0.0028±0.0000	fg
		reduced	151.70±48	f	**0.0084±0.0021**	**a**
	MR+	full-watered	303.00±84	cd	0.0029±0.0005	fg
		reduced	145.70±67	f	0.0053±0.00015	cd

[z]Abbreviations: TWU = Total water used, WUE = water use efficiency, M- = control without mycorrhizae, MF+ = seedlings inoculated with *Funneliformis mosseae*, MR+ = seedlings inoculated with *Rhizophagus intraradices*, F = genotype, M = mycorrhizae treatment, I = irrigation regime.
[y]Data are presented as mean ± standard deviation (SD, n = 5).
[x]Identical letters indicate differences among treatments or genotypes that are not statistically different by one-way ANOVA followed by DMRT at $p < 0.05$, ns = not significant.
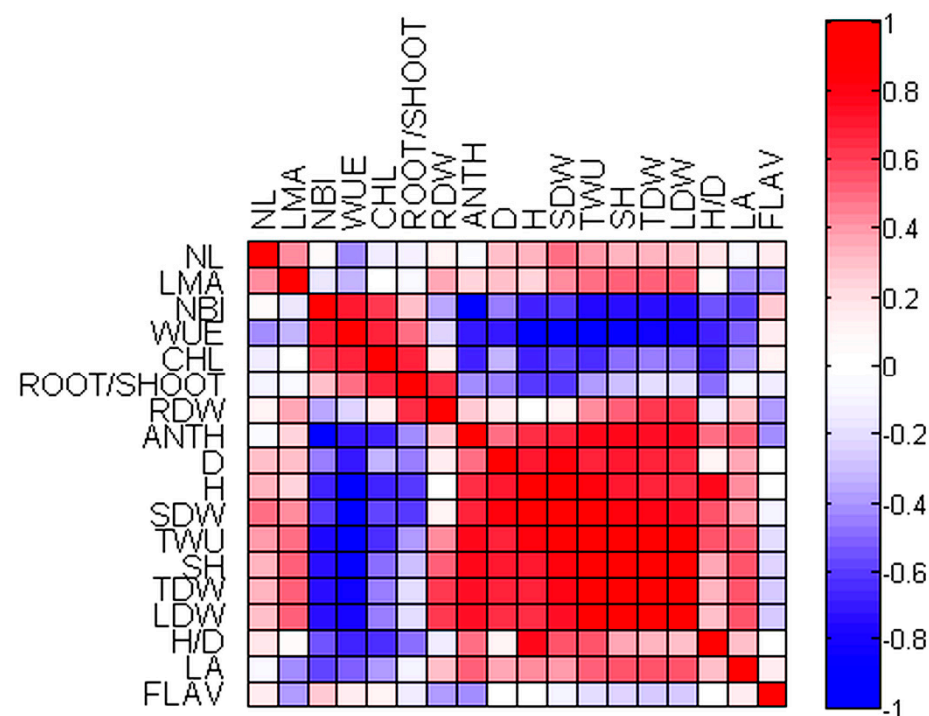
Figure S1. Correlation plot. Abbreviations: CHL = index of the chlorophyll content in leaf measured using Dx4; FLAV = index of the flavonoids content in leaf measured using DUALX instrument; NBI = nitrogen balance index, ANTH = index of the anthocyanins content in leaf measured using Dx4, H = height of seedling; D = diameter of seedling; H/D = height and diameter ratio of seedling; NL = number of fully expanded leaves per seedling; LA = leaf area of the seedling; LMA = leaf mass area of the seedling; LDW = leaf dry weight; SDW = stem dry weight; RDW = root dry weight; SH = shoot weight (LDW+SDW); TDW = total dry weight of the seedling; ROOT/SHOOT = root and shoot ratio; TWU = total water used by seedling; WUE = water use efficiency.