

Table S1. Data for starting and finishing time of shrinkage and expansion for different cultivar-irrigation levels in 3 consecutive example days (from 228 to 230 day of the years (DOY)). The ending time of Expansion is on the next day. Arb(DI-10) represents average data of two fruits of ‘Arbequina’ at 10% deficit irrigation. Lea(DI-10) represents average data of two fruits of ‘Lea’ at 10% deficit irrigation. Asc(DI-20) represents average data of two fruits of ‘Ascolana dura’ at 20% deficit irrigation. Asc(DI-0) represents data of one non-irrigated fruit of ‘Ascolana dura’. Fal(DI-20) represents average data of two fruits of ‘Piantone di Falerone’ at 20% deficit irrigation. Fal(DI-0) represents data of one non-irrigated fruit of ‘Piantone di Falerone’.

DOY	Arb (DI-10)		Lea (DI-10)		Asc (DI-20)		Asc (DI-0)		Fal (DI-20)		Fal (DI-0)	
	Shrinkage	Expansion	Shrinkage	Expansion	Shrinkage	Expansion	Shrinkage	Expansion	Shrinkage	Expansion	Shrinkage	Expansion
228	7:00 to 18:00	19:00 to 7:00	9:00 to 15:00	21:00 to 7:00	9:00 to 19:00	21:00 to 9:00	10:00 to 19:00	20:00 to 7:00	10:00 to 18:00	21:30 to 8:00	10:00 to 17:00	21:00 to 7:00
229	7:00 to 17:30	19:00 to 8:00	9:00 to 16:00	21:00 to 8:00	10:00 to 16:00	21:00 to 9:00	8:00 to 18:00	21:00 to 7:00	9:30 to 13:30	21:00 to 8:30	10:00 to 17:00	19:00 to 7:00
230	9:00 to 18:00	19:00 to 7:00	11:00 to 16:00	21:00 to 8:00	13:00 to 14:00	21:00 to 8:00	11:00 to 18:00	22:00 to 7:00	12:30 to 16:00	20:00 to 8:30	10:00 to 17:00	23:00 to 8:00

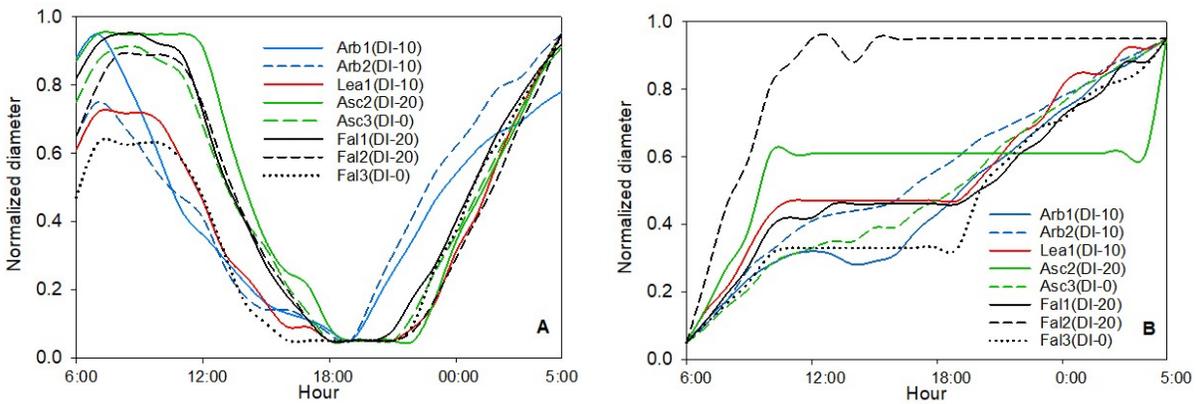


Figure S1. Continuous measurements of diameter of olive fruit in two example days of the experiment: (A) fruits with normal growth pattern in day of the year (DOY) 225; (B) fruit with exceptional growth pattern during rainy day (rainfall at beginning hours of the day) in day of the year (DOY) 236, in addition, it was the day after heavy rainfall. Arb1(DI-10) and Arb2(DI-10) represent fruit 1 and 2 of ‘Arbequina’ at 10% deficit irrigation, respectively. Lea1(DI-10) represents fruit 1 of ‘Lea’ at 10% deficit irrigation. Asc2(DI-20) represents fruit 2 of ‘Ascolana dura’ at 20% deficit irrigation. Asc3(DI-0) represents fruit 3 of non-irrigated ‘Ascolana dura’. Fal1(DI-20) and Fal2(DI-20) represent fruit 1 and 2 of ‘Piantone di Falerone’ at 20% deficit irrigation, respectively. Fal3(DI-0) represents fruit 3 of non-irrigated ‘Piantone di Falerone’.

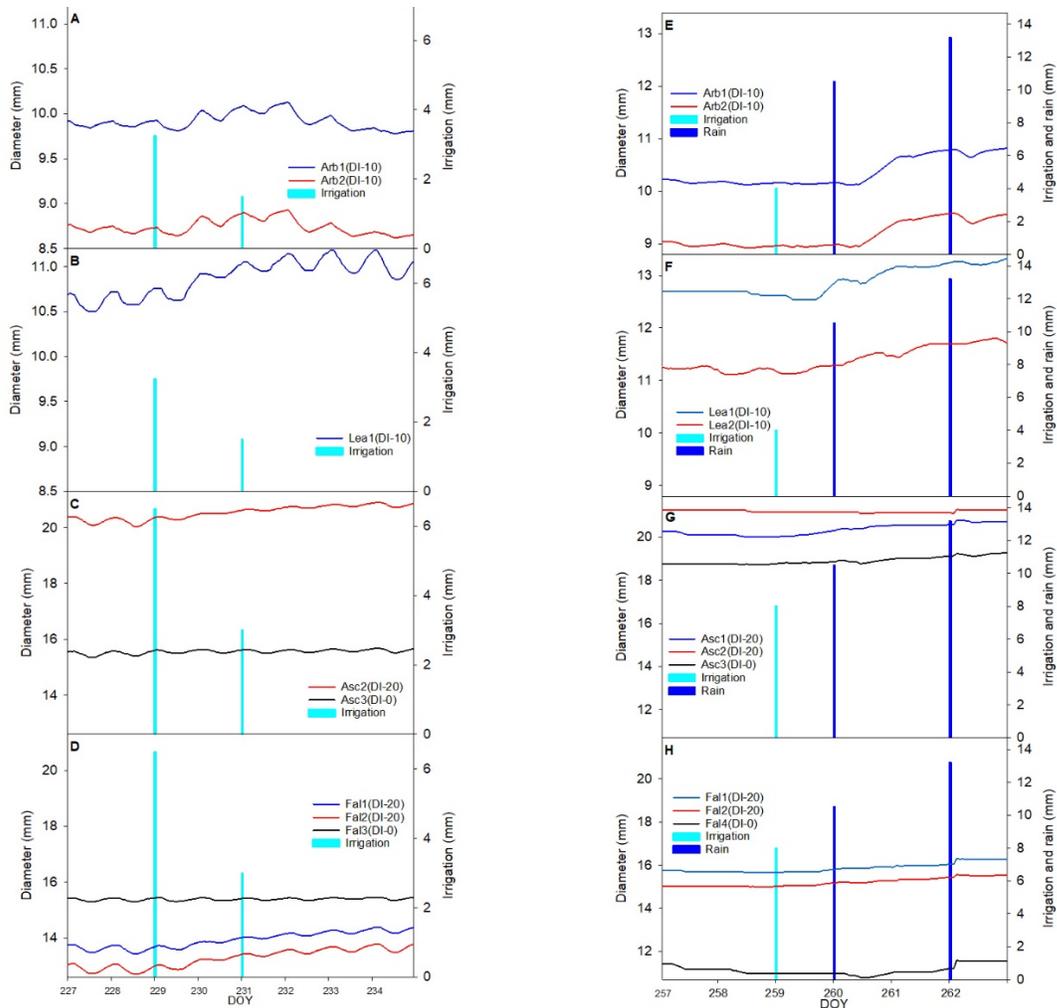


Figure S2. Daily variation of fruit diameter from 227 to 234 day of the year (DOY) and from 257 to 262 day of the year (DOY). (A) cultivar of Arbequina in the first and the second irrigation days; (B) cultivar of Lea in the first and the second irrigation days; (C) cultivar of Ascolana dura in the first and the second irrigation days; (D) cultivar of Piantone di Falerone in the first and the second irrigation days; (E) cultivar of Arbequina in the third irrigation day; (F) cultivar of Lea in the third irrigation day; (G) cultivar of Ascolana dura in the third irrigation day; (H) cultivar of Piantone di Falerone in the third irrigation day. Arb1(DI-10) and Arb2(DI-10) represent fruit 1 and 2 of ‘Arbequina’ at 10% deficit irrigation, respectively. Lea1(DI-10) and Lea2(DI-10) represent fruit 1 and 2 of ‘Lea’ at 10% deficit irrigation, respectively. Asc1(DI-20) and Asc2(DI-20) represent fruit 1 and 2 of ‘Ascolana dura’ at 20% deficit irrigation, respectively. Asc3(DI-0) represents fruit 3 of non-irrigated ‘Ascolana dura’. Fal1(DI-20) and Fal2(DI-20) represent fruit 1 and 2 of ‘Piantone di Falerone’ at 20% deficit irrigation, respectively. Fal3(DI-0) and Fal4(DI-0) represent fruit 3 and 4 of non-irrigated ‘Piantone di Falerone’, respectively.

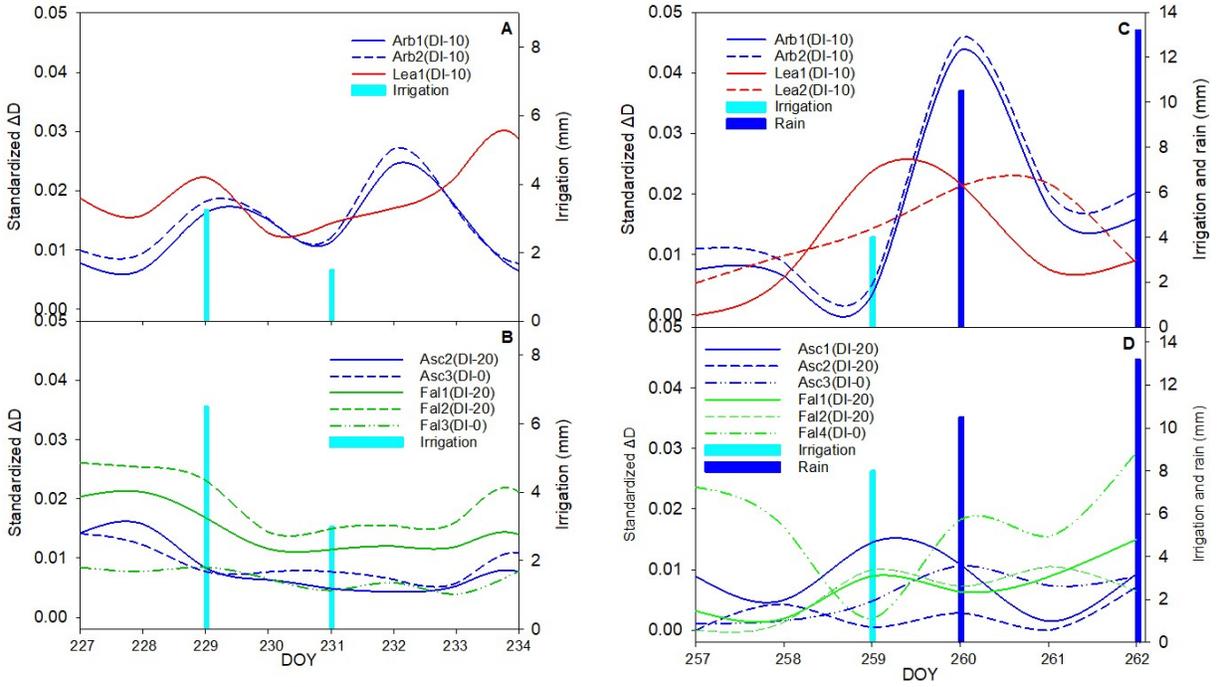


Figure S3. Standardized Fruit daily diameter fluctuation (ΔD). From 227 to 234 day of the year (DOY) (in correspondence with first and second irrigation days) for the olive cultivar Arbequina and Lea (A) and for the olive cultivars Ascolana dura and Piantone di Falerone (B); From 257 to 262 day of the year (DOY) (in correspondence with third irrigation day) for the olive cultivar Arbequina and Lea (C) and for the olive cultivars Ascolana dura and Piantone di Falerone (D). Arb1(DI-10) and Arb2(DI-10) represent fruit 1 and 2 of 'Arbequina' at 10% deficit irrigation, respectively. Lea1(DI-10) and Lea2(DI-10) represent fruit 1 and 2 of 'Lea' at 10% deficit irrigation, respectively. Asc1(DI-20) and Asc2(DI-20) represent fruit 1 and 2 of 'Ascolana dura' at 20% deficit irrigation, respectively. Asc3(DI-0) represents fruit 3 of non-irrigated 'Ascolana dura'. Fal1(DI-20) and Fal2(DI-20) represent fruit 1 and 2 of 'Piantone di Falerone' at 20% deficit irrigation, respectively. Fal3(DI-0) and Fal4(DI-0) represent fruit 3 and 4 of non-irrigated 'Piantone di Falerone', respectively.

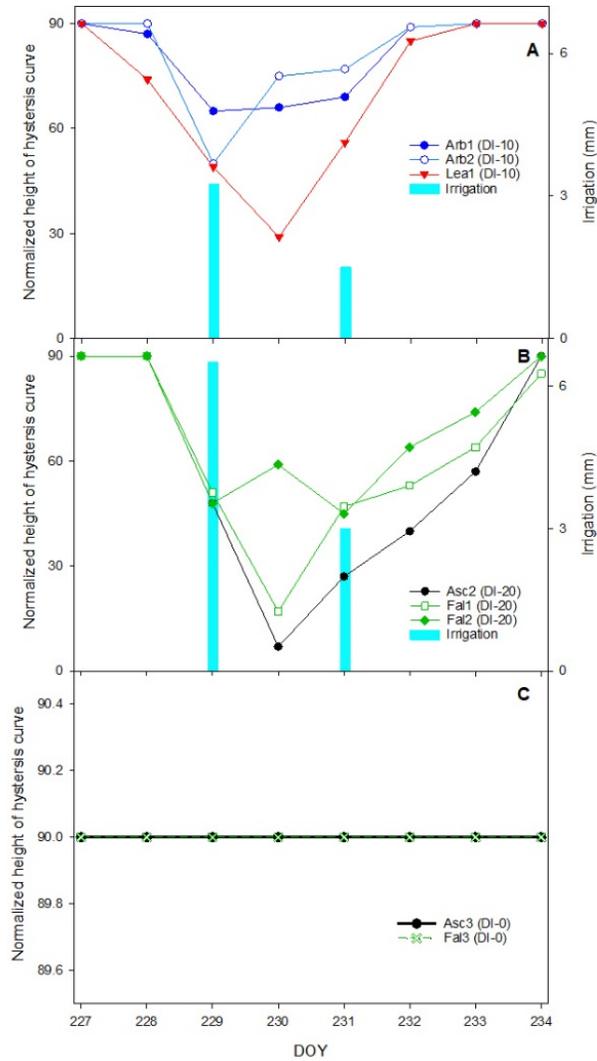


Figure S4. Height of hysteresis curves from 227 to 234 day of the year (DOY) (in correspondence with first and second irrigation days). (A) fruit 1 and 2 of 'Arbequina' at 10% deficit irrigation (Arb1(DI-10) and Arb2(DI-10), respectively) and fruit 1 of 'Lea' at 10% deficit irrigation (Lea1(DI-10)); (B) fruit 1 and 2 of 'Piantone di Falerone' at 20% deficit irrigation (Fal1(DI-20) and Fal2(DI-20), respectively) and fruit 2 of 'Ascolana dura' at 20% deficit irrigation (Asc2(DI-20)); (C) fruit 3 of non-irrigated 'Ascolana dura' (Asc3(DI-0)) and fruit 3 of non-irrigated 'Piantone di Falerone' (Fal3(DI-0)).