Supplementary Tables and Figures

Table S1. Mean (standard deviation), minimum, maximum, and median monthly meteorological variables recorded in block 1 treatment 2 including temperature (°C), relative humidity (%), solar radiation(W/m^2), windspeed (km/h), vapor pressure deficit (VPD - pa), precipitation (mm), daily PET using the Hargraves and Priestly-Taylor methods (mm/day), monthly PET using the Thornthwaite method (mm/month), dryness index (PET/P), standard precipitation index (SPI) using a 3 month period and a 6 month period, and standardized precipitation evaporation index (SPEI) with 3 and 6 month intervals (missing indicates interval periods would enough data).

	06	07	08	09	10	Overall
Temperature						
Mean (SD)	12.6 (9.08)	16.9 (6.58)	13.0 (6.74)	8.21 (5.65)	4.00 (4.68)	12.2 (7.86)
Median [Min, Max]	11.1 [-2.68, 37.8]	16.7 [0.0789, 34.8]	12.8 [-0.676, 30.8]	7.29 [-2.92, 27.0]	4.17 [-4.26, 16.9]	11.3 [-4.26, 37.8]
Relative Humidity						
Mean (SD)	63.3 (21.5)	50.1 (17.9)	64.2 (22.8)	71.2 (19.7)	72.9 (13.5)	62.7 (21.7)
Median [Min, Max]	65.4 [17.0, 97.6]	48.5 [16.0, 97.6]	63.7 [13.7, 97.9]	75.4 [23.9, 98.3]	76.8 [40.2, 93.5]	62.3 [13.7, 98.3]
Solar Radiation						
Mean (SD)	236 (339)	240 (331)	145 (235)	109 (197)	91.7 (177)	176 (282)
Median [Min, Max]	54.4 [0.600, 1280]	54.4 [0.600, 1240]	25.6 [0.600, 1160]	4.40 [0.600, 1120]	0.600 [0.600, 884]	29.4 [0.600, 1280]
Windspeed						
Mean (SD)	0 (0)	0 (0)	0.00020117 (0.0134863)	0 (0)	0 (0)	0. 00004925 (0.00666268)
Median [Min, Max]	0 [0, 0]	0 [0, 0]	0 [0, 0.560]	0 [0, 0]	0 [0, 0]	0 [0, 0.560]
VPD						
Mean (SD)	0.829 (0.989)	1.16 (0.807)	0.727 (0.719)	0.416 (0.449)	0.263 (0.216)	0.755 (0.794)
Median [Min, Max]	0.423 [0.0221, 5.13]	0.947 [0.0269, 4.63]	0.520 [0.0192, 3.52]	0.242 [0.0128, 2.70]	0.185 [0.0372, 1.05]	0.489 [0.0128, 5.13]

Precipitation						
Mean (SD)	0.00896 (0.0927)	0.00843 (0.275)	0.00703 (0.0559)	0.00916 (0.0680)	0.00337 (0.0523)	0.00808 (0.150)
Median [Min, Max]	0 [0, 3.40]	0 [0, 16.0]	0 [0, 1.19]	0 [0, 1.80]	0 [0, 1.19]	0 [0, 16.0]
Daily PET						
Hargreaves						
Mean (SD)	79.8 (46.4)	111 (56.6)	77.5 (40.9)	70.2 (43.5)	61.3 (26.8)	83.3 (48.4)
Median [Min, Max]	64.8 [20.2, 172]	99.8 [31.4, 191]	68.3 [22.7, 146]	64.7 [13.5, 154]	64.9 [22.3, 94.2]	77.5 [13.5, 191]
Priestly Taylor						
Mean (SD)	130 (28.1)	141 (8.65)	91.4 (22.1)	53.6 (16.1)	30.0 (4.76)	99.2 (42.5)
Median [Min, Max]	132 [81.6, 175]	142 [121, 153]	93.4 [39.7, 140]	52.8 [29.5, 87.1]	30.3 [23.5, 37.8]	100 [23.5, 175]
Monthly PET						
Thornthwaite PET						
Mean (SD)	138 (NA)	164 (NA)	106 (NA)	70.5 (NA)	37.6 (NA)	103 (50.7)
Median [Min, Max]	138 [138, 138]	164 [164, 164]	106 [106, 106]	70.5 [70.5, 70.5]	37.6 [37.6, 37.6]	106 [37.6, 164]
PET/P						
Mean (SD)	1.58 (NA)	1.94 (NA)	2.46 (NA)	1.53 (NA)	10.0 (NA)	3.51 (3.67)
Median [Min, Max]	1.58 [1.58, 1.58]	1.94 [1.94, 1.94]	2.46 [2.46, 2.46]	1.53 [1.53, 1.53]	10.0 [10.0, 10.0]	1.94 [1.53, 10.0]
spi3						
Mean (SD)	-1.26 (NA)	-1.20 (NA)	-1.38 (NA)	NA (NA)	-1.44 (NA)	-1.32 (0.109)
Median [Min, Max]	-1.26 [-1.26, -1.26]	-1.20 [-1.20, -1.20]	-1.38 [-1.38, -1.38]	NA [NA, NA]	-1.44 [-1.44, -1.44]	-1.32 [-1.44, -1.20]
Missing	0 (0%)	0 (0%)	0 (0%)	1 (100%)	0 (0%)	1 (20.0%)
spi6						
Mean (SD)	-1.13 (NA)	NA (NA)	NA (NA)	NA (NA)	-1.59 (NA)	-1.36 (0.325)

Median [Min, Max]	-1.13 [-1.13, -1.13]	NA [NA, NA]	NA [NA, NA]	NA [NA, NA]	-1.59 [-1.59, -1.59]	-1.36 [-1.59, -1.13]
Missing	0 (0%)	1 (100%)	1 (100%)	1 (100%)	0 (0%)	3 (60.0%)
spei3						
Mean (SD)	-1.23 (NA)	-1.40 (NA)	-1.77 (NA)	-1.50 (NA)	-1.43 (NA)	-1.47 (0.198)
Median [Min, Max]	-1.23 [-1.23, -1.23]	-1.40 [-1.40, -1.40]	-1.77 [-1.77, -1.77]	-1.50 [-1.50, -1.50]	-1.43 [-1.43, -1.43]	-1.43 [-1.77, -1.23]
spei6						
Mean (SD)	-0.855 (NA)	-1.33 (NA)	-1.73 (NA)	-1.68 (NA)	-1.67 (NA)	-1.45 (0.371)
Median [Min, Max]	-0.855 [-0.855, -0.855]	-1.33 [-1.33, -1.33]	-1.73 [-1.73, -1.73]	-1.68 [-1.68, -1.68]	-1.67 [-1.67, -1.67]	-1.67 [-1.73, -0.855]
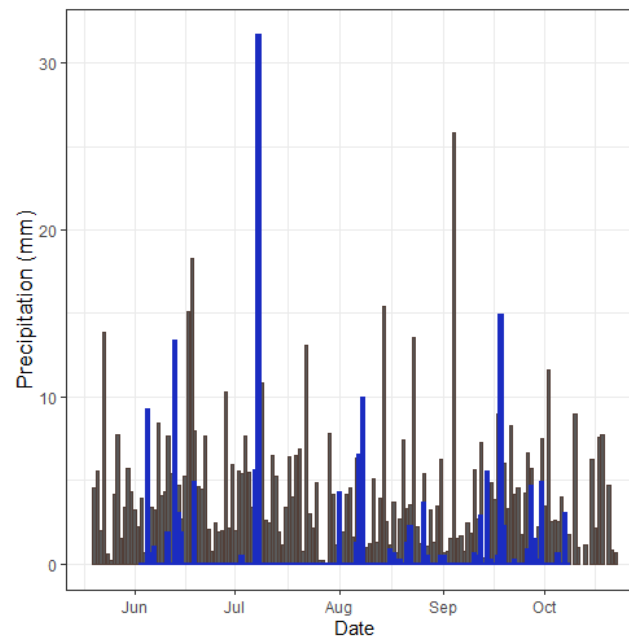
Figure S1. Mean daily historical (1997?-2008: grey) and 2021 (blue) rainfall (mm) from June to October.

Table S2. Proportion of source water uptake by xylem water for six scenarios using different combinations of isotopes (single and dual) and sources including soil water (5 cm, 35cm, 45-100cm, and the average of 35-100 cm) and groundwater.

	Isotopes Used	Sources	Runtime	Percent contributed									Gelman-Rubin
Scenario	d18O	5, 35	normal	5 cm	SD	35 cm	SD	45-100 cm	SD	GW	SD	Total	
1	Month											0	4
	6			**0.76**	0.325	0.167333	0.100667					0.927333	
	7			**0.343**	0.179	0.259	0.133					0.602	
	9			**0.131**	0.274	0.121333	0.119333					0.252333	
	10			0.001	0.003	**0.725333**	0.141667					0.726333	
2	d2H	5, 35	normal									0	3
	6			**0.852667**	0.087333	0.147333	0.087333					1	
	7			**0.672**	0.087	0.328	0.087					1	
	9			**0.806667**	0.094333	0.193333	0.094333					1	
	10			0.066333	0.041667	**0.933667**	0.041667					1	
3	d18O + d2H	5, 35	normal									0	
	6			**0.76**	0.325	0.108	0.045667					0.868	15
	7			**0.343**	0.179	0.137	0.066333					0.48	

#	Type	Config	Mode									Sum	N
9				0.131	0.274	**0.347333**	0.032333					0.478333	
10				0.001	0.003	**0.994**	0.0175					0.995	
4	d18O + d2H	5, 35, 45-100	normal									0	
6				**0.76**	0.325	0.214333	0.233333	0.027	0.044			1.001333	120
7				0.343	0.179	0.134333	0.168333	**0.379**	0.08			0.856333	
9				0.131	0.274	**0.366**	0.343333	0.174	0.109			0.671	
10				0.001	0.003	0.001667	0.005	**0.996333**	0.008667			0.999	
5	d18O + d2H	5, 35-100, GW	normal									0	153
6				0.312333	0.245333	**0.669333**	0.404333			0.074	0.204667	1.055667	
7				0.253333	0.311	**0.455**	0.401			0.035667	0.128	0.744	
9				0.200667	0.137667	**0.335**	0.409333			0.06	0.126	0.595667	
10				**0.7535**	0.306	0.166333	0.278333			0.086667	0.147667	1.0065	
6	d18O + d2H	5, 35, 45-100, GW	normal									0	15
6				**0.767667**	0.321667	0.083333	0.182667	0.027	0.01	0.136333	0.261667	1.014333	
7				**0.477333**	0.225667	0.074	0.135667	0.18	0.174	0.066667	0.134333	0.798	
9				0.134667	0.290333	**0.427667**	0.346333	0.127667	0.032667	0.237667	0.345667	0.927667	

| | 10 | | | 0.001 333 | 0.004 333 | 0.001 333 | 0.005 | **0.338** | 0.650 667 | 0.001 | 0.004 667 | 0.341 667 | |