Article title: Effects of climate change and adaptation options on winter wheat yield under rainfed Mediterranean conditions in southern Portugal
Journal: Climatic Change
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Online Resource 2. Summary of observational yield data for model calibration and of input parameters for crop characteristics and local prevailing agronomic practices

Table OR2.1. Observational final grain yields of winter wheat over five consecutive seasons (1981–1986) in the experimental Farm of Almocreva at Beja used for STICS calibration (Carvalho and Basch 1995)

N fertilization (equally split between sowing and beginning of stem elongation)	Years	Yield of cultivar Etoile (kg ha^{-1})	Yield of cultivar Mara (kg ha^{-1})	Analysis of variance (Two-way ANOVA)		Average yield of two cultivars (kg ha^{-1})
				Factors	p-value	
0 kg ha^{-1}	1981–1982	2740	2618	N fertilization	<0.05	2679
	1982–1983	999	916			958
	1983–1984	1712	1747			1730
	1984–1985	2015	1600			1808
	1985–1986	1728	1342			1535
100 kg ha^{-1}	1981–1982	3830	3480	Cultivar	0.77	3655
	1982–1983	906	1003			955
	1983–1984	3254	3691			3473
	1984–1985	3588	2967			3278
	1985–1986	3620	3534			3577
200 kg ha^{-1}	1981–1982	3070	4862	N fertilization X Cultivar	0.64	3966
	1982–1983	741	880			811
	1983–1984	3234	3760			3497
	1984–1985	3969	3760			3865
	1985–1986	3074	4146			3610

Note: measured yield was the average yield obtained between two common sowing dates (Nov 20th and Dec 10th), at which simulations were respectively performed to derive mean yield under individual growing season and N level.

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Table OR2.2. Summary of calibrated crop parameters and local prevailing agronomic practices (Carvalho and Basch 1995)

General plant parameter	Cultivar parameters	Initial soil water content at sowing	Sowing dates		Sowing density	Initial soil mineral N amount	N Fertilization strategies		Other assumptions
			Mean	Two common sowing dates			Amount (kg/ha)	Application stages	
RUE_{veg}=RUE_{rep} =2.8 g MJ^{-1}	Built-in cultivar (No.7–*Thetalent*) with standard setting: $GDD_{emg-amf}$=245 °C.d $GDD_{emg-lax}$=505 °C.d $GDD_{emg-drp}$=837 °C.d $GDD_{drp-mat}$=700 °C.d P_{grain}=0.0521 g P_{num}=3000	50% field capacity + supplementary irrigation (20 mm)	Nov 30th	Nov 20th	120 plants m^{-2}	44 kg ha^{-1}	50	Sowing	Not consider influence of pest, disease and weeds
				Dec 10th			50	End of tillering	

Note: RUE_{veg} and RUE_{rep} are radiation use efficiency of winter wheat during vegetative and reproductive phases, respectively. Growing Degree Days (GDD) are calculated with base temperature at 0 C°. $GDD_{emg-amf}$, $GDD_{emg-lax}$, $GDD_{emg-drp}$ and $GDD_{drp-mat}$ are required growing degree days from emergence to beginning of stem elongation, emergence to maximal leaf area index, emergence to beginning of grain-filling and beginning of grain-filling to maturity, respectively. P_{grain} and P_{num} are genetic potential of grain weight and number, respectively. Mean sowing date is used for climate change impact assessment. Settings of initial soil water at sowing is prescribed to mimic common situation and practice for dryland cropping system in Mediterranean region.