

Supplementary data

Addressing the role of landraces in the sustainability of Mediterranean rainfed agroecosystems

Table S1. Phenological data of landraces. SOURCE: INIA-CRF. *Data of Barbilla Roja and Sierra Nevada landraces come from our field experiments.

	Rojo Pelón	Blanco Verdial	Recio	Rubio	Barbilla Roja*	Sierra Nevada*
Days to ear emergence	185	166	194	161	147	142
Days to maturity	228	207	224	202	217	214
Height (cm)	135	125	149	114	90	120
Number of spikelet/spike	19	24	25	20	-	-
Number of grains/spike	-	-	-	-	25	25
Color of the grain	-	1	1	-	2	2

Table S2. Aerial net primary productivity (NPP), crop dry matter (CDM), grain yield, straw and husk production, and weed biomass (kg ha⁻¹, dry matter) of old and modern wheat varieties in organic (ORG) and conventional (CON) trials. Mean and standard error of the mean (n=24). Different letters represent significant differences between landraces and modern varieties within each growing season at a level of 0.05 (Tukey test).

		2014		2015		2016		Average	
		Landraces	Modern	Landraces	Modern	Landraces	Modern	Landraces	Modern
ORG	NPP	11807a±581	9292b±697	11570a±428	11078a±483	7000a±395	5957b±315	10126±377	8776±389
	CDM	9387a±695	5580b±393	11567a±428	1103a8±487	6873a±393	5703b±294	9276±375	7440±378
	Grain	2187a±240	1223b±198	2523b±108	3966a±198	1374a±143	1414a±154	2028±114	2201±182
	Straw	6186a±492	3812b±312	7767a±305	5946b±288	4967a±271	3831b±189	6307±250	4530±194
	Husk	1014a±120	544b±43	1276a±63	1126a±60	532a±52	458a±33	941±60	709±44
	Weed	2421b±417	3712a±609	3b±2	40a±14	126b±30	254a±50	850±191	1335±283
CON	NPP	18712a±1047	19158a±1239	15574a±642	11567b±422	12855a±630	12311a±436	15714±535	14345±608
	CDM	17800a±1012	17192a±1122	14588a±623	9766b±449	12017a±625	10180b±581	14802±523	12379±598
	Grain	2401b±165	3300a±329	1424a±203	1399a±264	1647a±198	1463a±217	1824±119	2054±188
	Straw	13805a±995	12305a±990	12079a±577	7473b±479	9083a±543	7770a±468	11655±478	9183±472
	Husk	1594a±80	1587a±106	1085a±71	894a±59	1287a±101	947b±75	1322±54	1143±60
	Weed	912b±143	1966a±200	986b±160	1801a±236	839b±200	2131a±310	912±97	1966±145

Table S3. Weed species and its density (individuals m⁻²) of landraces and modern wheat varieties plots under ORG management in both the second and the third growing season of the field experiment. *Significant differences between landraces and modern wheat varieties.

Sierra de Yeguas		2015		2016	
Sp.	Landraces	Modern	Landraces	Modern	
<i>Anacyclus clavatus</i>	0,08	0,08	0,19	0,81	
<i>Anagalis arvensis</i>	-	-	0,00	0,25	
<i>Avena sterilis</i>	0.08	0.08	0,00	0,00	
<i>Convolvulus arvensis</i>	0,50	1,42	1,31	0,94	
<i>Capsella bursa-pastoris</i>	0,00	0,00	0,08	0,33	
<i>Chaenopodium murale</i>	0,00	0,08	0,00	0,17	
<i>Diplotaxis virgata</i>	0,08	0,00	0,00	0,53	
<i>Fumaria officinalis</i>	0,08	0,08	0,00	0,08	
<i>Galium aparine</i>	-	-	0,08	0,08	
<i>Lamium amplexicaule</i>	0,17	0,75	2,28	3,36	
<i>Linaria hirta</i>	-	-	0,08	0,17	
<i>Lolium rigidum</i>	0,08	0,00	0,00	0,00	
<i>Malva sylvestris</i>	-	-	0,00	0,25	
<i>Melilotus indicus</i>	2,17*	9,33*	28,03	40,03	
<i>Papaver rhoeas</i>	0,00	0,08	0,00	0,25	
<i>Sonchus oleraceus</i>	0,00	0,17	0,00	0,17	
<i>Stellaria media</i>	5,58*	10,58*	53,08*	87,14*	
<i>Urtica dioica</i>	0.00	0.25	0.00	0.25	
<i>Veronica hederifolia</i>	0.00	0.58	0,72	1,58	
<i>Vicia faba</i>	0.25	0.08	0,11	0,25	

Table S4. Weed species and its density (individuals m⁻²) of landraces and modern wheat varieties plots under CON management in the second and the third growing season of the field experiment. . *Significant differences between landraces and modern wheat varieties. .

La Zubia		2015		2016	
Sp.	Landraces	Modern	Landraces	Modern	
<i>Anagalis arvensis</i>	0,33	0,92	1,92*	6,67*	
<i>Avena sterilis</i>	0,83	13,08	1,92	3,08	
<i>Capsella bursa-pastoris</i>	0,25	0,17	6,08	11,42	
<i>Convolvulus arvensis</i>	0,67	0,75	2,00	0,67	
<i>Euphorbiacea</i>	0,00	0,17	0,00	0,17	
<i>Fumaria reuteri</i>	1,00	0,83	1,58	2,42	
<i>Galium aparine</i>	0,08	0,08	0,17	0,17	
<i>Hordeum murinum</i>	0,00	0,17	-	-	
<i>Lamium amplexicaule</i>	-	-	0,25	0,17	
<i>Linaria latifolia</i>	-	-	0,25*	0,00*	
<i>Linum sp.</i>	0.00	0.08	-	-	
<i>Lolium rigidum</i>	11,05*	44,12*	15,27*	59,15*	
<i>Matricaria chamomilla</i>	0,50	0,92	0,17	0,25	
<i>Medicago polymorfa</i>	0,25	0,50	0,17	0,08	
<i>Papaver hibrydus</i>	0.00	0.50	0.00	0,17	
<i>Papaver rhoeas</i>	1,25	3,17	0,42	0,67	
<i>Phalaris minor</i>	5,42*	17,75*	1,92*	17,42*	
<i>Silybum marianum</i>	0,00	0,17	-	-	
<i>Sinapis alba</i>	0,08	0,33	0,17	0,00	
<i>Urtica dioica</i>	-	-	0,25	0,50	
<i>Veronica hederifolia</i>	3,75	4,33	17,17	19,67	
Sp.1	0,92	3,33	0,58	2,17	
Sp.2	0.00	0.008	-	-	
Sp.3	-	-	0.08	0.08	