

Supplementary Material

Table S1. Values used to construct Figure 3: Means comparison corresponding for phenology and yield related traits in a set of 23 durum wheat genotypes grouped according to five allele combinations at *Ppd-A1* and *Ppd-B1* loci and tested during five years at three sites of contrasting northern latitude. Means within columns with different letters are significantly different for a LSD test at $p < 0.05$. See Table 1 for acronym description.

Allele combination	Days emergence-flowering				Days flowering-maturity				Grains/m ² (GN)*				Grain weight (GW, mg)**				Grain yield (GY, g/m ²)			
	Spain	Mexico-North	Mexico-South	Mean	Spain	Mexico-North	Mexico-South	Mean	Spain	Mexico-North	Mexico-South	Mean	Spain	Mexico-North	Mexico-South	Mean	Spain	Mexico-North	Mexico-South	Mean
I0I	130 ^b	83 ^b	60 ^b	92 ^c	38 ^a	43 ^{ab}	49 ^a	43 ^a	18148 ^{ab}	12588 ^b	11270 ^b	14002 ^b	43.2 ^a	50.6 ^a	42.9 ^a	45.6 ^a	744 ^a	605 ^a	455 ^a	600 ^a
I5I	132 ^{ab}	84 ^b	63 ^{ab}	93 ^{bc}	36 ^a	43 ^a	50 ^a	43 ^a	16396 ^b	11254 ^b	10987 ^b	12879 ^b	43.6 ^a	50.2 ^a	41.8 ^a	45.2 ^a	677 ^a	534 ^a	430 ^a	547 ^a
I5S	135 ^a	90 ^{ab}	66 ^{ab}	97 ^{abc}	36 ^a	41 ^{abc}	49 ^a	42 ^a	20706 ^a	15540 ^a	14627 ^a	16958 ^a	32.8 ^b	37.4 ^b	32.1 ^b	34.1 ^a	642 ^a	544 ^a	441 ^a	542 ^a
SS	136 ^a	95 ^a	67 ^{ab}	99 ^{ab}	36 ^a	39 ^{bc}	52 ^a	43 ^a	18004 ^{ab}	13012 ^{ab}	12276 ^{ab}	14431 ^{ab}	40.4 ^{ab}	45.2 ^{ab}	37.6 ^{ab}	41.1 ^a	682 ^a	548 ^a	433 ^a	554 ^a
SI	136 ^a	97 ^a	70 ^a	101 ^a	37 ^a	39 ^c	51 ^a	42 ^a	17359 ^b	12040 ^b	10859 ^b	13419 ^b	42 ^a	45.2 ^{ab}	35.9 ^{ab}	41.0 ^a	682 ^a	504 ^a	363 ^a	516 ^a

*: Calculated as GY/GW; **: Determined with 200 grains.

Table S2. Pedigrees and allelic combinations for *Ppd-A1* and *Ppd-B1* loci harboured by the genotypes used in the study.

Pedigree	Allele variant at <i>Ppd-A1</i>	Allele variant at <i>Ppd-B1</i>	Allelic combination acronym
2905-13.93.04//DUKEM_12/2*RASCON_21	<i>GS100 Ppd-A1a</i>	<i>Ppd-B1a</i>	I0I
MEGADUR//DUKEM_12/2*RASCON_21	<i>GS100 Ppd-A1a</i>	<i>Ppd-B1a</i>	I0I
MEGADUR//DUKEM_12/2*RASCON_21	<i>GS100 Ppd-A1a</i>	<i>Ppd-B1a</i>	I0I
2716-25.94.01/3/SNITAN	<i>GS105 Ppd-A1a</i>	<i>Ppd-B1a</i>	I5I
2716-25.94.01/3/SNITAN	<i>GS105 Ppd-A1a</i>	<i>Ppd-B1a</i>	I5I
2805-49.94.02/GUANAY	<i>GS105 Ppd-A1a</i>	<i>Ppd-B1a</i>	I5I
2905-13.93.04//CADO/BOOMER_33	<i>GS105 Ppd-A1a</i>	<i>Ppd-B1a</i>	I5I
DURABON//SOOTY_9/RASCON_37	<i>GS105 Ppd-A1a</i>	<i>Ppd-B1a</i>	I5I
DURABON//SOOTY_9/RASCON_37	<i>GS105 Ppd-A1a</i>	<i>Ppd-B1a</i>	I5I
2805-49.94.02//CADO/BOOMER_33	<i>GS105 Ppd-A1a</i>	<i>Ppd-B1b</i>	I5S
2905-13.93.04//CADO/BOOMER_33	<i>GS105 Ppd-A1a</i>	<i>Ppd-B1b</i>	I5S
2905-13.93.04//CADO/BOOMER_33	<i>GS105 Ppd-A1a</i>	<i>Ppd-B1b</i>	I5S
2905-13.93.04/SNITAN	<i>GS105 Ppd-A1a</i>	<i>Ppd-B1b</i>	I5S
2716-25.94.01/GUANAY	<i>Ppd-A1b</i>	<i>Ppd-B1b</i>	SS
2716-25.94.01/GUANAY	<i>Ppd-A1b</i>	<i>Ppd-B1b</i>	SS
2905-13.93.04//CADO/BOOMER_33	<i>Ppd-A1b</i>	<i>Ppd-B1b</i>	SS
2905-13.93.04//CADO/BOOMER_33	<i>Ppd-A1b</i>	<i>Ppd-B1b</i>	SS
2905-13.93.04/SNITAN	<i>Ppd-A1b</i>	<i>Ppd-B1b</i>	SS
2805-49.94.02//CADO/BOOMER_33	<i>Ppd-A1b</i>	<i>Ppd-B1a</i>	SI
2905-13.93.04//CADO/BOOMER_33	<i>Ppd-A1b</i>	<i>Ppd-B1a</i>	SI
2905-13.93.04//CADO/BOOMER_33	<i>Ppd-A1b</i>	<i>Ppd-B1a</i>	SI
Anton	<i>Ppd-A1b</i>	<i>Ppd-B1a</i>	SI
Simeto	<i>Ppd-A1b</i>	<i>Ppd-B1a</i>	SI

Table S3. Geographic and environmental descriptors for the three experimental sites.

Site	Spain	Mexico-North	Mexico-South
Location	Lleida	Ciudad Obregón	El Batán
Experimental station (institution)	Gimenells (IRTA)	CENEB (CIMMYT)	El Batán (CIMMYT)
<i>Coordinates</i>			
Latitude	41° 38'N	27° 21'N	19° 31'N
Longitude	0° 23'E	109° 54'W	98° 50'W
Altitude (m asl.)	200	40	2249
<i>Soil characteristics</i>			
Texture	Fine-loamy	Clay	Clay
pH	8.1	8.5	5.9
P (ppm)	16	2.4	65
K (ppm)	134	273	312
Organic matter (%)	2.4	1.2	5

Table S4. Mean comparison of grain setting in a set of 23 durum wheat genotypes grouped according to five allele combinations at *Ppd-A1* and *Ppd-B1* loci and tested during three years in Spain. Means within columns with different letters are significantly different for a LSD test at $p < 0.05$. See Table 1 for acronym description.

Allele combination	Grain setting (%)	
I0I	0.62	a
I5I	0.64	a
I5S	0.63	a
SS	0.61	a
SI	0.60	a