

### Supplementary Material

#### Evaluation of functional kompetitive allele-specific PCR (KASP) markers for selection of drought-tolerant wheat (*Triticum aestivum*) genotypes

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## Exploitation of functional KASP markers and morphological traits for selection of drought-tolerant genotypes

**Table S1:** List of genotypes used for screening against drought tolerance.

S. No.	Wheat genotypes	S. No.	Wheat genotypes
V1	Khyber-87	V21	Johar
V2	Bakhtawar-94	V22	Khaista
V3	MH-97	V23	Wadaan
V4	Shafaq-06	V24	Pageena
V5	FSD-08	V25	Markaz
V6	NARC-09	V26	Gulzar
V7	Millet-11	V27	Akbar
V8	NARC-11	V28	Ghazi
V9	Dharabi	V29	Bakhar Star
V10	Aas	V30	Attahabib
V11	Chakwal-50	V31	Local White
V12	PS-13	V32	NAX.2(BW)
V13	Shahkar	V33	NAX.1(BW)
V14	Pakistan-13	V34	China N2
V15	Ujala	V35	China N1
V16	Pakhtunkhwa	V36	China 4
V17	PS-15	V37	China 3
V18	Borlaug	V38	China 2
V19	Zincol	V39	China 1
V20	Gold	V40	Blue Silver

**Table S2:** Basic information of individual KASP assays, targeted gene, primer sequences

<b>S. No.</b>	<b>Gene</b>	<b>Primer Name</b>	<b>FAM primer</b>	<b>HEX primer</b>	<b>Common primer</b>
1	<i>1-feh-w3</i>	<i>Ifehw3</i>	CTCCCCCCTTCCTTCTGTCC	CTCCCCCCTTCCTTCTGTCT	AGGAAGACGGCCCGAGCTTT
2	<i>Dreb</i>	<i>Dreb-B1</i>	CCTGCGCACTTTCTTCTTCCTGT	CTGCGCACTTTCTTCTTCCTGG	TTTACCTTGTGATATGGATTGCCTTGAT
3	<i>TaPPH-7A</i>	<i>TaPPH-KASP-13</i>	GTTGTAAGACTGACATAACAATC	GTTGTAAGACTGACATAACAATT	GCTGGCTGTAAATGTTAATGTGTCTCC
4	<i>TaSAP-7B</i>	<i>TaSAP-7B-KASP-8</i>	GAGCTGACCGGATCGATCCAGAAGCC	GAGCTGACCGGATCGATCCAGAAGCT	GAACGTGATGGAGACGGCTGGCCACG
5	<i>TaSnRK2.9-5A</i>	<i>TaSnRK2.9-5A-KASP-5</i>	CTTGGCACCAGACCAGAGCCACGGC	CTTGGCACCAGACCAGAGCCACGGT	ACGCATCATCAAACCTTGTAATACC
6		<i>TaSnRK2.9-5A-KASP-6</i>	TGAATGTAGTCCGGAATCGAGTACG	TGAATGTAGTCCGGAATCGAGTACT	CCGAGCTCAACTTTTTTCAGAAAA
7	<i>TaLTPs</i>	<i>TaLTPs-KASP-11</i>	TTTGGACTATATTGGGCTTTATTTTC	TTTGGACTATATTGGGCTTTATTTTC	GGCCTCCAGTTAATAGGTTAGTCC
8		<i>TaLTPs-KASP-12</i>	GGAGAAAAGATAAGCAATCGCGGCCG	GGAGAAAAGATAAGCAATCGCGGCCA	GGTCCTAGATGCACTTACAGTTTGAC

**Table S3:** Percent reduction and mean statistics of 9 morphological traits shown by 40 genotypes under drought and control treatments.

Parameters	Treatment	Maximum	Minimum	Mean	Percentage Reduction
SL	Control	68.17	23.73	52.03	82.37%
	Drought	14.68	5.18	9.17	
TC	Control	8.67	2.33	5.64	49.82%
	Drought	4.00	1.00	2.83	
RL	Control	67.47	24.17	53.11	19.52%
	Drought	79.20	16.4	42.74	
FSW	Control	27.20	4.54	15.33	60.33%
	Drought	13.28	0.68	6.08	
FRW	Control	18.71	2.63	9.36	73.61%
	Drought	6.43	0.26	2.47	
DSW	Control	4.37	0.59	2.10	54.28%
	Drought	2.18	0.20	0.96	
DRW	Control	2.64	0.20	1.03	57.28%
	Drought	1.47	0.20	0.44	
PR	Control	2.00	1.00	1.33	-20.30%
	Drought	3.67	1.00	1.60	
SR	Control	36.33	10.67	21.83	59.27%
	Drought	16.67	3.67	8.89	

**Table S4:** Performance among 40 genotypes under drought treatment.

Traits	Drought Tolerant Genotypes			Drought Susceptible Genotypes		
SL	Akbar	NAX 1.BW	Aas	Millet	Khyber-87	NAX 2.BW
	14.68	13.33	12.48	6.1	7.73	5.18
TC	Aas	MH-97	Ujala	PS-15	PS-13	NAX 2.BW
	4	4	4	1.67	1.67	1.00
RL	Blue Silver	China 1	China N2	Pakhtunkhwa	PS-13	MH-97
	79.2	71.83	69.47	3	1.67	4
FRW	Aas	Gold	Pageena	Shafaq-06	NARC-09	PS-13
	6.43	5.01	4.97	0.82	0.42	0.26
FSW	Aas	China 4	NAX 1.BW	NARC-09	Khyber-87	PS-13
	13.28	11.37	10.58	2.19	1.53	0.68
DRW	Aas	Gold	Zincol	Khyber-87	NARC-09	PS-13
	1.47	1.21	0.94	0.12	0.07	0.03
DSW	Johar	Aas	China 4	PS-13	Khyber-87	NARC-09
	2.18	2.07	1.89	0.34	0.25	0.20
PR	Aas	Chakwal-50	Gold	Pakhtunkhwa	Khaista	PS-13
	3.67	2.50	2.33	1.00	1.00	1.00
SR	Aas	Bakhtawar	MH-97	NARC-09	PS-13	Shafaq-06
	16.67	13.67	13.00	5.00	4.00	3.67