

Table S4. AMMI analysis of variance for GY, TKW and kernel-related traits in eight durum wheat genotypes tested across 15 different environments.

Variable GY

Source	Df	Sum Sq	Mean Sq	F value	Pr(>F)	Proportion (%)	Accumulated
ENV	14	11355146	811082	241.54	0	73.88	NA
REP(ENV)	30	100740	3358	2.3	0.000349	0.66	NA
GEN	7	679448	97064	66.38	8.5E-50	4.42	NA
GEN:ENV	98	1463940	14938	10.22	2.22E-44	9.52	NA
IPC1	20	602624	30131	20.61	0	41.2	41.2
IPC2	18	357469	19859	13.58	0	24.4	65.6
IPC3	16	199571	12473	8.53	0	13.6	79.2
IPC4	14	113939	8138	5.57	0	7.8	87
IPC5	12	98025	8169	5.59	0	6.7	93.7
IPC6	10	73196	7320	5.01	0	5	98.7
IPC7	8	19116	2390	1.63	0.118	1.3	100
Residuals	210	307085	1462	NA	NA	NA	NA
Total	457	15370298	33633	NA	NA	NA	NA

Variable TKW

Source	Df	Sum Sq	Mean Sq	F value	Pr(>F)	Proportion (%)	Accumulated
ENV	14	23857.7	1704.12	490.428	0	54.37	NA
REP(ENV)	30	104.2	3.47	0.877	0.654	0.24	NA
GEN	7	8986.3	1283.76 3	24.164	7.68E-109	20.48	NA
GEN:ENV	98	5050.9	51.54	13.014	6.6E-53	11.51	NA
IPC1	20	1783.7	89.19	22.52	0	35.3	35.5
IPC2	18	1477.3	82.07	20.72	0	29.2	64.6
IPC3	16	909	56.81	14.35	0	18	82.6
IPC4	14	478	34.14	8.62	0	9.5	92
IPC5	12	203	16.91	4.27	0	4	96
IPC6	10	145.3	14.53	3.67	0.0002	2.9	98.9
IPC7	8	54.7	6.83	1.73	0.093	1.1	100
Residuals	210	831.6	3.96	NA	NA	NA	NA
Total	457	43881.7	96.02	NA	NA	NA	NA

Variable KA

Source	Df	Sum Sq	Mean Sq	F value	Pr(>F)	Proportion (%)	Accumulated
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ENV	14	1371.25	97.946	232.423	0	34.29	NA
REP(ENV)	30	12.64	0.421	0.877	0.654	0.32	NA
GEN	7	1741.52	248.788	517.858	1.06E-128	43.55	NA
GEN:ENV	98	386.43	3.943	8.208	3.77E-37	9.66	NA
IPC1	20	136.82	6.841	14.24	0	35.4	35.4
IPC2	18	120.6	6.7	13.95	0	31.2	66.6
IPC3	16	57.31	3.582	7.46	0	14.8	81.4
IPC4	14	31.38	2.241	4.67	0	8.1	89.6
IPC5	12	22.66	1.888	3.93	0	5.9	95.4
IPC6	10	12.95	1.295	2.7	0.0039	3.4	98.8
IPC7	8	4.72	0.59	1.23	0.283	1.2	100
Residuals	210	100.89	0.48	NA	NA	NA	NA
Total	457	3999.16	8.751	NA	NA	NA	NA

Variable KW

Source	Df	Sum Sq	Mean Sq	F value	Pr(>F)	Proportion (%)	Accumulated
ENV	14	15.9839	1.1417	193.05	0	62.15	NA

REP(ENV)	30	0.1774	0.00591	1.2	0.228	0.69	NA
GEN	7	1.6932	0.24188	49.12	6.55E-41	6.58	NA
GEN:ENV	98	3.4156	0.03485	7.08	1.51E-32	13.28	NA
IPC1	20	1.5496	0.07748	15.73	0	45.4	45.4
IPC2	18	0.6806	0.03781	7.68	0	19.9	65.3
IPC3	16	0.5276	0.03298	6.7	0	15.4	80.7
IPC4	14	0.3817	0.02726	5.54	0	11.2	91.9
IPC5	12	0.1782	0.01485	3.01	0.0006	5.2	97.1
IPC6	10	0.0512	0.00512	1.04	0.411	1.5	98.6
IPC7	8	0.0468	0.00585	1.19	0.306	1.4	100
Residuals	210	1.0341	0.00492	NA	NA	NA	NA
Total	457	25.7199	0.05628	NA	NA	NA	NA

Variable KL

Source	Df	Sum Sq	Mean Sq	F value	Pr(>F)	Proportion (%)	Accumulated
ENV	14	45.03	3.2164	45.985	2.22E-16	12.19	NA
REP(ENV)	30	2.098	0.0699	0.975	0.509	0.57	NA

GEN	7	257.173	36.7389	512.115	3.21E-128	69.63	NA
GEN:ENV	98	24.991	0.255	3.555	7.65E-15	6.77	NA
IPC1	20	11.083	0.5541	7.72	0	44.3	44.3
IPC2	18	5.574	0.3096	4.32	0	22.3	66.6
IPC3	16	3.83	0.2394	3.34	0	15.3	82
IPC4	14	2.682	0.1916	2.67	0.0013	10.7	92.7
IPC5	12	0.886	0.0738	1.03	0.422	3.5	96.3
IPC6	10	0.604	0.0604	0.84	0.591	2.4	98.7
IPC7	8	0.333	0.0416	0.58	0.794	1.3	100
Residuals	210	15.065	0.0717	NA	NA	NA	NA
Total	457	369.349	0.8082	NA	NA	NA	NA

Variable KC

Source	Df	Sum Sq	Mean Sq	F value	Pr(>F)	Proportion (%)	Accumulated
ENV	14	0.7736	0.05526	20.773	1.14E-11	11.53	NA
REP(ENV)	30	0.0798	0.00266	0.961	0.529	1.19	NA
GEN	7	4.0406	0.57722	208.587	7.08E-91	60.22	NA

GEN:ENV	98	0.6173	0.0063	2.276	0.000000375	9.20	NA
IPC1	20	0.283	0.01415	5.11	0	45.9	45.9
IPC2	18	0.1583	0.00879	3.18	0	25.6	71.5
IPC3	16	0.0712	0.00445	1.61	0.0682	11.5	83
IPC4	14	0.0435	0.0031	1.12	0.342	7	90.1
IPC5	12	0.0344	0.00287	1.04	0.413	5.6	95.6
IPC6	10	0.0153	0.00153	0.55	0.853	2.5	98.1
IPC7	8	0.0116	0.00145	0.52	0.841	1.9	100
Residuals	210	0.5811	0.00277	NA	NA	NA	NA
Total	457	6.7096	0.01468	NA	NA	NA	NA

Variable KLKW

Source	Df	Sum Sq	Mean Sq	F value	Pr(>F)	Proportion (%)	Accumulated
ENV	14	3.2724	0.23374	19.58	2.47E-11	10.22	NA
REP(ENV)	30	0.3582	0.01194	1	0.466	1.12	NA
GEN	7	19.6568	2.80812	236.23	7.35E-96	61.40	NA
GEN:ENV	98	3.1146	0.03178	2.67	1.46E-09	9.73	NA

IPC1	20	1.3337	0.06668	5.61	0	42.8	42.8
IPC2	18	0.9338	0.05188	4.36	0	30	72.8
IPC3	16	0.3162	0.01977	1.66	0.0565	10.2	83
IPC4	14	0.2314	0.01653	1.39	0.16	7.4	90.4
IPC5	12	0.1507	0.01256	1.06	0.396	4.8	95.2
IPC6	10	0.0955	0.00955	0.8	0.629	3.1	98.3
IPC7	8	0.0532	0.00665	0.56	0.81	1.7	100
Residuals	210	2.4963	0.01189	NA	NA	NA	NA
Total	457	32.0129	0.07005	NA	NA	NA	NA