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Supplementary Material

Mapping quantitative trait loci for drought tolerance/susceptibility indices and estimation of breeding values of doubled haploid lines in wheat (*Triticum aestivum*)

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Supplementary table S1. Grain yield (kg h^{-1}) and grain yield reduction (Re) in RAC875 × Kukri doubled haploid (DH) population under drought stress compared to normal irrigation conditions in 2015 and 2016.

DH line	NExp 15	NExp 16	DrExp 15	DrExp 16	Re (%) Ex 15	Re (%) Ex 16	Number lines	NExp 15	NExp 16	DrExp 15	DrExp 16	Re (%) Ex 15	Re (%) Ex 16
DH_R004	2713.3	3277.2	2226.7	1993.3	17.9	39.2	DH_R198	3334.8	3411.6	2340.0	1500.0	29.8	56.0
DH_R005	4238.6	3045.9	2940.0	2336.1	30.6	23.3	DH_R203	2955.3	2847.7	2303.3	1349.0	22.1	52.6
DH_R006	3187.3	2584.7	2656.7	2098.2	16.6	18.8	DH_R208	3227.6	2873.5	2336.7	1498.3	27.6	47.9
DH_R008	4387.0	6668.7	3011.1	2783.3	31.4	58.3	DH_R209	4492.9	3769.0	4100.0	3372.0	8.7	10.5
DH_R010	2183.3	2316.7	1408.0	1535.0	35.5	33.7	DH_R210	2633.3	2001.3	2133.3	1387.8	19.0	30.7
DH_R011	4150.0	3154.7	2388.9	1933.3	42.4	38.7	DH_R211	2632.8	2432.5	1956.7	1308.3	25.7	46.2
DH_R012	5232.0	3143.3	2583.3	2222.2	50.6	29.3	DH_R212	4382.6	3938.2	3203.3	1710.6	26.9	56.6
DH_R013	3310.2	4315.1	2796.7	2170.6	15.5	49.7	DH_R215	3702.6	5241.5	2903.3	2781.7	21.6	46.9
DH_R014	2218.5	2062.0	1743.3	1368.3	21.4	33.6	DH_R216	3883.0	2003.7	3010.0	1746.6	22.5	12.8
DH_R019	2503.2	2695.2	1366.7	1234.4	45.4	54.2	DH_R217	2785.5	2670.1	2093.3	1376.7	24.8	48.4
DH_R020	3027.8	3800.0	2200.0	2327.8	27.3	38.7	DH_R218	4168.8	4591.4	2633.3	1867.8	36.8	59.3
DH_R021	4777.6	6366.8	3556.7	2667.8	25.6	58.1	DH_R219	4616.0	4402.0	3500.0	2235.8	24.2	49.2
DH_R023	3133.3	2343.5	2703.3	1853.4	13.7	20.9	DH_R221	3690.2	3482.6	2176.7	1639.4	41.0	52.9
DH_R024	3677.2	3768.0	2946.7	2446.7	19.9	35.1	DH_R222	3944.0	4185.3	2210.0	2434.8	44.0	41.8
DH_R032	3803.0	4049.5	1666.7	2000.0	56.2	50.6	DH_R223	4368.1	3890.0	2633.3	1646.7	39.7	57.7
DH_R033	5853.8	4536.9	3886.7	2317.6	33.6	48.9	DH_R224	4679.3	4122.8	3196.7	1790.6	31.7	56.6
DH_R034	2973.0	2984.8	2620.0	1953.3	11.9	34.6	DH_R227	4922.2	4475.3	2636.7	1970.0	46.4	56.0
DH_R037	4100.0	4381.3	1586.7	2256.0	61.3	48.5	DH_R228	4154.7	5703.0	2903.3	2223.9	30.1	61.0
DH_R038	4634.8	3557.4	3353.3	2686.7	27.6	24.5	DH_R230	2297.6	3850.8	1190.0	2134.4	48.2	44.6
DH_R040	3631.4	4670.7	2266.7	2463.3	37.6	47.3	DH_R232	3883.8	2429.3	2713.3	2013.3	30.1	17.1
DH_R043	5610.0	5056.0	3126.7	2114.4	44.3	58.2	DH_R237	2391.7	4369.5	997.4	2294.4	58.3	47.5
DH_R044	3127.0	4684.8	2530.0	2373.9	19.1	49.3	DH_R238	4016.5	4636.2	2333.3	1766.5	41.9	61.9
DH_R045	3729.3	4194.7	2316.7	2245.0	37.9	46.5	DH_R239	5091.0	4275.5	4046.7	3272.0	20.5	23.5
DH_R046	5109.8	5085.2	2496.7	2578.3	51.1	49.3	DH_R241	4695.7	5582.9	3133.3	2896.7	33.3	48.1
DH_R048	3023.6	4557.9	1916.7	1950.0	36.6	57.2	DH_R243	1059.1	2388.5	806.7	1987.0	23.8	16.8
DH_R050	5324.5	3752.2	4090.0	3108.3	23.2	17.2	DH_R244	2825.2	3657.3	1486.7	1771.5	47.4	51.6
DH_R051	4162.2	4226.1	3496.7	1940.6	16.0	54.1	DH_R246	3433.1	3954.1	1556.7	1880.0	54.7	52.5
DH_R052	4021.0	4318.0	3120.0	2620.0	22.4	39.3	DH_R247	3501.2	3763.2	1760.0	1873.3	49.7	50.2
DH_R053	3402.0	3333.0	2863.3	1982.8	15.8	40.5	DH_R249	1592.3	3946.2	935.7	1614.4	41.2	59.1
DH_R054	4294.8	5067.4	1936.7	2270.0	54.9	55.2	DH_R250	4514.1	5538.7	3726.0	3598.5	17.5	35.0
DH_R057	4358.4	5445.6	2840.0	2000.0	34.8	63.3	DH_R251	2739.0	3553.0	2166.7	1666.7	20.9	53.1
DH_R058	3469.5	5150.4	2670.0	2170.0	23.0	57.9	DH_R254	4999.5	6056.4	3926.7	2606.7	21.5	57.0

DH_R059	5090.2	4983.4	3176.7	2510.0	37.6	49.6	DH_R256	2811.7	5046.9	2465.7	2121.1	12.3	58.0
DH_R062	4474.1	3406.6	3820.0	3033.0	14.6	11.0	DH_R258	3905.0	4660.0	3370.0	2098.3	13.7	55.0
DH_R064	3868.6	4414.3	2866.7	2200.0	25.9	50.2	DH_R260	3695.0	5255.0	2356.7	1876.7	36.2	64.3
DH_R065	2796.3	3953.5	2260.0	2051.6	19.2	48.1	DH_R263	3549.1	4493.4	2706.7	2535.7	23.7	43.6
DH_R070	2266.7	3431.7	1343.1	1341.1	40.7	60.9	DH_R265	5006.2	4796.1	4420.0	3457.0	11.7	27.9
DH_R073	3593.0	3580.5	1886.7	1274.8	47.5	64.4	DH_R267	3299.1	3821.2	2483.3	2008.8	24.7	47.4
DH_R075	4884.7	6092.3	2893.3	2176.7	40.8	64.3	DH_R269	3270.7	4049.0	2783.3	1805.0	14.9	55.4
DH_R077	4884.9	4324.9	2516.7	1676.8	48.5	61.2	DH_R271	2672.5	2486.0	1973.3	1306.7	26.2	47.4
DH_R082	4988.1	3765.6	3693.3	3269.8	26.0	13.2	DH_R273	3299.3	3379.7	2036.7	2011.7	38.3	40.5
DH_R087	3680.0	2589.0	2243.3	1319.0	39.0	49.1	DH_R274	5294.8	5533.1	3383.3	2242.8	36.1	59.5
DH_R093	5602.5	4098.7	2440.0	1905.8	56.4	53.5	DH_R275	5129.6	4428.4	2136.7	2398.3	58.3	45.8
DH_R094	5340.9	4566.6	2026.7	1860.0	62.1	59.3	DH_R276	2846.6	4589.3	2163.3	2075.0	24.0	54.8
DH_R095	4884.3	4541.8	3176.7	2665.0	35.0	41.3	DH_R277	6259.0	4770.8	2776.7	2718.3	55.6	43.0
DH_R096	4492.4	3385.9	2573.3	1484.0	42.7	56.2	DH_R278	2333.3	2791.7	1920.0	1420.0	17.7	49.1
DH_R098	2646.7	4076.0	1800.0	1884.5	32.0	53.8	DH_R279	6415.7	5792.9	3313.3	2823.3	48.4	51.3
DH_R099	4522.0	4798.0	3270.0	1965.0	27.7	59.0	DH_R280	5727.7	3966.3	3213.3	1715.6	43.9	56.7
DH_R100	3965.8	5057.9	2603.3	1936.7	34.4	61.7	DH_R282	3991.3	4792.7	2386.7	2744.4	40.2	42.7
DH_R101	4987.2	6235.2	2620.0	2618.9	47.5	58.0	DH_R283	4004.0	4852.0	1470.0	1843.9	63.3	62.0
DH_R102	2910.0	2642.5	2133.3	1633.3	26.7	38.2	DH_R284	4317.0	5639.5	3153.3	2576.7	27.0	54.3
DH_R103	3346.8	3674.4	2998.3	1521.1	10.4	58.6	DH_R285	4080.0	3490.8	2780.0	1971.0	31.9	43.5
DH_R104	3272.4	3486.2	2540.0	1462.2	22.4	58.1	DH_R287	5235.8	5455.4	2716.7	2048.3	48.1	62.5
DH_R105	3412.5	5845.9	2356.7	2690.0	30.9	54.0	DH_R290	5316.5	5107.7	2616.7	2417.2	50.8	52.7
DH_R106	2972.1	2233.9	956.7	955.2	67.8	57.2	DH_R292	3000.0	3525.2	1560.0	1326.7	48.0	62.4
DH_R108	5090.0	5573.6	4131.0	3920.0	18.8	29.7	DH_R295	4810.5	6508.1	2570.0	2438.1	46.6	62.5
DH_R109	3656.3	3586.2	2483.3	2688.2	32.1	25.0	DH_R296	3842.7	5625.3	2313.3	2144.4	39.8	61.9
DH_R110	4135.8	3870.0	3556.7	3055.0	14.0	21.1	DH_R297	3965.0	3717.5	2063.3	2494.4	48.0	32.9
DH_R111	3699.7	3989.4	2633.3	1867.8	28.8	53.2	DH_R298	5218.8	4426.7	2566.7	2392.2	50.8	46.0
DH_R112	2322.1	2284.2	1533.3	1760.0	34.0	22.9	DH_R299	5553.8	5205.2	3366.7	2700.0	39.4	48.1
DH_R115	4317.2	3572.9	2566.7	1834.4	40.5	48.7	DH_R300	4328.8	3424.4	2093.3	1426.7	51.6	58.3
DH_R118	5967.0	4302.6	4093.0	3442.0	31.4	20.0	DH_R301	3960.2	5254.6	3010.0	2277.2	24.0	56.7
DH_R119	4490.7	4260.5	3090.0	2096.1	31.2	50.8	DH_R302	2483.3	2764.5	2078.0	2068.0	16.3	25.2
DH_R120	4414.5	5289.4	2084.6	2296.7	52.8	56.6	DH_R303	3969.6	5463.3	3076.7	2410.0	22.5	55.9
DH_R122	3824.0	3988.9	2230.0	1563.3	41.7	60.8	DH_R304	4200.0	2856.0	2553.3	1863.9	39.2	34.7
DH_R125	5899.2	6288.3	3186.7	2502.2	46.0	60.2	DH_R311	5431.4	5134.5	2990.0	2134.3	44.9	58.4
DH_R127	2483.4	2181.6	1580.0	1520.0	36.4	30.3	DH_R314	4231.8	3578.0	2713.3	2033.3	35.9	43.2
DH_R128	3721.9	6360.6	2320.0	2285.0	37.7	64.1	DH_R315	5056.4	3823.2	2540.0	1600.0	49.8	58.2
DH_R130	2714.6	3379.1	1980.0	1320.0	27.1	60.9	DH_R316	3243.0	3330.0	2413.3	1746.7	25.6	47.5
DH_R132	4753.9	4146.4	3686.7	3120.0	22.4	24.8	DH_R322	6075.5	4981.2	4483.0	3973.3	26.2	20.2
DH_R134	2787.6	2262.0	1873.3	1134.0	32.8	49.9	DH_R323	3933.3	3366.7	1406.7	2305.6	64.2	31.5

DH_R136	3142.3	3963.2	2353.3	1686.7	25.1	57.4	DH_R324	3792.9	3174.9	1786.7	1090.0	52.9	65.7
DH_R139	5018.5	5260.2	2400.0	2264.7	52.2	56.9	DH_R325	2884.0	4092.0	2403.3	2310.6	16.7	43.5
DH_R143	3734.8	3317.4	2706.7	2119.8	27.5	36.1	DH_R326	3291.6	2255.8	2853.3	1668.2	13.3	26.0
DH_R144	2763.8	3303.7	2023.3	1253.2	26.8	62.1	DH_R327	3658.1	4982.1	1976.7	2286.1	46.0	54.1
DH_R145	3349.3	5145.7	2176.7	2508.3	35.0	51.3	DH_R328	3879.9	4471.6	2700.0	2069.3	30.4	53.7
DH_R147	2918.1	3554.1	1800.0	1271.9	38.3	64.2	DH_R335	4837.2	5464.6	2700.0	2033.3	44.2	62.8
DH_R148	2266.7	3081.3	2000.0	2238.2	11.8	27.4	DH_R337	4577.0	4655.0	2333.3	2823.3	49.0	39.3
DH_R149	4449.8	3969.9	2430.0	2191.2	45.4	44.8	DH_R346	3000.0	3895.0	1860.0	1981.1	38.0	49.1
DH_R150	2321.5	3583.6	1200.0	1930.0	48.3	46.1	DH_R347	4588.8	4249.0	2723.3	2026.1	40.7	52.3
DH_R153	2387.8	3303.9	2033.3	1518.4	14.8	54.0	DH_R348	5224.3	6071.2	2466.7	2668.9	52.8	56.0
DH_R154	2311.0	3197.5	1733.3	2341.1	25.0	26.8	DH_R350	4975.2	4287.6	3920.0	3120.0	21.2	27.2
DH_R156	3593.3	4241.7	2316.7	2488.3	35.5	41.3	DH_R352	4264.0	4611.3	3296.7	2420.6	22.7	47.5
DH_R157	3239.8	3849.4	2670.0	1969.4	17.6	48.8	DH_R353	3776.9	3566.6	2636.7	1427.2	30.2	60.0
DH_R159	3239.6	4002.8	1593.5	1522.2	50.8	62.0	DH_R355	4842.3	5856.1	1850.9	2576.7	61.8	56.0
DH_R160	3388.6	4425.4	2396.7	2412.8	29.3	45.5	DH_R356	3755.5	2750.2	2876.7	2393.8	23.4	13.0
DH_R161	2266.7	2767.3	1517.6	1693.3	33.0	38.8	DH_R359	4379.5	3939.8	2720.0	1822.7	37.9	53.7
DH_R162	4627.0	5083.9	3636.7	3975.7	21.4	21.8	DH_R360	3339.2	2987.0	2553.3	2098.2	23.5	29.8
DH_R163	3058.1	3454.2	2406.7	1533.3	21.3	55.6	DH_R361	3957.3	3191.7	2796.7	1811.7	29.3	43.2
DH_R164	3711.7	3000.0	2106.7	1250.7	43.2	58.3	DH_R362	2404.2	4536.4	1890.0	2441.7	21.4	46.2
DH_R166	2373.3	4384.0	1673.3	2024.7	29.5	53.8	DH_R366	5061.7	4207.7	3356.7	2539.0	33.7	39.7
DH_R167	3222.0	2683.3	2000.0	2000.0	37.9	25.5	DH_R401	4109.0	2393.0	3094.4	1494.4	24.7	37.5
DH_R168	3219.6	4641.3	1956.7	2197.8	39.2	52.6	DH_R402	3705.6	3294.4	1855.3	1690.0	49.9	48.7
DH_R169	2995.4	3465.1	2386.7	2520.5	20.3	27.3	DH_R403	3066.7	1814.0	2646.7	1105.6	13.7	39.1
DH_R170	3765.7	3719.6	2040.0	2020.0	45.8	45.7	DH_R404	4367.0	5273.3	2450.0	2950.0	43.9	44.1
DH_R172	6274.6	6613.1	4580.0	4283.0	27.0	35.2	DH_R405	3084.7	3283.0	1711.1	2005.6	44.5	38.9
DH_R174	5338.0	6056.0	2243.3	2230.6	58.0	63.2	DH_R406	5140.0	2588.0	2733.3	2022.2	46.8	21.9
DH_R175	5587.6	4218.8	3793.3	1896.7	32.1	55.0	DH_R407	3635.0	3740.0	2655.6	2994.4	26.9	19.9
DH_R177	5876.0	6268.7	3253.3	2735.6	44.6	56.4	DH_R408	3395.3	3308.0	2466.7	2466.7	27.4	25.4
DH_R178	2894.0	2134.0	1603.3	1343.0	44.6	37.1	DH_R409	2809.3	3198.0	1705.6	1983.3	39.3	38.0
DH_R179	2850.9	2415.8	1823.3	1163.7	36.0	51.8	DH_R410	3594.4	3352.0	2298.0	1994.4	36.1	40.5
DH_R180	3097.9	3321.4	2553.3	2164.4	17.6	34.8	DH_R411	3294.4	4520.0	2860.7	2133.3	13.2	52.8
DH_R181	3109.2	3204.6	2293.3	1344.0	26.2	58.1	DH_R412	2569.3	2000.0	2172.2	1583.3	15.5	20.8
DH_R182	2353.0	1474.0	2000.0	1305.0	15.0	11.5	DH_R413	3653.0	3769.0	1477.8	1827.8	59.5	51.5
DH_R184	3818.6	3586.6	2590.0	2004.4	32.2	44.1	DH_R414	4037.3	3483.3	1227.8	2076.0	69.6	40.4
DH_R186	5136.0	4368.0	1803.3	1673.9	64.9	61.7	DH_R415	2861.1	2550.0	1222.0	1072.2	57.3	58.0
DH_R188	3017.9	3178.9	2100.0	1413.2	30.4	55.5	DH_R416	6536.0	4038.0	2122.2	1444.4	67.5	64.2
DH_R191	3200.0	3822.3	2616.7	1505.6	18.2	60.6	DH_R417	2988.0	4663.0	2527.8	2888.9	15.4	38.0
DH_R193	2466.7	2653.5	1966.7	1348.3	20.3	49.2	DH_R418	6158.0	2942.0	1855.6	2327.8	69.9	20.9
DH_R197	4483.8	3206.9	3483.3	2071.7	22.3	35.4	DH_R419	4650.3	3682.0	1250.0	2250.0	73.1	38.9

DrExp 15: Drought stress experiment in 2015–2016, DrExp 16: Drought stress experiment in 2016–2017, NExp 15: Normal irrigation experiment in 2015–2016, NExp 16: Normal irrigation experiment in 2016–2017, Re Ex 15: Grain yield reduction (%) of 2015–2016 experiment, Re Ex 16: Grain yield reduction (%) of 2016–2017 experiment.