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**Supplementary Material**

# Genetic interaction and inheritance of important traits in durum (Triticum turgidum ssp. durum) × emmer (Triticum turgidum ssp. dicoccum) crosses under two water regimes

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**Table S1.** Mean comparison and significant tests for studied traits in six generations from two crosses of tetraploid wheat (Shabrang × Singerd and Yavaros × Singerd) under two irrigation regimes

| **Non-stressed condition** | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Shabrang (P1) × Singerd (P2)** | | | | | | | | | | | | | | |
| Generation | PH | PE | PL | NT | NPT | SL | NSS | NKS | NKSL | GWS | KL | KD | BY | GY |
| P1 | 91.47 e | 22.80 c | 42.80 d | 26.20 e | 23.47 d | 9.47 d | 21.07 c | 89.60 a | 4.44 a | 4.98 a | 7.96 b | 3.62 a | 130.27 ab | 50.80 ab |
| P2 | 111.73 cb | 25.27 cb | 50.07 b | 72.93 a | 49.67 a | 11.93 a | 23.40 a | 45.13 e | 2.06 d | 1.77 f | 9.18 a | 2.42 e | 133.45 ab | 34.53 d |
| F1 | 119.47 a | 32.20 a | 55.73 a | 45.07 c | 39.53 b | 11.07 b | 22.67 ab | 59.13 c | 2.59 c | 3.42 c | 9.21 a | 3.28 b | 148.78 a | 56.85 a |
| BC1P1 | 106.07 d | 25.09 cb | 46.58 c | 33.89 d | 30.33 c | 9.78 cd | 20.84 c | 72.44 b | 3.22 b | 4.21 b | 7.97 b | 3.29 b | 133.73 ab | 51.73 ab |
| BC1P2 | 116.60 ab | 30.00 a | 54.40 a | 54.24 b | 43.22 b | 10.38 c | 21.78 cb | 51.16 ed | 2.50 c | 2.50 e | 8.33 b | 2.79 d | 122.99 b | 45.20 cb |
| F2 | 110.48 cd | 27.34 b | 49.57 bc | 41.23 c | 33.33 c | 9.6 d | 20.48 c | 54.61 cd | 2.75 c | 2.95 d | 8.14 b | 2.97 c | 119.48 b | 40.83 cd |
| LSD 5% | 5.16 | 2.54 | 3.11 | 6.4 | 5.28 | 0.634 | 1.38 | 7.02 | 0.395 | 0.383 | 0.338 | 0.149 | 19.39 | 6.59 |
| **Yavaros (P1)× Singerd (P2)** | | | | | | | | | | | | | | |
| Generation | PH | PE | PL | NT | NPT | SL | NSS | NKS | NKSL | GWS | KL | KD | BY | GY |
| P1 | 82.33 d | 19.27 e | 37.40 e | 26.73 e | 25.27 d | 8.13 d | 20.40 cd | 94.8 a | 4.67 a | 5.10 a | 7.71 c | 3.60 a | 133.11 b | 59.58 ab |
| P2 | 115.53 a | 26.27 cd | 51.67 c | 89.60 a | 73.60 a | 11.07 a | 23.60 a | 44.67 d | 2.01 e | 1.77 e | 9.12 a | 2.36 e | 189.64 a | 49.71 c |
| F1 | 115.67 a | 31.80 b | 55.67 b | 41.20 cd | 38.00 c | 10.00 b | 21.47 cb | 56.67 c | 2.70 cd | 3.62 c | 9.06 a | 3.29 b | 148.87 b | 59.26 ab |
| BC1P1 | 95.67 c | 24.02 d | 45.67 d | 34.36 d | 30.20 d | 9.27 c | 19.78 d | 73.00 b | 3.71 b | 4.05 b | 7.72 c | 3.13 c | 138.53 b | 59.89 ab |
| BC1P2 | 117.38 a | 34.76 a | 59.40 a | 70.82 b | 52.93 b | 10.58 ab | 22.04 b | 55.27 c | 2.54 d | 2.68 d | 8.09 b | 2.82 d | 193.86 a | 66.56 a |
| F2 | 101.26 b | 26.92 c | 49.49 c | 44.74 c | 36.34 c | 9.39 c | 19.91 d | 58.34 c | 2.97 c | 2.86 d | 7.71 c | 3.03 c | 133.65 b | 51.04 bc |
| LSD 5% | 5.56 | 2.57 | 3.42 | 7.24 | 6.01 | 0.595 | 1.31 | 6.74 | 0.361 | 0.33 | 0.232 | 0.164 | 23.35 | 8.87 |

**Table S1**. continued

**Stressed condition**

**Shabrang (P1) × Singerd (P2)**

| Generation | PH | PE | PL | NT | NPT | SL | NSS | NKS | NKSL | GWS | KL | KD | BY | GY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P1 | 89.00 c | 18.00 c | 39.87 d | 26.53 e | 22.80 c | 9.13 b | 18.13 c | 77.93 a | 4.07 a | 4.28 a | 7.94 c | 3.42 a | 104.80 c | 39.94 cd |
| P2 | 109.13 b | 15.13 c | 43.13 cd | 82.93 a | 43.60 b | 11.00 a | 22.53 ab | 46.13 d | 1.93 d | 1.33 f | 8.72 b | 2.12 e | 135.71 b | 29.50 e |
| F1 | 117.40 a | 32.00 a | 56.87 a | 48.67 c | 38.73 b | 10.60 a | 21.60 b | 50.87 cd | 2.37 c | 3.11 c | 9.10 a | 2.92 b | 145.00 b | 46.40 cb |
| BC1P1 | 106.22 b | 26.00 b | 46.25 c | 41.11 d | 38.69 b | 10.47 a | 21.89 b | 67.92 b | 3.42 b | 3.95 b | 7.88 c | 2.93 b | 150.60 ab | 53.81 a |
| BC1P2 | 112.08 ab | 24.25 b | 50.72 b | 72.31 b | 58.56 a | 10.92 a | 23.28 a | 46.22 d | 2.00 d | 2.13 e | 8.08 c | 2.43 d | 172.39 a | 50.27 ab |
| F2 | 110.21 b | 25.19 b | 50.43 b | 46.21 cd | 40.56 b | 10.71 a | 21.97 b | 54.36 c | 2.51 c | 2.66 d | 8.05 c | 2.73 c | 134.59 b | 38.03 d |
| LSD 5% | 5.61 | 3.35 | 3.65 | 7.11 | 6.25 | 0.628 | 1.23 | 4.97 | 0.295 | 0.27 | 0.266 | 0.17 | 23.02 | 6.91 |

**Yavaros (P1)× Singerd (P2)**

| Generation | PH | PE | PL | NT | NPT | SL | NSS | NKS | NKSL | GWS | KL | KD | BY | GY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P1 | 80.60 e | 16.60 c | 36.33 c | 24.4 d | 23.27 c | 7.73 d | 18.67 c | 90.47 a | 4.77 a | 3.76 a | 7.49 d | 3.25 a | 113.13 c | 51.4 b |
| P2 | 106.4 ab | 21.00 b | 48.33 b | 78.87 a | 65.07 a | 11.33 a | 22.27 a | 41.80 d | 1.84 e | 1.53 e | 9.01 a | 2.22 e | 150.05 ab | 39.47 c |
| F1 | 111.67 a | 31.27 a | 55.27 a | 42.07 c | 38.20 b | 10.33 b | 20.53 b | 51.27 c | 2.36 d | 3.08 b | 8.98 a | 3.05 b | 160.14 ab | 58.77 a |
| BC1P1 | 95.75 d | 24.06 b | 47.08 b | 44.94 c | 42.36 b | 9.31 c | 20.42 b | 70.67 b | 3.52 b | 3.87 a | 7.66 cd | 2.90 bc | 163.55 a | 63.56 a |
| BC1P2 | 104.83 cb | 22.94 b | 48.94 b | 72.5 a | 64.58 a | 10.36 b | 21.06 ab | 44.97 d | 2.18 d | 1.88 d | 8.03 b | 2.55 d | 167.87 a | 51.60 b |
| F2 | 99.39 cd | 22.71 b | 46.77 b | 53.63 b | 44.16 b | 9.73 bc | 20.73 b | 55.88 c | 2.74 c | 2.47 c | 7.74 c | 2.74 c | 141.82 b | 48.86 b |
| LSD 5% | 5.81 | 2.92 | 3.67 | 6.74 | 5.76 | 0.631 | 1.23 | 5.82 | 0.305 | 0.292 | 0.216 | 0.161 | 17.58 | 6.39 |

PH, Plant height (cm); PE, Peduncle extrusion (cm); PL, Peduncle length (cm); NT, Number of tillers per plant; NPT, Number of productive tillers per plant; SL, Spike length (cm); NSS, Number of spikelet per spike; NKS, Number of Kernels per spike; NKSL, Number of kernel per spikelet; GWS, Grain weight per spike (gr); KL, Kernel length (mm); KD, Kernel diameter (mm); Biological Yield per Plant (gr); GY, Grains yield per plant (gr)

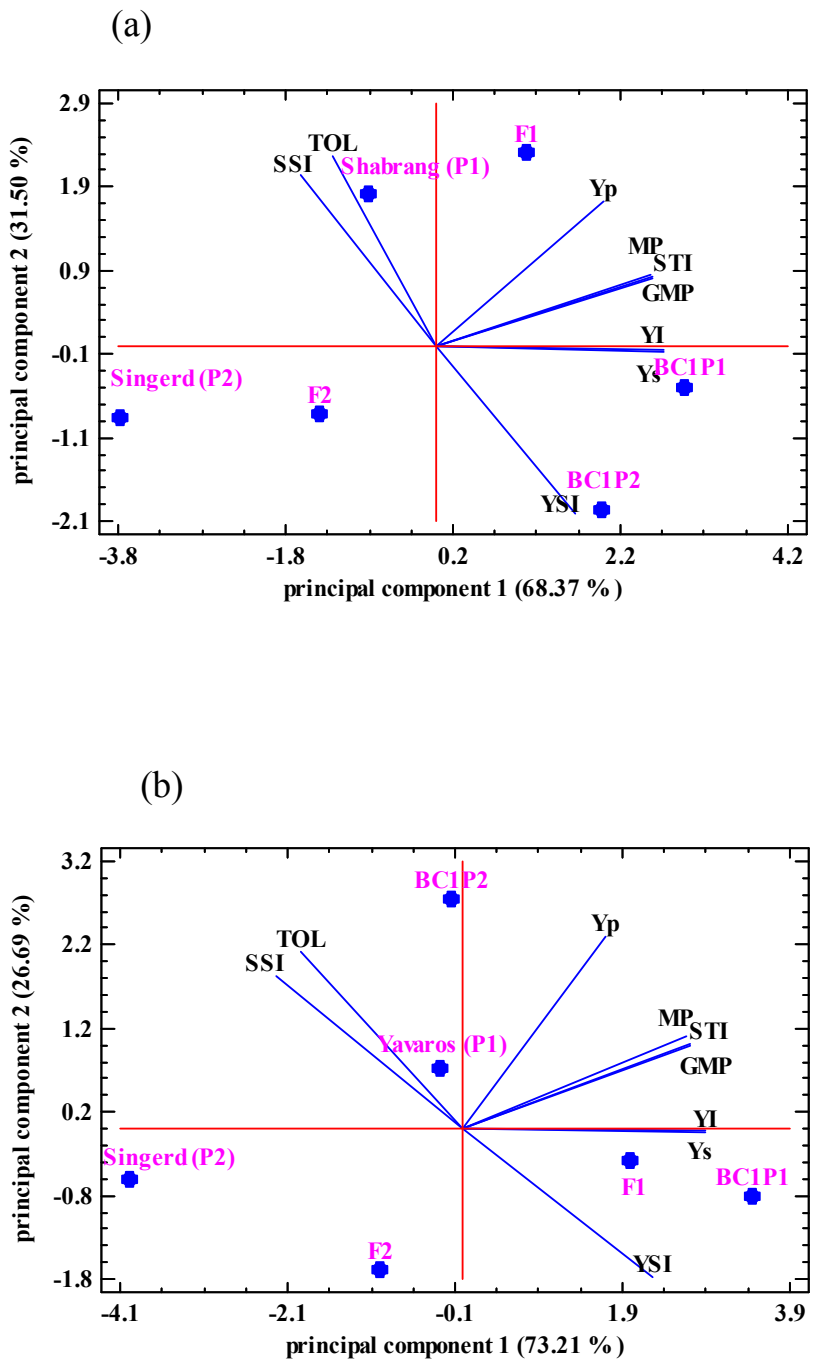


**Fig. S1.** Biplot based on principal component analysis of the drought resistance indicators in six basic generations: (a) Cross Shabrang×Singerd and, (b) Cross Yavaros×Singerd. ***Abbreviations:*** tolerance index (TOL), mean productivity (MP), geometric mean productivity (GMP), stress tolerance index (STI), yield index (YI), yield stability index (YSI), and stress susceptibility index (SSI)