

Supplementary 1. The mean values and Duncan groups of germination parameters of tetraploid wheat genotypes of under different drought stress levels.

Germination Speed (GS)						
Genotypes	Drought stress levels (bar)					Mean
	0	-0.50	-1.48	-2.95	-4.91	
Altın-40/98	97.8 ab ¹	97.8 ab	95.5 a-c	93.3 a-d	84.4 e-h	93.8 A
Artuklu	97.8 ab	95.5 a-c	91.1 b-e	82.2 f-i	86.6 d-g	90.6 B
Çakmak-79	97.8 ab	93.3 a-d	95.5 a-c	84.4 e-h	77.8 h-k	89.8 BC
Çeşit-1252	100.0 a	95.5 a-c	86.6 d-g	82.2 f-i	77.7 i-k	87.9 BC
Eminbey	100.0 a	97.8 ab	82.2 f-i	82.2 f-i	75.5 h-l	87.5 BC
Kızıltan-91	97.8 ab	100.0 a	84.4 e-h	84.4 e-h	77.8 h-k	88.9 BC
Kunduru-1149	100.0 a	93.3 a-d	84.4 e-h	82.2 f-i	73.3 j-l	86.7 CD
Meram-2002	97.8 ab	95.5 a-c	84.4 e-h	73.3 j-l	70.0 kl	84.2 D
Mirzabey 2000	100.0 a	97.8 ab	95.5 a-c	81.1 f-j	73.3 j-l	89.5 BC
Sarıçanak 98	95.5 a-c	95.5 a-c	88.8 c-f	82.2 f-i	76.7 h-k	87.8 BC
Selçuklu-97	100.0 a	95.5 a-c	82.2 f-i	82.2 f-i	73.3 j-l	86.7 CD
<i>T. dicoccum</i>	88.8 c-f	91.1 b-e	80.0 g-j	70.0 kl	67.7 l	79.6 E
Mean	97.6 A	95.7 A	87.6 B	81.6 C	76.2 D	87.8
Germination Power (GP)						
Altın-40/98	100.0	100.0	97.8	100.0	95.5	98.7 A
Artuklu	100.0	97.8	95.3	95.3	93.3	96.4 AB
Çakmak-79	97.8	100.0	97.8	93.3	91.1	95.9 AB
Çeşit-1252	100.0	97.8	97.8	95.5	91.1	96.4 AB
Eminbey	100.0	100.0	95.5	86.6	84.4	93.3 B
Kızıltan-91	100.0	100.0	97.8	91.1	93.3	96.4 AB
Kunduru-1149	100.0	97.8	95.5	93.3	84.4	94.2 B
Meram-2002	97.8	100.0	95.5	93.3	86.6	94.7 B
Mirzabey 2000	100.0	100.0	97.8	88.8	86.6	94.7 B
Sarıçanak 98	97.8	100.0	95.5	93.3	91.1	95.5 AB
Selçuklu-97	100.0	97.8	93.3	88.8	91.1	94.2 B
<i>T. dicoccum</i>	91.1	95.5	86.6	86.6	81.1	88.2 C
Mean	98.7 A	98.9 A	95.5 B	92.2 C	89.1 D	94.9
Root Length (RL)						
Altın-40/98	12.090 d	6.420 h	5.573 i-k	2.227 u-x	1.117 z	5.485 CD
Artuklu	12.363 d	7.097 gh	5.693 ij	3.320 o-s	2.217 u-x	6.138 BC
Çakmak-79	12.357 d	6.043 hi	4.813 kl	2.233 u-x	1.073 z	5.304 CD
Çeşit-1252	14.933 b	5.837 i	3.670 o-q	1.763 w-z	2.560 s-v	5.753 C
Eminbey	14.747 b	7.723 g	5.653 ij	3.300 o-s	2.623 s-v	6.809 B

Kızıltan-91	15.733 a	9.567 f	7.833 g	3.077 p-t	3.277 o-s	7.897 A
Kunduru-1149	12.343 d	5.613 ij	3.930 m-o	2.767 r-u	2.487 t-w	5.428 CD
Meram-2002	11.377 e	6.260 hi	3.477 o-r	1.417 yz	1.107 z	4.727 F
Mirzabey 2000	11.263 e	6.833 h	5.257 j-l	3.010 p-u	1.687 x-z	5.610 C
Sarıçanak 98	13.927 c	8.890 fg	6.830 h	3.067 p-t	3.093 p-t	7.341 AB
Selçuklu-97	9.897 f	4.603 lm	4.507 l-n	1.687 x-z	1.310 yz	4.401 F
<i>T. dicoccum</i>	9.340 f	6.153 hu	3.813 n-p	3.747 o-q	2.240 u-x	5.059 E
Mean	12.531 A	6.752 B	5.087 C	2.709 D	2.066 E	5.829
Shoot Length (SL)						
Altın-40/98	9.627 c	4.713 hi	3.333 k-m	0.957 t-w	0.433 u-y	3.453 D
Artuklu	8.117 e	3.327 k-m	0.917 t-w	0.530 u-y	0.407 u-y	2.659 F
Çakmak-79	8.847 d	2.690 m-o	0.403 u-y	0.110 y	0 y	2.410 G
Çeşit-1252	7.380 f	1.683 q-s	0.853 t-x	0 y	0 y	1.983 H
Eminbey	18.610 a	4.367 h-j	2.107 o-q	0.123 y	0 y	5.041 A
Kızıltan-91	11.060 b	4.217 ij	3.903 jk	0.560 u-y	0 y	3.948 B
Kunduru-1149	9.037 cd	2.860 mn	1.627 q-s	0.693 t-y	0.017 y	2.847 E
Meram-2002	9.147 cd	4.967 h	0.217 w-y	0 y	0 y	2.866 E
Mirzabey 2000	9.467 cd	4.760 hi	2.423 n-p	0.927 t-w	0.413 u-y	3.598 CD
Sarıçanak 98	7.677 ef	4.900 h	3.227 lm	0.983 t-w	0.547 u-y	3.647 C
Selçuklu-97	6.730 g	3.729 j-l	1.363 r-t	0 y	0 y	2.365 G
<i>T. dicoccum</i>	7.953 ef	2.543 n-p	1.923 p-r	1.123 s-u	0.480 u-y	2.805 EF
Mean	9.471 A	3.730 B	1.858 C	0.426 D	0.191 D	3.135
Fresh Weight (FW)						
Altın-40/98	1.910 b	1.618 fg	1.552 gh	1.029 n-s	0.895 t-x	1.401 B
Artuklu	1.721 de	1.486 h	1.037 n-q	0.833 v-z	0.762 yz	1.168 F
Çakmak-79	1.793 cd	1.390 i	0.926 s-v	0.859 u-y	0.646 z	1.123 G
Çeşit-1252	1.930 b	1.280 j-l	1.046 n-q	0.933 r-v	0.868 u-y	1.211 E
Eminbey	2.223 a	1.672 ef	1.311 i-k	1.022 n-s	0.846 u-z	1.415 AB
Kızıltan-91	1.906 b	1.582 f-h	1.183 l-m	0.942 q-v	0.839 v-z	1.291 CD
Kunduru-1149	1.903 b	1.383 ij	1.106 mn	0.957 q-u	0.804 t-w	1.231 D
Meram-2002	1.904 b	1.533 gh	0.793 x-z	0.748 z	0.638 z	1.123 G
Mirzabey 2000	1.839 bc	1.596 fg	1.254 kl	1.100 m-o	0.995 o-t	1.357 C
Sarıçanak 98	1.824 bc	1.570 f-h	1.175 lm	1.082 m-o	0.814 z	1.293 CD
Selçuklu-97	1.269 kl	1.122 mn	0.913 t-v	0.851 u-z	0.694 z	0.970 H
<i>T. dicoccum</i>	1.331 i-k	1.082 m-p	0.996 o-t	0.849 u-z	0.715 z	0.995 H
Mean	1.796 A	1.443 B	1.107 C	0.933 D	0.793 E	1.215
Dry Weight (DW)						
Altın-40/98	0.413 n-q	0.410 o-r	0.478 f-j	0.468 h-k	0.473 g-k	0.448 D

Artuklu	0.372 t-w	0.325 xy	0.408 o-s	0.405 p-t	0.479 f-j	0.398 E
Çakmak-79	0.310 yz	0.432 l-p	0.418 m-q	0.453 j-m	0.447 j-n	0.412 E
Çeşit-1252	0.439 k-p	0.527 b-d	0.528 b-d	0.596 a	0.555 b	0.529 B
Eminbey	0.524 c-e	0.599 a	0.559 b	0.598 a	0.624 a	0.581 A
Kızıltan-91	0.422 m-p	0.491 e-i	0.484 f-i	0.447 j-n	0.515 c-e	0.472 C
Kunduru-1149	0.354 v-x	0.493 d-h	0.525 c-e	0.517 c-e	0.505 c-g	0.479 C
Meram-2002	0.376 r-w	0.374 s-w	0.430 l-p	0.409 o-s	0.446 j-n	0.407 D
Mirzabey 2000	0.383 q-v	0.406 p-t	0.425 l-p	0.491 e-i	0.503 c-g	0.442 D
Sarıçanak 98	0.426 l-p	0.406 p-t	0.447 j-n	0.484 f-i	0.494 d-h	0.451 D
Selçuklu-97	0.384 q-v	0.414 n-q	0.458 i-l	0.481 f-j	0.494 d-h	0.446 D
<i>T. dicoccum</i>	0.292 z	0.348 wx	0.370 u-w	0.403 p-u	0.420 m-p	0.367 F
Mean	0.391 D	0.435 C	0.461 B	0.479 BA	0.496 A	0.453
Water Absorption Capacity (WAC)						
Altın-40/98	78.4 a-d	74.7 c-e	69.2 e-g	54.5 m-p	47.2 q-t	64.8 A
Artuklu	78.4 a-d	78.1 a-d	60.7 i-l	51.4 o-r	37.1 w	61.1 BC
Çakmak-79	82.7 a	68.9 fg	54.9 l-p	47.3 q-t	30.8 xy	56.9 D
Çeşit-1252	77.3 a-d	58.8 j-m	49.5 p-s	36.1 wx	36.1 wx	51.6 EF
Eminbey	76.4 b-d	64.2 g-j	57.4 k-n	41.5 u-w	26.2y	53.1 E
Kızıltan-91	77.9 a-d	69.0 e-g	59.1 j-m	52.5 n-q	38.6 vw	59.4 C
Kunduru-1149	81.4 ab	64.4 g-j	52.5 n-q	46.0 r-u	37.2 w	56.3 D
Meram-2002	80.3 a-c	75.6 cd	45.8 r-u	45.3 s-u	30.1 y	55.4 D
Mirzabey-2000	79.2 a-d	74.6 c-f	66.1 g-i	55.4 l-o	49.4 ps	64.9 A
Sarıçanak 98	76.6 b-d	74.1 d-f	62.0 i-k	55.3 l-o	39.3 vw	61.5 B
Selçuklu-97	69.7 e-g	63.1 h-j	49.8 o-s	43.5 t-v	28.8 y	51.0 F
<i>T. dicoccum</i>	78.1 a-d	67.8 gh	62.9 h-k	52.5 n-q	41.3 u-w	60.5 BC
Mean	78.0 A	69.4 B	57.5 C	48.4 D	36.8 E	58.0

¹:Means followed by the different letters are significantly different at the 0.05 probability

Supplementary 2: Stress tolerance index (STI), stress sensitive index (SSI) values of tetraploid wheat genotypes.

	Genotypes	Stress tolerance index				Stress sensitive index			
		-0.50	-1.48	-2.95	-4.91	-0.50	-1.48	-2.95	-4.91
Germination Speed (GS)	Altın-40/98	1.00	0.98	0.96	0.87	0.00	0.23	0.28	0.62
	Artuklu	0.98	0.94	0.84	0.89	1.21	0.67	0.97	0.52
	Çakmak-79	0.96	0.98	0.87	0.80	2.36	0.23	0.84	0.93
	Çeşit-1252	1.00	0.91	0.86	0.82	2.31	1.31	1.09	1.02
	Eminbey	1.03	0.86	0.86	0.79	1.13	1.74	1.09	1.12
	Kızıltan-91	1.03	0.87	0.87	0.80	-1.16	1.34	0.84	0.93
	Kunduru-1149	0.98	0.89	0.86	0.77	3.44	1.52	1.09	1.22
	Meram-2002	0.98	0.87	0.75	0.72	1.21	1.34	1.53	1.30
	Mirzabey 2000	1.03	1.00	0.85	0.77	1.13	0.44	1.15	1.22
	Sarıçanak 98	0.96	0.89	0.82	0.77	0.00	0.68	0.85	0.90
	Selçuklu-97	1.00	0.86	0.86	0.77	2.31	1.74	1.09	1.22
	<i>T. dicoccum</i>	0.85	0.75	0.65	0.63	-1.33	0.97	1.29	1.08
Germination Power (GP)	Altın-40/98	1.03	1.00	1.03	0.98	0.00	0.68	0.00	0.46
	Artuklu	1.00	0.98	0.98	0.96	10.86	1.45	0.71	0.69
	Çakmak-79	1.00	0.98	0.94	0.91	-11.10	0.00	0.70	0.70
	Çeşit-1252	1.00	1.00	0.98	0.94	10.86	0.68	0.68	0.92
	Eminbey	1.03	0.98	0.89	0.87	0.00	1.39	2.03	1.60
	Kızıltan-91	1.03	1.00	0.94	0.96	0.00	0.68	1.35	0.69
	Kunduru-1149	1.00	0.98	0.96	0.87	10.86	1.39	1.02	1.60
	Meram-2002	1.00	0.96	0.94	0.87	-11.10	0.73	0.70	1.18
	Mirzabey 2000	1.03	1.00	0.91	0.89	0.00	0.68	1.70	1.38
	Sarıçanak-98	1.00	0.96	0.94	0.91	-11.10	0.73	0.70	0.70
	Selçuklu-97	1.00	0.96	0.91	0.94	10.86	2.07	1.70	0.92
	<i>T. dicoccum</i>	0.89	0.81	0.81	0.76	-23.84	1.52	0.75	1.13
Root Length (RL)	Altın-40/98	0.89	0.77	0.31	0.15	1.02	0.91	1.04	1.09
	Artuklu	1.01	0.81	0.47	0.31	0.92	0.91	0.93	0.98
	Çakmak-79	0.86	0.68	0.32	0.15	1.11	1.03	1.05	1.09
	Çeşit-1252	1.00	0.63	0.30	0.44	1.32	1.27	1.13	0.99
	Eminbey	1.31	0.96	0.56	0.44	1.03	1.04	0.99	0.98
	Kızıltan-91	1.73	1.41	0.55	0.59	0.85	0.85	1.03	0.95
	Kunduru-1149	0.79	0.56	0.39	0.35	1.18	1.15	0.99	0.96
	Meram-2002	0.82	0.45	0.18	0.14	0.98	1.17	1.12	1.08
	Mirzabey 2000	0.88	0.68	0.39	0.22	0.85	0.90	0.93	1.02
	Sarıçanak-98	1.42	1.09	0.49	0.49	0.78	0.86	0.99	0.93
	Selçuklu-97	0.52	0.51	0.19	0.15	1.16	0.92	1.06	1.04
	<i>T. dicoccum</i>	0.66	0.41	0.40	0.24	0.74	1.00	0.76	0.91
Shoot Length	Altın-40/98	0.51	0.36	0.10	0.05	0.84	0.81	0.94	0.97
	Artuklu	0.30	0.08	0.05	0.04	0.97	1.10	0.98	0.97
	Çakmak-79	0.27	0.04	0.01	0.00	1.15	1.19	1.03	1.02
	Çeşit-1252	0.14	0.07	0.00	0.00	1.27	1.10	1.05	1.02

	Eminbey	0.91	0.44	0.02	0.00	1.06	1.10	1.04	1.02
	Kızıltan-91	0.52	0.48	0.07	0.00	1.02	0.81	0.99	1.02
	Kunduru-1149	0.29	0.16	0.07	0.00	1.13	1.02	0.97	1.02
	Meram-2002	0.51	0.02	0.00	0.00	0.75	1.21	1.05	1.02
	Mirzabey 2000	0.50	0.26	0.09	0.04	0.82	0.93	0.94	0.98
	Sarıçanak-98	0.42	0.28	0.08	0.05	0.60	0.72	0.91	0.95
	Selçuklu-97	0.28	0.10	0.00	0.00	0.74	0.99	1.05	1.02
	<i>T. dicoccum</i>	0.23	0.17	0.09	0.04	1.12	0.94	0.90	0.96
Fresh Weight (FW)	Altın-40/98	0.96	0.92	0.61	0.53	0.78	0.49	0.96	0.95
	Artuklu	0.79	0.55	0.44	0.41	0.69	1.04	1.07	1.00
	Çakmak-79	0.77	0.51	0.48	0.36	1.14	1.26	1.08	1.15
	Çeşit-1252	0.77	0.63	0.56	0.52	1.71	1.19	1.08	0.99
	Eminbey	1.15	0.90	0.70	0.58	1.26	1.07	1.12	1.11
	Kızıltan-91	0.93	0.70	0.56	0.50	0.86	0.99	1.05	1.00
	Kunduru-1149	0.82	0.65	0.56	0.47	1.39	1.09	1.03	1.03
	Meram-2002	0.90	0.47	0.44	0.38	0.99	1.52	1.26	1.19
	Mirzabey 2000	0.91	0.71	0.63	0.57	0.67	0.83	0.84	0.82
	Sarıçanak-98	0.89	0.66	0.61	0.46	0.71	0.93	0.85	0.99
	Selçuklu-97	0.44	0.36	0.33	0.27	0.59	0.73	0.69	0.81
	<i>T. dicoccum</i>	0.45	0.41	0.35	0.30	0.95	0.66	0.75	0.83
Dry Weight (DW)	Altın-40/98	1.11	1.29	1.26	1.28	-0.06	0.88	0.59	0.54
	Artuklu	0.79	0.99	0.99	1.17	-1.12	0.54	0.39	1.07
	Çakmak-79	0.88	0.85	0.92	0.91	3.50	1.95	2.05	1.65
	Çeşit-1252	1.51	1.52	1.71	1.59	1.78	1.13	1.59	0.98
	Eminbey	2.05	1.92	2.05	2.14	1.27	0.37	0.63	0.71
	Kızıltan-91	1.36	1.34	1.23	1.42	1.45	0.82	0.26	0.82
	Kunduru-1149	1.14	1.22	1.20	1.17	3.49	2.70	2.05	1.59
	Meram-2002	0.92	1.06	1.01	1.10	-0.05	0.80	0.39	0.69
	Mirzabey 2000	1.02	1.06	1.23	1.26	0.53	0.61	1.25	1.17
	Sarıçanak-98	1.13	1.25	1.35	1.38	-0.42	0.28	0.60	0.59
	Selçuklu-97	1.04	1.15	1.21	1.24	0.69	1.08	1.12	1.07
	<i>T. dicoccum</i>	0.66	0.71	0.77	0.80	1.70	1.49	1.69	1.63
Water Absorption Capacity (WAC)	Altın-40/98	0.96	0.89	0.70	0.61	0.43	0.45	0.80	0.75
	Artuklu	1.01	0.78	0.66	0.48	0.03	0.86	0.91	1.00
	Çakmak-79	0.94	0.75	0.64	0.42	1.51	1.28	1.13	1.19
	Çeşit-1252	0.75	0.63	0.46	0.46	2.16	1.37	1.40	1.01
	Eminbey	0.81	0.72	0.52	0.33	1.45	0.95	1.20	1.24
	Kızıltan-91	0.88	0.76	0.67	0.49	1.04	0.92	0.86	0.95
	Kunduru-1149	0.86	0.70	0.62	0.50	1.90	1.35	1.15	1.03
	Meram-2002	1.00	0.60	0.60	0.40	0.53	1.63	1.15	1.18
	Mirzabey 2000	0.97	0.86	0.72	0.64	0.53	0.63	0.79	0.71
	Sarıçanak-98	0.93	0.78	0.70	0.50	0.30	0.73	0.73	0.92
	Selçuklu-97	0.72	0.57	0.50	0.33	0.86	1.09	0.99	1.11
	<i>T. dicoccum</i>	0.87	0.81	0.67	0.53	1.19	0.74	0.86	0.89

Supplementary 3. Eigenvalues and percent of total variation for the principal components.

Stress Level	Principal Components	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	PC11
Control	Eigenvalue	3.79	1.47	1.06	0.51	0.12	0.05	0.00	-	-	-	-
	Variance (%)	54.14	21.06	15.14	7.24	1.75	0.65	0.02	-	-	-	-
	Cumulative (%)	54.14	75.20	90.34	97.58	99.33	99.98	100.00	-	-	-	-
-0.50 bar	Eigenvalue	7.43	3.46	1.31	0.74	0.62	0.26	0.08	0.05	0.04	0.01	0.01
	Variance (%)	53.07	24.68	9.37	5.29	4.43	1.84	0.55	0.36	0.27	0.10	0.05
	Cumulative (%)	53.07	77.75	87.12	92.41	96.84	98.68	99.23	99.59	99.86	99.96	100.00
-1.48 bar	Eigenvalue	6.50	3.09	2.78	1.16	0.21	0.10	0.07	0.05	0.03	0.02	0.01
	Variance (%)	46.42	22.05	19.86	8.26	1.48	0.75	0.49	0.34	0.19	0.12	0.05
	Cumulative (%)	46.42	68.47	88.33	96.58	98.06	98.81	99.31	99.64	99.83	99.95	100.00
-2.95 bar	Eigenvalue	4.97	4.44	2.89	0.67	0.48	0.33	0.09	0.06	0.04	0.03	0.00
	Variance (%)	35.51	31.70	20.65	4.79	3.41	2.35	0.67	0.43	0.29	0.19	0.01
	Cumulative (%)	35.51	67.20	87.85	92.65	96.06	98.41	99.09	99.52	99.81	99.99	100.00
-4.91 bar	Eigenvalue	4.81	4.06	2.90	1.13	0.68	0.26	0.12	0.03	0.01	0.00	0.00
	Variance (%)	34.37	29.00	20.72	8.08	4.88	1.85	0.82	0.20	0.07	0.01	0.00
	Cumulative (%)	34.37	63.37	84.09	92.17	97.05	98.89	99.72	99.91	99.99	100.00	100.00
Mean	Eigenvalue	6.88	2.87	2.77	0.94	0.33	0.12	0.05	0.03	0.01	0.00	0.00
	Variance (%)	49.14	20.50	19.80	6.69	2.34	0.88	0.34	0.20	0.10	0.01	0.01
	Cumulative (%)	49.14	69.63	89.43	96.11	98.45	99.33	99.68	99.88	99.98	99.99	100.00