

Supplementary Table 1) P-value data of the repeated root measurements from a mixed-effect model with variables Cultivar, Top Soil, and Water treatment (plus their interaction) for each day, plus the combined analysis with all variables combined with the time element (day). The P-values highlighted (green) are those that are classified as significant (P>0.05).

Day	Effect	Axial Root Length	Lateral Root Length	Total Root Length	Root System Depth	Root System Width	Convex Hull Area
3	Genotype	0.7847	-	0.7847	0.9405	0.0237	0.1343
	TopSoil	0.5953	-	0.5953	0.1384	0.1308	0.1368
	Water	0.0065	-	0.0065	0.0006	0.4498	0.0103
	Genotype*TopSoil	0.137	-	0.137	0.0812	0.1371	0.0568
	Genotype*Water	0.0454	-	0.0454	0.0523	0.3436	0.101
	TopSoil*Water	0.0644	-	0.0644	0.1987	0.0512	0.0304
	Genoty*TopSoil*Water	0.4364	-	0.4364	0.9835	0.1185	0.3039
5	Genotype	0.2744	-	0.2744	0.7389	0.9888	0.6103
	TopSoil	0.0946	-	0.0946	0.0373	0.018	0.018
	Water	<.0001	-	<.0001	<.0001	0.0666	<.0001
	Genotype*TopSoil	0.1425	-	0.1425	0.1798	0.5151	0.0546
	Genotype*Water	0.184	-	0.184	0.0937	0.283	0.7256
	TopSoil*Water	0.05	-	0.05	0.1661	0.1703	0.9014
	Genoty*TopSoil*Water	0.7626	-	0.7626	0.9494	0.1993	0.1229
7	Genotype	0.1587	0.8574	0.1859	0.2855	0.2926	0.6636
	TopSoil	0.0725	<.0001	0.0203	0.0213	0.0615	0.0346
	Water	<.0001	<.0001	<.0001	<.0001	0.0407	<.0001
	Genotype*TopSoil	0.0645	0.2953	0.0495	0.352	0.6237	0.3952
	Genotype*Water	0.5464	0.5166	0.6286	0.0471	0.6169	0.9796
	TopSoil*Water	0.0207	<.0001	0.0001	0.0431	0.3998	0.6527
	Genoty*TopSoil*Water	0.8658	0.2931	0.7818	0.3837	0.049	0.0312
10	Genotype	0.2675	0.2481	0.21	0.0627	0.0516	0.8156
	TopSoil	0.0845	<.0001	0.0023	0.0689	0.0572	0.0261
	Water	<.0001	<.0001	<.0001	<.0001	0.0513	<.0001
	Genotype*TopSoil	0.18	0.5294	0.2528	0.6811	0.2728	0.3056
	Genotype*Water	0.9119	0.5061	0.7917	0.3758	0.778	0.7095
	TopSoil*Water	0.0452	<.0001	<.0001	0.4746	0.7539	0.8391
	Genoty*TopSoil*Water	0.8008	0.5165	0.6902	0.2059	0.0154	0.0084
12	Genotype	0.1677	0.2236	0.1257	0.012	0.0928	0.9236
	TopSoil	0.0717	<.0001	0.0039	0.0841	0.0152	0.0028
	Water	<.0001	<.0001	<.0001	<.0001	0.1112	<.0001
	Genotype*TopSoil	0.2161	0.046	0.1777	0.495	0.1246	0.0719
	Genotype*Water	0.9326	0.7791	0.9926	0.502	0.8006	0.7682
	TopSoil*Water	0.1234	<.0001	0.005	0.8328	0.6188	0.5125
	Genoty*TopSoil*Water	0.7657	0.4405	0.6046	0.1755	0.0078	0.0031
14	Genotype	0.1422	0.1389	0.099	0.0071	0.077	0.7448
	TopSoil	0.0297	0.0014	0.002	0.0705	0.0056	0.002
	Water	<.0001	<.0001	<.0001	<.0001	0.3169	<.0001
	Genotype*TopSoil	0.3409	0.0594	0.1477	0.5191	0.2446	0.0939
	Genotype*Water	0.6915	0.9235	0.7802	0.6817	0.8368	0.989
	TopSoil*Water	0.2706	0.0063	0.0513	0.8991	0.6545	0.3769
	Genoty*TopSoil*Water	0.855	0.7025	0.7374	0.2585	0.0443	0.0193
17	Genotype	0.2194	0.4689	0.2253	0.0023	0.0553	0.6528
	TopSoil	0.0091	0.0062	0.001	0.0426	0.0063	0.0015
	Water	<.0001	0.3215	<.0001	<.0001	0.3843	<.0001
	Genotype*TopSoil	0.3637	0.0569	0.1179	0.4395	0.5475	0.101
	Genotype*Water	0.6129	0.674	0.8563	0.8231	0.881	0.8933
	TopSoil*Water	0.61	0.2051	0.3335	0.6608	0.6846	0.2465
	Genoty*TopSoil*Water	0.9278	0.7207	0.7962	0.5934	0.0369	0.0252

<b>19</b>	<i>Genotype</i>	0.2653	0.4252	0.2255	0.0028	0.0911	0.4309
	<i>TopSoil</i>	0.0108	0.0033	0.0011	0.0483	0.0181	0.002
	<i>Water</i>	<.0001	0.799	<.0001	<.0001	0.3276	<.0001
	<i>Genotype*TopSoil</i>	0.5024	0.0574	0.1467	0.4595	0.3999	0.0603
	<i>Genotype*Water</i>	0.6458	0.5207	0.9684	0.6111	0.9191	0.5091
	<i>TopSoil*Water</i>	0.7185	0.3364	0.4742	0.6472	0.8418	0.3406
	<i>Genoty*TopSoil*Water</i>	0.9354	0.8226	0.8546	0.8471	0.0159	0.0148
<b>21</b>	<i>Genotype</i>	0.4961	0.2662	0.2817	0.0413	0.1587	0.3418
	<i>TopSoil</i>	0.0076	0.0007	0.0004	0.0215	0.0137	0.0034
	<i>Water</i>	<.0001	0.131	<.0001	<.0001	0.2241	<.0001
	<i>Genotype*TopSoil</i>	0.5767	0.0454	0.1476	0.6695	0.3808	0.0694
	<i>Genotype*Water</i>	0.9409	0.6105	0.8468	0.0528	0.6978	0.3112
	<i>TopSoil*Water</i>	0.8335	0.5974	0.6614	0.2491	0.9823	0.5563
	<i>Genoty*TopSoil*Water</i>	0.9165	0.9046	0.8917	0.9643	0.0168	0.0214
<b>24</b>	<i>Genotype</i>	0.6567	0.0273	0.1384	0.0655	0.1318	0.2501
	<i>TopSoil</i>	0.0233	<.0001	0.0003	0.0356	0.0061	0.0019
	<i>Water</i>	<.0001	<.0001	<.0001	<.0001	0.0878	<.0001
	<i>Genotype*TopSoil</i>	0.4058	0.0249	0.0733	0.7335	0.3739	0.0944
	<i>Genotype*Water</i>	0.7498	0.8266	0.7503	0.0798	0.985	0.1443
	<i>TopSoil*Water</i>	0.9149	0.8339	0.96	0.036	0.9755	0.5262
	<i>Genoty*TopSoil*Water</i>	0.6925	0.764	0.6692	0.6862	0.0598	0.0723
<b>Total</b>	<i>t</i>	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001
	<i>t*Genotype</i>	0.198	0.2541	0.14	0.0023	0.0542	0.5215
	<i>t*TopSoil</i>	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001
	<i>t*Water</i>	<.0001	<.0001	<.0001	<.0001	0.0004	<.0001
	<i>t*Genotype*TopSoil</i>	0.0005	0.2027	0.0002	0.0077	0.0069	0.0013
	<i>t*Genotype*Water</i>	0.9721	0.941	0.6222	0.0021	0.7077	0.3651
	<i>t*TopSoil*Water</i>	<.0001	<.0001	<.0001	0.2897	0.4521	0.0719
	<i>t*Genot*TopSoi*Water</i>	0.3315	0.2792	0.1857	0.0262	<.0001	<.0001

Supplementary Table 2) P-value data of the repeated shoot measurements from a mixed-effect model with variables Cultivar, Top Soil, and Water treatment (plus their interaction) for each day, plus the combined analysis with all variables combined with the time element (day) for those with more than two time points. The P-values highlighted (green) are those that are classified as significant (P>0.05).

Day	Effect	Height	GS	SPAD	Fv/Fm	Mn predict	P predict
7	Genotype	0.4729	0.3832	-	-	-	-
	TopSoil	<.0001	0.1436	-	-	-	-
	Water	<.0001	<.0001	-	-	-	-
	Genotype*TopSoil	0.0991	0.1876	-	-	-	-
	Genotype*Water	0.5677	0.3147	-	-	-	-
	TopSoil*Water	0.004	0.1158	-	-	-	-
	Genoty*TopSoil*Water	0.8612	0.2568	-	-	-	-
10	Genotype	-	0.2502	0.0253	-	-	-
	TopSoil	-	0.0013	0.0287	-	-	-
	Water	-	0.0002	<.0001	-	-	-
	Genotype*TopSoil	-	0.9458	0.201	-	-	-
	Genotype*Water	-	0.8114	0.1008	-	-	-
	TopSoil*Water	-	0.3657	0.0102	-	-	-
	Genoty*TopSoil*Water	-	0.9498	0.1448	-	-	-
14	Genotype	-	0.7507	0.1845	-	-	-
	TopSoil	-	0.0315	0.0139	-	-	-
	Water	-	<.0001	0.0503	-	-	-
	Genotype*TopSoil	-	0.6539	0.0145	-	-	-
	Genotype*Water	-	0.7507	0.2516	-	-	-
	TopSoil*Water	-	0.2798	0.2682	-	-	-
	Genoty*TopSoil*Water	-	0.7766	0.3859	-	-	-
17	Genotype	-	0.342	0.8294	0.0106	0.0007	0.0261
	TopSoil	-	0.022	0.0531	0.1549	0.0231	0.7887
	Water	-	<.0001	<.0001	<.0001	<.0001	<.0001
	Genotype*TopSoil	-	0.0984	0.0001	0.483	0.3752	0.2698
	Genotype*Water	-	0.2863	0.4486	0.8194	0.7728	0.9371
	TopSoil*Water	-	0.1109	0.165	0.9841	0.8593	0.1435
	Genoty*TopSoil*Water	-	0.291	0.3876	0.2374	0.333	0.1205
21	Genotype	0.0016	0.8569	0.4235	0.5136	0.7245	0.8518
	TopSoil	0.1522	0.0061	0.0561	0.5821	0.8239	0.4323
	Water	<.0001	<.0001	0.0002	<.0001	<.0001	<.0001
	Genotype*TopSoil	0.5762	0.7136	0.3172	0.4132	0.5517	0.043
	Genotype*Water	0.3457	0.8569	0.8544	0.5975	0.8764	0.4754
	TopSoil*Water	0.0164	0.0037	0.804	0.5612	0.0518	0.3807
	Genoty*TopSoil*Water	0.2439	0.9829	0.0803	0.6563	0.0507	0.6905
24	Genotype	<.0001	0.4252	0.4313	-	-	-
	TopSoil	0.004	0.3585	0.2681	-	-	-
	Water	<.0001	<.0001	<.0001	-	-	-
	Genotype*TopSoil	0.4013	0.6494	0.0616	-	-	-
	Genotype*Water	0.6075	0.273	0.4588	-	-	-
	TopSoil*Water	0.7266	0.24	0.4528	-	-	-
	Genoty*TopSoil*Water	0.612	0.8873	0.6467	-	-	-
Total	t	<.0001	<.0001	<.0001	-	-	-
	t*Genotype	0.0017	0.5449	0.4678	-	-	-
	t*TopSoil	0.0001	0.0025	0.028	-	-	-
	t*Water	<.0001	<.0001	<.0001	-	-	-
	t*Genotype*TopSoil	0.1811	0.4777	0.1538	-	-	-
	t*Genotype*Water	0.2982	0.6492	0.7866	-	-	-
	t*TopSoil*Water	0.0297	0.0097	0.9359	-	-	-
	t*Genot*TopSoi*Water	0.2215	0.9726	0.1189	-	-	-

Supplementary Table 3) P-value data of the destructive shoot and root measurements from a mixed-effect model with variables Cultivar, Top Soil, and Water treatment (plus their interaction) for the last (24<sup>th</sup>) day of the experiment. The P-values highlighted (green) are those that are classified as significant (P>0.05).

Effect	Leaf Area	Shoot FW	Shoot DW	Log Shoot FW:DW Ratio
<i>Genotype</i>	0.666	0.7886	0.4349	0.1615
<i>TopSoil</i>	0.0006	0.0002	0.0002	0.3843
<i>Water</i>	<.0001	<.0001	<.0001	<.0001
<i>Genotype*TopSoil</i>	0.0063	0.0151	0.01	0.2316
<i>Genotype*Water</i>	0.4669	0.3576	0.4557	0.5327
<i>TopSoil*Water</i>	0.6181	0.4093	0.8309	0.5262
<i>Genoty*TopSoil*Water</i>	0.2069	0.3257	0.1753	0.059

  

Effect	Root DW	Log Root:Shoot Ratio	Nitrogen Concentration	Nitrogen per Plant
<i>Genotype</i>	0.5311	0.0724	0.5362	0.3585
<i>TopSoil</i>	0.594	0.014	0.0993	0.006
<i>Water</i>	<.0001	0.0002	0.0005	<.0001
<i>Genotype*TopSoil</i>	0.3295	0.8738	0.8441	0.0006
<i>Genotype*Water</i>	0.5924	0.397	0.945	0.977
<i>TopSoil*Water</i>	0.7702	0.3339	0.2777	0.0265
<i>Genoty*TopSoil*Water</i>	0.992	0.5434	0.6763	0.0037

Supplementary Table 4) P-value data of the root length measurements from a mixed-effect model with variables Cultivar, Top Soil, and Water treatment (plus their interaction) for the last (24<sup>th</sup>) day of the experiment, divided into either three horizontal (A) or four vertical (B) sections. The Centre and Topsoil sections of the Horizontal and Vertical sectioning, respectively, contain the treated soil sections. The P-values highlighted (green) are those that are classified as significant (P>0.05).

A) Horizontal Sections			
	Effect	Axial Root Length	Lateral Root Length
Left	<i>Genotype</i>	0.8748	0.0569
	<i>TopSoil</i>	0.7294	0.0285
	<i>Genotype*TopSoil</i>	0.8129	0.0304
	<i>Water</i>	<.0001	0.7512
	<i>Genotype*Water</i>	0.8717	0.9335
	<i>TopSoil*Water</i>	0.7558	0.6259
	<i>Genoty*TopSoil*Water</i>	0.0741	0.3175
Centre	<i>Genotype</i>	0.2855	0.4031
	<i>TopSoil</i>	0.6349	0.0359
	<i>Genotype*TopSoil</i>	0.2829	0.268
	<i>Water</i>	<.0001	<.0001
	<i>Genotype*Water</i>	0.519	0.7798
	<i>TopSoil*Water</i>	0.6754	0.3649
	<i>Genoty*TopSoil*Water</i>	0.2553	0.0362
Right	<i>Genotype</i>	0.0997	0.2669
	<i>TopSoil</i>	0.4612	0.0716
	<i>Genotype*TopSoil</i>	0.3859	0.5726
	<i>Water</i>	0.3396	0.7237
	<i>Genotype*Water</i>	0.1814	0.8336
	<i>TopSoil*Water</i>	0.4012	0.568
	<i>Genoty*TopSoil*Water</i>	0.8664	0.9962

  

B) Vertical Sections			
	Effect	Axial Root Length	Lateral Root Length
Topsoil	<i>Genotype</i>	0.6974	0.4764
	<i>TopSoil</i>	0.0567	<.0001
	<i>Genotype*TopSoil</i>	0.1257	0.1858
	<i>Water</i>	<.0001	<.0001
	<i>Genotype*Water</i>	0.4164	0.7156
	<i>TopSoil*Water</i>	0.8655	<.0001
	<i>Genoty*TopSoil*Water</i>	0.1461	0.5307
Top	<i>Genotype</i>	0.8611	0.3624
	<i>TopSoil</i>	0.9452	0.1928
	<i>Genotype*TopSoil</i>	0.4624	0.4176
	<i>Water</i>	<.0001	0.2499
	<i>Genotype*Water</i>	0.0009	0.4626
	<i>TopSoil*Water</i>	0.5407	0.0962
	<i>Genoty*TopSoil*Water</i>	0.2405	0.2302
Middle	<i>Genotype</i>	0.4014	0.1898
	<i>TopSoil</i>	0.0068	0.0014
	<i>Genotype*TopSoil</i>	0.7396	0.1913
	<i>Water</i>	<.0001	<.0001
	<i>Genotype*Water</i>	0.467	0.954
	<i>TopSoil*Water</i>	0.6242	0.1445
	<i>Genoty*TopSoil*Water</i>	0.9316	0.4983
Bottom	<i>Genotype</i>	0.7526	0.102
	<i>TopSoil</i>	0.0806	0.1353
	<i>Genotype*TopSoil</i>	0.6162	0.2693
	<i>Water</i>	<.0001	<.0001
	<i>Genotype*Water</i>	0.0586	0.1315
	<i>TopSoil*Water</i>	0.6263	0.1634
	<i>Genoty*TopSoil*Water</i>	0.6929	0.3126