

Additional file 5: A) Best linear unbiased prediction (BLUPS) of parameters with significant treatment effect, but no genotype effect or genotype: treatment interaction. B) Prediction of mean values of parameters with significant genotype effect, but no genotype: treatment interaction. C) Prediction of mean values of parameters with significant genotype: treatment interaction.

Abbreviations: Number of lateral roots in the first segment ($No_{Lat} 1^{st}$) or second segment ($No_{Lat} 2^{nd}$), length of representative lateral root in the first segment ($Med_{Lat} 1^{st}$) or second segment ($Med_{Lat} 2^{nd}$), maximal lateral root length in the first segment ($Max_{Lat} 1^{st}$) or in the second segment ($Max_{Lat} 2^{nd}$), elongation rate crown roots (ER_{Cr}), length of crown roots at solution change (intercept; IC_{Cr}), embryonic root dry weight (DW_{ER}), crown root dry weight (DW_{CR}), chlorophyll measurements (SPAD, measured leaf area (LA_m), shoot dry weight (DW_S), number of pixels specifying the leaf area (LA_{Pix}), shoot pixel count at solution change (intercept; IC_S), shoot pixel count development (ER_S), N content in the leaf in % of total dry weight (N in %).

A

| Treatment | Br_{Lat}1st (lat cm⁻¹) | Br_{Lat}2nd (lat cm⁻¹) | DW_{ER} (mg) |
|------------------|---|---|---------------------------------------|
| High | 2.12 | 1.81 | 28.76 |
| Low | 1.79 | 1.34 | 21.50 |
| HSD | 0.69 | 0.58 | 6.02 |
| avsed | 0.35 | 0.29 | 3.05 |

B

| Genotype | Max _{Lat} 2 nd (cm) | No _{Lat} 1 st (count) | No _{Lat} 2 nd (count) | IC _S (Pixel) | ER _S (cm ²) | LA _{Pix} (Pixel) | LA _m (cm) | DW _S (g) | N (%) |
|-------------|--|--|--|----------------------------|---------------------------------------|------------------------------|-------------------------|------------------------|-------------|
| A347 | 1.86 | 49.70 | 32.41 | 1282 | 1914 | 22331 | 105.73 | 0.25 | 3.76 |
| B100 | 1.70 | 42.83 | 37.18 | 1844 | 1191 | 13878 | 81.32 | 0.18 | 4.30 |
| B97 | 1.24 | 30.79 | 25.52 | 1301 | 1434 | 16879 | 87.96 | 0.21 | 5.03 |
| EC169 | 1.42 | 38.20 | 33.11 | 1220 | 1098 | 13360 | 76.01 | 0.18 | 4.31 |
| EZ11A | 1.84 | 37.17 | 32.53 | 1561 | 1383 | 16711 | 86.14 | 0.21 | 4.78 |
| EZ37 | 1.87 | 48.24 | 36.39 | 925 | 1495 | 17240 | 87.45 | 0.19 | 4.03 |
| EZ47 | 1.37 | 45.86 | 32.07 | 1097 | 1268 | 14662 | 81.34 | 0.19 | 4.40 |
| F1808 | 1.35 | 37.08 | 26.11 | 1342 | 1344 | 15960 | 81.30 | 0.19 | 4.37 |
| F7028 | 1.49 | 39.13 | 29.03 | 1337 | 1054 | 12401 | 71.75 | 0.17 | 4.15 |
| F98902 | 1.41 | 38.04 | 32.47 | 1052 | 1368 | 16012 | 79.52 | 0.19 | 4.61 |
| FC1890 | 1.38 | 31.13 | 28.70 | 1323 | 1328 | 15382 | 83.54 | 0.20 | 4.49 |
| FV353 | 1.89 | 46.24 | 37.72 | 1118 | 1198 | 15339 | 82.39 | 0.20 | 4.02 |
| LAN496 | 1.44 | 31.96 | 26.99 | 1998 | 1881 | 21352 | 107.32 | 0.27 | 3.81 |
| LH38 | 1.71 | 43.78 | 36.63 | 1012 | 1444 | 16729 | 86.58 | 0.20 | 4.26 |
| Mo17 | 1.32 | 29.43 | 22.23 | 1480 | 1729 | 20066 | 108.18 | 0.26 | 4.31 |
| MS153 | 1.63 | 32.61 | 26.54 | 907 | 1245 | 14473 | 76.85 | 0.18 | 4.12 |
| MS71 | 1.40 | 40.12 | 31.46 | 887 | 1465 | 16318 | 87.69 | 0.21 | 4.43 |
| N25 | 1.62 | 36.24 | 32.12 | 1693 | 1525 | 18336 | 96.99 | 0.22 | 4.23 |
| N6 | 2.02 | 41.67 | 33.40 | 1027 | 1466 | 16556 | 84.29 | 0.20 | 5.07 |
| Oh33 | 1.87 | 50.03 | 41.37 | 1651 | 1023 | 12261 | 72.11 | 0.17 | 3.90 |
| (RootABA1-) | 1.67 | 33.23 | 31.97 | 1781 | 1617 | 19832 | 97.54 | 0.25 | 4.22 |
| (RootABA1+) | 2.16 | 39.13 | 31.86 | 1344 | 1683 | 19913 | 99.99 | 0.24 | 4.69 |
| PH207 | 1.84 | 39.19 | 36.83 | 1717 | 1292 | 15623 | 85.17 | 0.20 | 3.81 |
| W64A | 1.77 | 32.71 | 32.06 | 527 | 1774 | 20952 | 95.12 | 0.23 | 3.61 |
| HSD | 1.30 | 28.96 | 23.22 | 1883 | 1190 | 12738 | 67.64 | 0.17 | 1.56 |
| avsed | 0.35 | 7.79 | 6.24 | 499 | 315 | 3392 | 18.01 | 0.05 | 0.41 |

| C | Genotype | ER _{Cr} | | Med _{Lat} 1 st | | Med _{Lat} 2 nd | | Max _{Lat} 1 st | | LBrZ | | DW _{CR} | |
|---|--------------------|------------------|------|------------------------------------|------|------------------------------------|------|------------------------------------|------|-------|-------|------------------|-------|
| | | high | low | high | low | high | low | high | low | high | low | high | low |
| | A347 | 1.66 | 1.15 | 1.11 | 0.38 | 0.77 | 0.31 | 2.58 | 1.14 | 76.29 | 72.11 | 35.94 | 21.70 |
| | B100 | 1.77 | 1.21 | 1.14 | 0.41 | 0.65 | 0.45 | 2.25 | 1.15 | 71.45 | 56.31 | 33.96 | 24.82 |
| | B97 | 1.62 | 1.17 | 1.07 | 0.35 | 0.48 | 0.25 | 1.88 | 0.60 | 60.48 | 52.06 | 33.08 | 19.78 |
| | EC169 | 1.75 | 1.08 | 1.04 | 0.32 | 0.64 | 0.25 | 2.12 | 0.72 | 72.73 | 63.88 | 39.62 | 17.06 |
| | EZ11A | 1.75 | 1.09 | 1.07 | 0.35 | 0.54 | 0.29 | 2.44 | 1.24 | 76.94 | 54.72 | 41.89 | 18.67 |
| | EZ37 | 1.66 | 1.20 | 1.16 | 0.44 | 0.61 | 0.37 | 2.41 | 1.33 | 66.73 | 58.82 | 32.09 | 19.82 |
| | EZ47 | 1.55 | 1.21 | 1.09 | 0.37 | 0.57 | 0.15 | 2.13 | 0.61 | 70.66 | 59.57 | 34.27 | 15.79 |
| | F1808 | 1.60 | 1.14 | 1.05 | 0.33 | 0.48 | 0.24 | 1.98 | 0.71 | 68.43 | 58.92 | 32.26 | 19.03 |
| | F7028 | 1.59 | 1.21 | 1.06 | 0.34 | 0.54 | 0.37 | 2.07 | 0.91 | 68.26 | 55.84 | 30.76 | 18.77 |
| | F98902 | 1.61 | 1.31 | 1.08 | 0.36 | 0.53 | 0.34 | 2.01 | 0.81 | 62.27 | 61.54 | 32.68 | 26.43 |
| | FC1890 | 1.66 | 1.13 | 1.09 | 0.36 | 0.71 | 0.27 | 2.05 | 0.71 | 66.86 | 56.65 | 37.71 | 19.98 |
| | FV353 | 1.68 | 1.17 | 1.15 | 0.43 | 0.65 | 0.36 | 2.50 | 1.28 | 77.31 | 62.68 | 39.45 | 25.02 |
| | LAN496 | 1.44 | 1.22 | 1.04 | 0.32 | 0.47 | 0.28 | 1.99 | 0.88 | 70.24 | 63.71 | 35.90 | 25.64 |
| | LH38 | 1.58 | 1.28 | 1.08 | 0.36 | 0.59 | 0.39 | 2.28 | 1.13 | 63.22 | 57.39 | 29.92 | 32.98 |
| | Mo17 | 1.61 | 1.23 | 1.05 | 0.32 | 0.53 | 0.25 | 1.96 | 0.69 | 58.95 | 60.99 | 30.52 | 23.01 |
| | MS153 | 1.60 | 1.10 | 1.10 | 0.38 | 0.67 | 0.31 | 2.42 | 0.85 | 61.38 | 55.95 | 31.74 | 22.30 |
| | MS71 | 1.67 | 1.17 | 1.11 | 0.39 | 0.67 | 0.21 | 2.13 | 0.67 | 71.29 | 70.54 | 34.51 | 27.55 |
| | N25 | 1.65 | 1.16 | 1.07 | 0.35 | 0.54 | 0.39 | 2.14 | 1.10 | 63.03 | 47.30 | 34.75 | 21.90 |
| | N6 | 1.70 | 1.15 | 1.19 | 0.46 | 0.60 | 0.54 | 2.47 | 1.56 | 62.05 | 47.73 | 34.20 | 23.11 |
| | Oh33 | 1.73 | 1.19 | 1.19 | 0.46 | 0.84 | 0.34 | 2.55 | 1.19 | 81.21 | 67.94 | 40.78 | 27.84 |
| | (RootABA1-) | 1.66 | 1.11 | 1.14 | 0.42 | 0.57 | 0.32 | 2.25 | 1.09 | 67.36 | 57.01 | 37.07 | 35.50 |
| | (RootABA1+) | 1.46 | 1.14 | 1.21 | 0.49 | 0.58 | 0.30 | 2.75 | 1.56 | 78.19 | 59.13 | 34.75 | 28.95 |
| | PH207 | 1.75 | 1.06 | 1.09 | 0.37 | 0.60 | 0.38 | 2.38 | 1.30 | 75.47 | 63.35 | 38.90 | 18.88 |
| | W64A | 1.55 | 1.11 | 1.11 | 0.39 | 0.65 | 0.33 | 2.42 | 1.11 | 64.55 | 54.72 | 41.46 | 21.80 |
| | HSD | 0.94 | | 0.52 | | 0.58 | | 1.80 | | 61.37 | | 35.59 | |
| | avsed | 0.23 | | 0.13 | | 0.14 | | 0.44 | | 15.05 | | 8.74 | |

