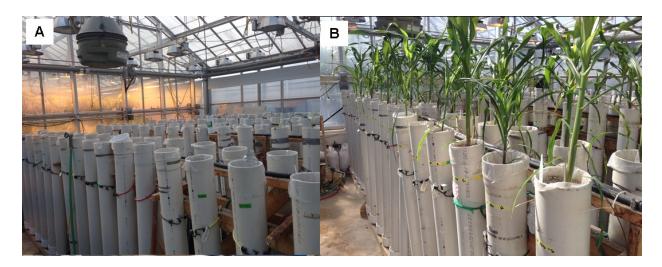
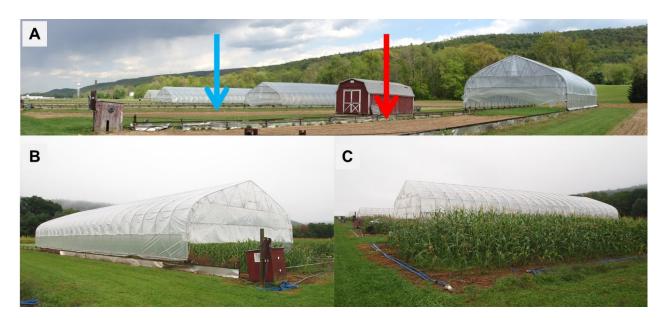


**Supplemental figure S1**. Root length density at different soil depths for genotypes with reduced cortical cell file (FF) and many cortical cell file number (MF) under water stressed (WS) and well watered (WW) conditions in the greenhouse (GH1) (A) and in the field (PA2011) (B) with corresponding  $D_{95}$ .  $D_{95}$  measures the depth above where 95% of root length is present.



**Supplemental figure S2.** Greenhouse mesocosms consisting of PVC cylinders 1.5 m in height by 0.15 m in diameter, with plastic liners made of 4-mil (0.116-mm) transparent hi-density polyethylene film, which was used to facilitate root sampling (A) just after planting and (B) 30 days after planting



**Supplemental figure S3**. Automated rainout shelter facility at Rock Springs, PA, USA. The shelters are covered with plastic mounted on a precipitation-activated rail system, so that at the onset of precipitation each roof shields an area of 10 x 30 m. Adjacent irrigated plots provide unstressed comparisons. (A) well-watered plots (blue arrow) and water stressed plots (red arrow) early the season, (B) shelter covering water stressed just after rain, and (C) well watered plots adjacent to the shelter.