



Figure S1. Phenotypic evaluations for drought tolerance. (A) Photographic illustration of phenotypic evaluation for drought tolerance in *G. soja*. (B) Photographic illustration of drought tolerance in drought-tolerant (DT2008) and drought-sensitive (DT99)

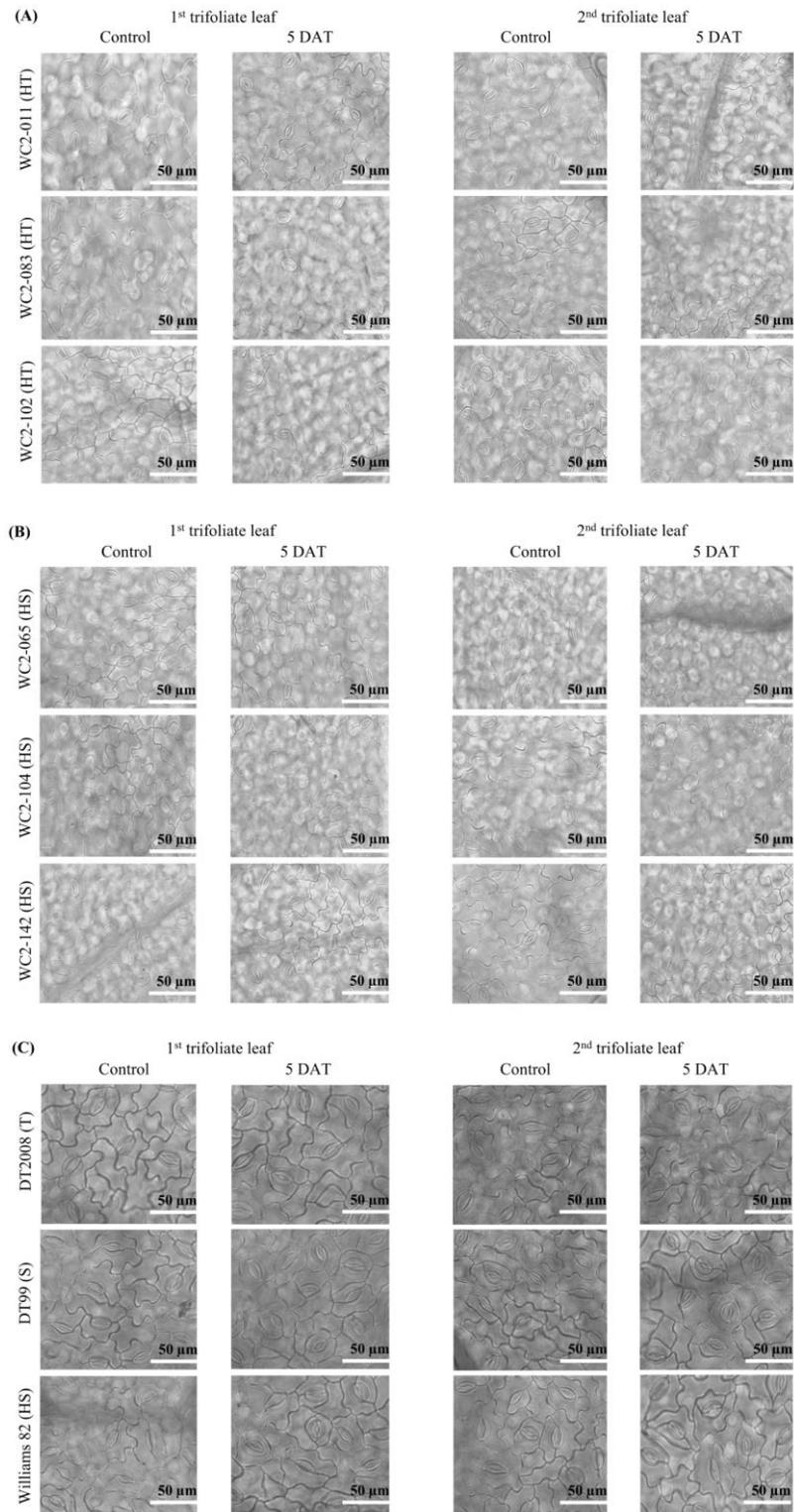


Figure S2. Anatomical features of 1st and 2nd trifoliolate leaves at vegetative stage between control and 5 days after drought treatment (DAT). (A) Wild soybean accessions with drought highly tolerant (HT). (B) Wild soybean accessions with drought-very sensitive (HS). (C) Reference soybean cultivars. T and S represent drought tolerant and drought sensitive, respectively

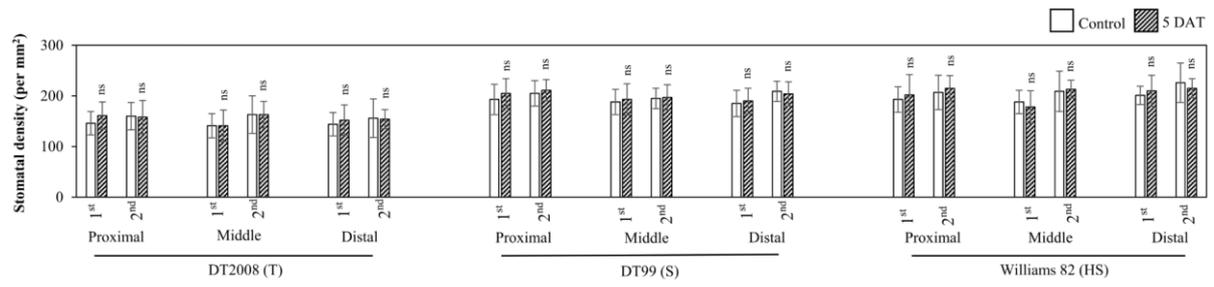


Figure S3: Stomatal density in abaxial surface of soybean cultivars. DT2008 is drought-tolerant cultivar (T), DT99 is drought-sensitive cultivar (S), and Williams 82 as drought highly sensitive (HS) were evaluated under control condition and 5 days after drought treatment (5 DAT). Error bars represent standard deviation (SD) between the replications. 1st, first trifoliolate leaf; 2nd, second trifoliolate leaf. ns, not significant

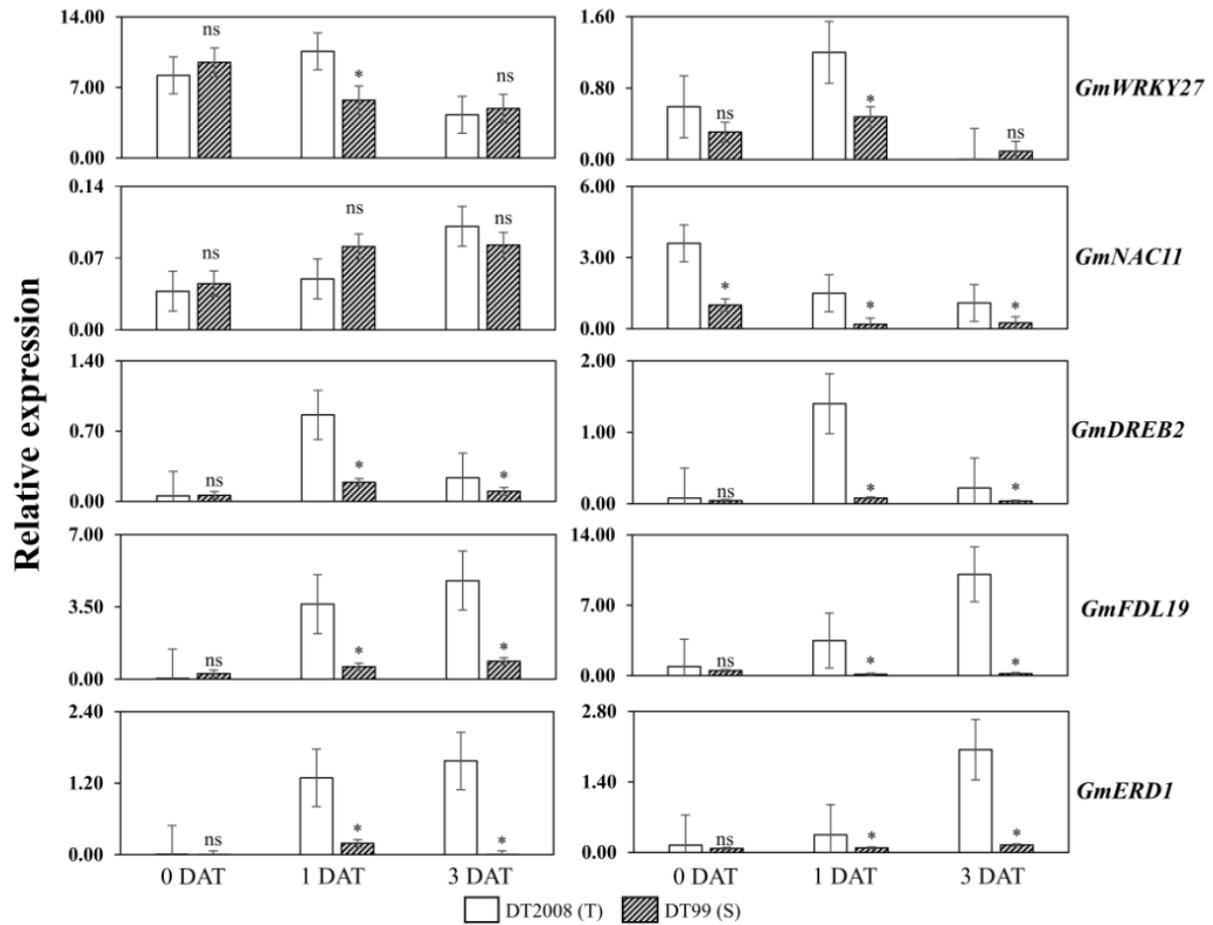


Figure S4. Expression levels of drought-related genes in leaf (left panels), and root (right panels) of soybean cultivars using quantitative PCR. Tissue samples were collected from DT2008 (drought-tolerant, T) and DT99 (drought-sensitive, S). Error bars represent SE of the mean of values. Expression levels were normalized using the constitutive gene (*Cons7*) as the reference. *, significant at $p < 0.05$; ns, not significant

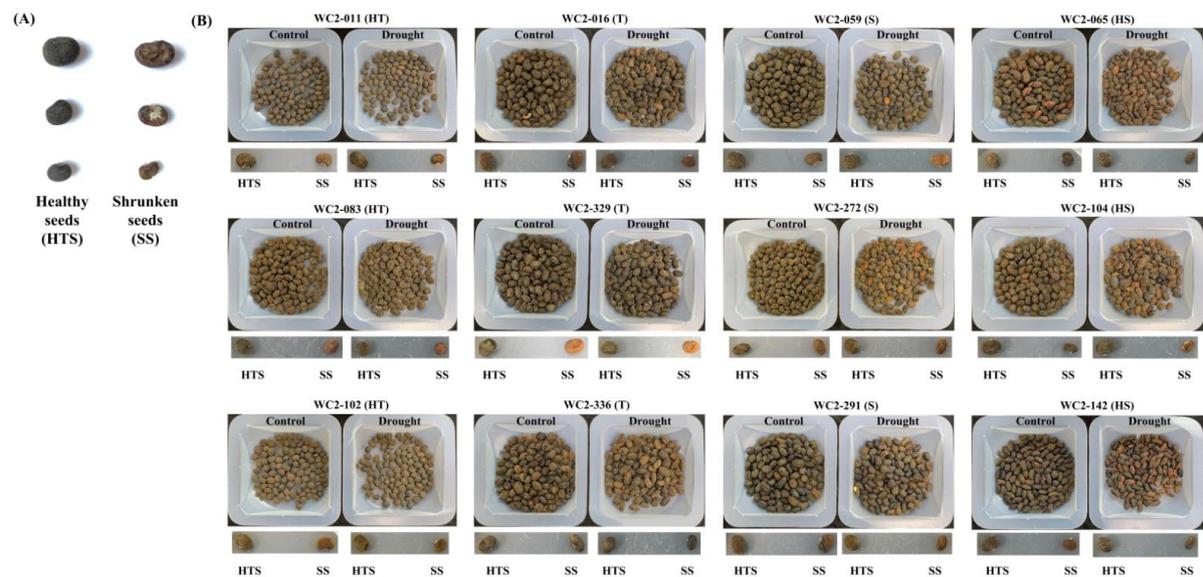


Figure S5. Wild soybean seeds between control and drought conditions. (A). Photographic illustration of healthy seeds (HTS) and shrunken seeds (SS). (B). Photographic illustration of 100-seed of drought-highly tolerant (HT) as WC2-011, WC2-083, WC2-102, drought-tolerant (T) as WC2-016, WC2-329, WC2-336, drought-sensitive (S) as WC2-059, WC2-272, WC2-291, and drought-highly sensitive (HS) as WC2-065, WC2-104, WC2-142 between control and drought condition.

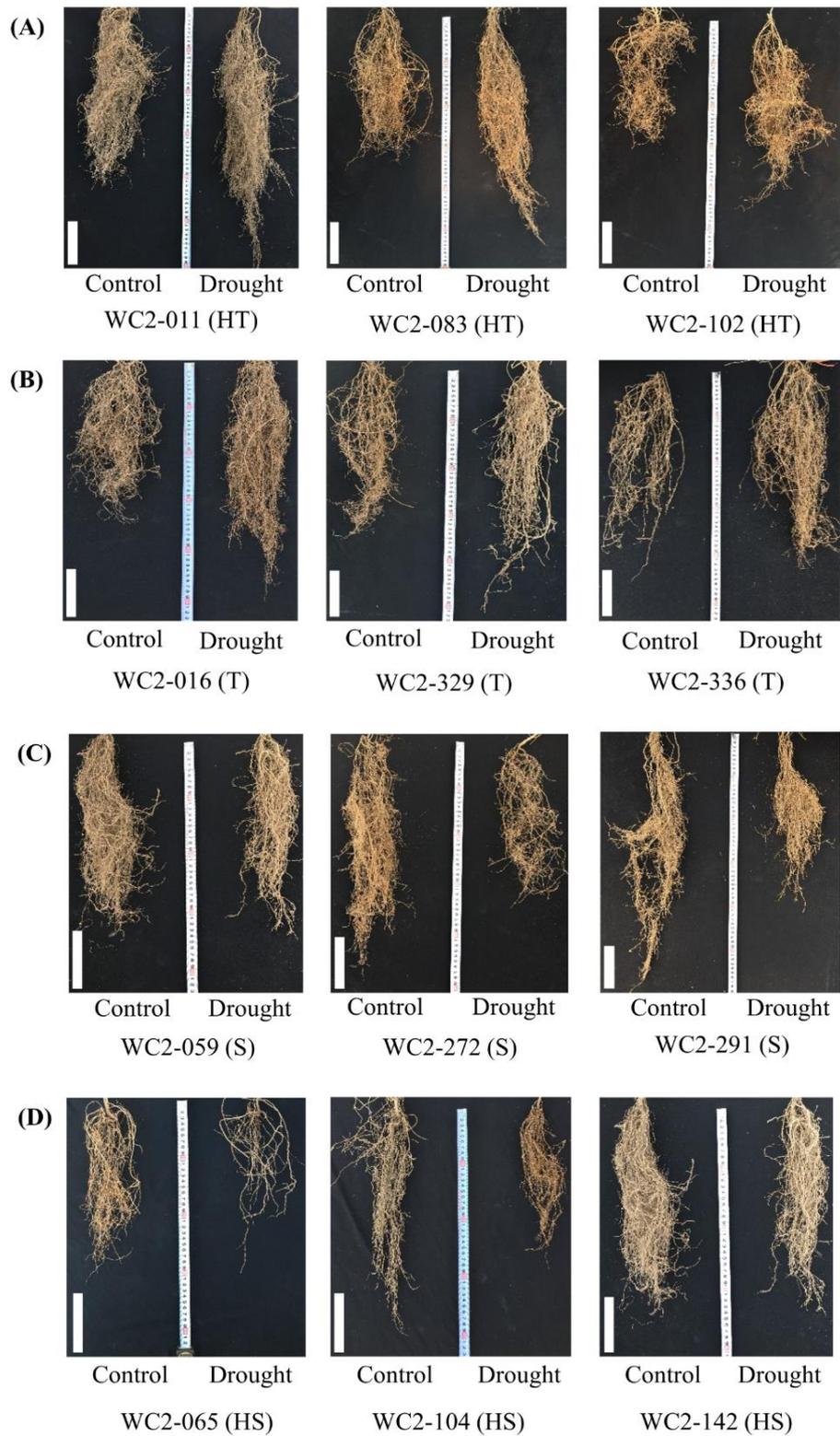


Figure S6. The root architecture of wild soybean at reproductive stage between control and drought conditions. (A) Root of drought-highly tolerant (HT) such as WC2-011, WC2-083, and WC-102. (B) Root of drought-tolerant (T) such as WC2-016, WC2-329, and WC2-336. (C) Root of drought-sensitive (S) such as WC2-059, WC2-272, and WC2-291. (D) Root of drought-highly sensitive (HS) such as WC2-065, WC2-104, WC2-142. White bar indicates 10 cm of length.