

Supplementary Material

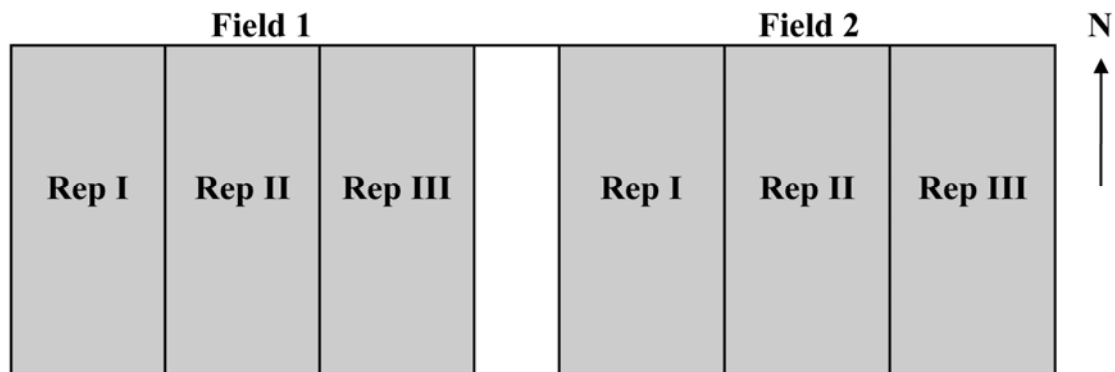


Fig. S1. Field plan used for experiments 1–4. Experiments 1 and 4 were conducted in Field 1. Experiments 2 and 3 were conducted in Field 2. An igloo excluding all rainfall was placed over both fields. The 4 experiments were conducted under either irrigated or continuous drought conditions at Redlands Research Station near Brisbane in southern Queensland, Australia from 2008 to 2011.

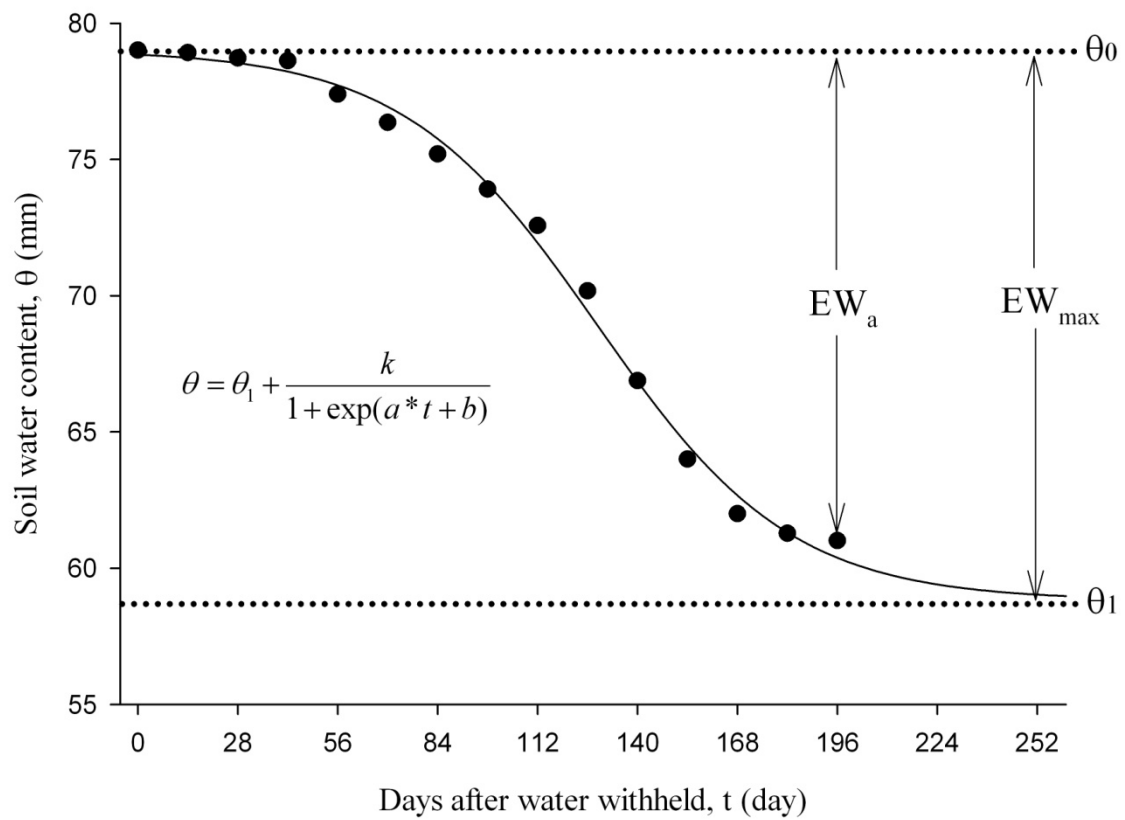


Fig. S2. A sigmoid model used to describe the relationship between soil water content and days after water withheld for each layer of soil profile in each experimental unit. θ_1 represents the lower limit of soil water content. θ_0 was the soil water content when experiment started. Maximum extractable water (EW_{\max}) defined as a genotypic specific estimate of the maximum amount of water the grasses were able to extract from each layer of the soil profile was the difference between θ_0 and θ_1 . Actual extracted water (EW_a) at the end of experiment was the difference between θ_0 and the final measured soil water content.

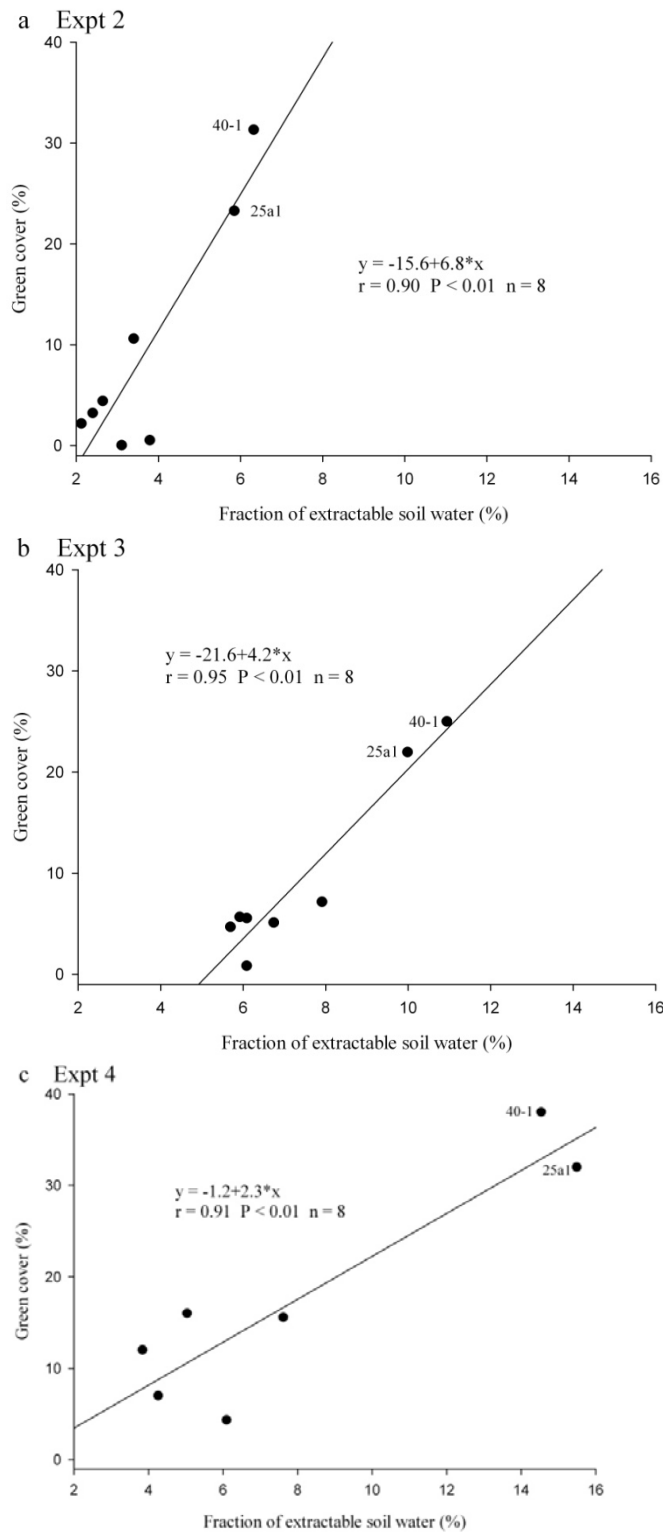


Fig. S3. Linear regression between green cover and Fraction of extractable soil water at the last measurement of experiment 1 (a), 2 (b) and 3 (c). Fraction of extractable soil water (EW_{fr}) defined as the percentage of extra water used by grasses after the experiments were terminated to genotype maximum extractable water (EW_{max}) calculated based on the sigmoid model.