**Nitrogen addition increases the sensitivity of photosynthesis to drought and re-watering differentially in C3 versus C4 grass species**

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**Supplementary Figure 1.** Timeline figure indicates the dates and age of plants after germinating under different treatment periods of the whole experiment.



**Supplementary Figure 2.** Meteorological data: (a) diurnal mean air temperature, (b) diurnal photosynthetic photon flux density, (c) diurnal mean air relative humidity and (d) diurnal mean air water vapor pressure on the days 1, 3, 5, 7 and 14 of the drought/re-watering treatment.

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**Supplementary Figure 3.** Leaf nitrogen content in *Chloris virgata* (annual C4), *Hemarthria altissima* (perennial C4) and *Leymus chinensis* (perennial C3) grown in the unfertilized (N0) and fertilized (N10) conditions. “\*” represents significant differences between the N treatments (*P* < 0.05). Data are reported as the arithmetic mean ± 1 standard error (n=6).

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**Supplementary Figure 4.** **(a)** Plant height and **(b)** total biomass in *Chloris virgata* (annual C4), *Hemarthria altissima* (perennial C4) and *Leymus chinensis* (perennial C3) grown in the unfertilized (N0) and fertilized (N10) conditions. “\*” represents significant differences between the N treatments (*P* < 0.05). Data are reported as the arithmetic mean ± 1 standard error (n=6).

