**Supplementary Material**

**Drought responses in Coffea arabica as affected by genotype and phenophase. II – photosynthesis at leaf and plant scales**

Miroslava Rakocevic1,2, \*, Evelyne Costes3, Eliemar Campostrini4, José Cochicho Ramalho5,6, Rafael Vasconcelos Ribeiro1

*1* *Laboratory of Crop Physiology, Department of Plant Biology, Institute of Biology, State University of Campinas (UNICAMP), 13083–862 Campinas, SP, Brazil.*

*2 Laboratory of Ecophysiology, Agronomic Institute of Paraná, IAPAR, 86047–902 Londrina, PR, Brazil.*

*3 AGAP Institut, Univ Montpellier, CIRAD, INRAE, Institut Agro, 34398 Montpellier Cedex 5, France.*

*4 Plant Physiology Laboratory – LMGV, State University of North Fluminense (UENF), 28013–602 Campos dos Goytacazes, RJ, Brazil.*

*5 Plant Stress & Biodiversity Lab, Forest Research Center (CEF), Associate Laboratory TERRA, School of Agriculture University of Lisbon (ISA/ULisboa), 2784–505 Oeiras, Portugal.*

*6 Geobiosciences, Geotechnologies and Geoengineering (Geobiotec), Faculdade de Ciências e Tecnologia, Universidade NOVA de Lisboa (FCT/UNL), 2829–516 Caparica, Portugal.*

**\* *Corresponding author:*** *e–mail:* [mima.rakocevic61@gmail.com](mailto:mima.rakocevic61@gmail.com)



**Figure S1**. Diurnal course of incoming sun irradiance (photosynthetic photon flux density, PPFD). Values measured 2 m above the soil (n=40-60) during *Coffea arabica* leaf/berry expansion of the ‘year 1’ and ‘year 2’ (BE1 and BE2, respectively), and harvest of the ‘year 1’ and ‘year 2’ (BH1 and BH2, respectively).



**Figure S2**. Leaf area (m2 plant-1) reconstructed from mockups analyzed for four *Coffea arabica* genotypes grown under irrigated (IR) and rainfed (NI) conditions, measured during leaf/berry expansion of ‘year 1’ (BE1, in A) and ‘year 2’ (BE2, in C), and harvest of ‘year 1’ (BH1, in B) and ‘year 2’ (BH2, in D). Estimated mean ± SE and *P*–values (bold when significant) are shown (n=3-4). Different low case letters indicate significant differences among four genotypes within each water regime, while different uppercase letters indicate significant differences between the water regimes for each genotype, always in a given phenophase. Red upper-case letters at upper right corners indicate differences among phenophases (*P*phase < 0.0001).



**Figure S3.** Leaf transpiration (*E*) of four *Coffea arabica* genotypes grown under irrigation (IR) or rainfed (NI) conditions, , measured during leaf/berry expansion of ‘year 1’ (BE1, in A) and ‘year 2’ (BE2, in C), and harvest of ‘year 1’ (BH1, in B) and ‘year 2’ (BH2, in D). Estimated mean ± SE and *P*–values (bold when significant) are shown (n=3-4). Different low case letters indicate significant differences among four genotypes within each water regime, while different uppercase letters indicate significant differences between the water regimes for each genotype, always in a given phenophase. Red upper-case letters at upper right corners indicate differences among phenophases (*P*phase < 0.0001).



**Figure S4.** Linear regressions between measured leaf photosynthesis (*A*, μmol m−2 s−1) and virtual leaf blade outputs (*A*’, μmol m−2 s−1) for each genotype: ‘E083’, ‘E027’, Iapar 59, and Catuaí 99 (n = 28 or 32). R2, bias, RMSE and 1:1 line (black) are shown.