

Table S1. Revised optical properties table following CLM PFT-definition. Leaf angle shows deviation from spherical (χ_L). This table shows values for variables for which data were available. Note, the values are obtained as an average across species values (S2). Transmittance of grasses is set based on crop transmittance. Crop χ_L is calculated as an average across all crop species means (S3). Note, VIS= 400-700 nm and NIR = 701-2400 nm. Note, 'BDT(/S)' denotes 'BDT+BDS'.

Plant Functional Type (PFT)	χ_L	R (leaf, VIS)	R (leaf, NIR)	R (stem, VIS)	R (stem, NIR)	T (leaf, VIS)	T (leaf, NIR)	T (stem, VIS)	T (stem, NIR)
NET temperate; NET boreal	-	0.09	0.41	0.12	0.36	0.04	0.32		
BET tropical; BET(/S) temperate	0.32	0.11	0.46	0.21	0.49	0.06	0.33		
NDT boreal	-	0.08	0.39	0.12	0.36	0.06	0.42		
BDT tropical	0.2	0.08	0.41	0.21	0.49	0.06	0.43		
BDT(/S) temperate; BDT(/S) boreal	0.57	0.08	0.41	0.21	0.49	0.06	0.43		
C3 arctic grass C3 grass; C4 grass	-0.23	0.05	0.28			0.05	0.40		
C3 crop; Temp corn; Spring wheat; Temp soybean; Cotton; Rice; Sugarcane; Tropical corn; Tropical soybean	0.34	0.08	0.42			0.05	0.40		