

Supplementary Table S1. The CO₂ partial pressure drop between the ambient air (C_a) and the leaf intercellular spaces (C_i) and between C_i and the mesophyll (C_m) expressed as a proportion of the total gradient $C_a - C_m$ in *Setaria viridis* and *Zea mays* measured at 25 °C. The C_m was derived with the CA-limited calculations. Values for CO₂ assimilation rate (A) and CA-lim g_m are also presented. Values are means \pm 1SE, $n = 4$ in *Setaria* and $n = 3$ in *Zea*.

C_a Pa	C_i Pa	C_m Pa	$C_a - C_i$ %	$C_i - C_m$ %	A $\mu\text{mol m}^{-2} \text{s}^{-1}$	g_m $\mu\text{mol m}^{-2} \text{s}^{-1} \text{Pa}^{-1}$
<i>Setaria viridis</i> $T_L = 25$ °C						
4.7 \pm 0.0	2.3 \pm 0.1	0.8 \pm 0.0	62	38	9.3 \pm 0.3	6.30 \pm 0.32
6.5 \pm 0.1	3.2 \pm 0.2	1.0 \pm 0.0	59	41	12.3 \pm 0.6	5.60 \pm 0.29
9.3 \pm 0.0	4.7 \pm 0.2	1.5 \pm 0.1	58	42	16.8 \pm 0.6	5.16 \pm 0.29
11.2 \pm 0.1	5.8 \pm 0.2	1.8 \pm 0.1	57	43	19.6 \pm 1.0	4.90 \pm 0.39
13.9 \pm 0.0	7.1 \pm 0.2	2.2 \pm 0.1	58	42	22.8 \pm 0.7	4.67 \pm 0.25
18.5 \pm 0.1	9.6 \pm 0.1	2.9 \pm 0.1	57	43	26.9 \pm 0.9	4.00 \pm 0.10
27.9 \pm 0.1	15.1 \pm 0.3	3.8 \pm 0.2	53	47	30.2 \pm 1.0	2.67 \pm 0.11
37.3 \pm 0.1	20.1 \pm 0.4	4.6 \pm 0.1	53	47	31.0 \pm 1.0	2.00 \pm 0.10
56.0 \pm 0.2	27.0 \pm 1.3	5.8 \pm 0.4	58	42	32.0 \pm 0.8	1.52 \pm 0.10
92.8 \pm 0.2	54.4 \pm 4.6	7.8 \pm 1.1	45	55	31.3 \pm 0.9	0.70 \pm 0.10
<i>Zea mays</i> $T_L = 25$ °C						
9.4 \pm 0.0	4.4 \pm 0.1	3.0 \pm 0.4	77	23	19.7 \pm 1.0	16.20 \pm 5.74
13.9 \pm 0.0	7.1 \pm 0.0	3.9 \pm 0.4	68	32	24.9 \pm 1.0	7.92 \pm 1.18
18.6 \pm 0.1	9.9 \pm 0.2	3.9 \pm 0.3	60	40	27.4 \pm 0.5	4.64 \pm 0.31
35.5 \pm 0.1	16.8 \pm 0.1	4.7 \pm 0.4	61	39	29.3 \pm 0.4	2.43 \pm 0.13
56.0 \pm 0.3	24.8 \pm 1.4	5.2 \pm 1.0	61	39	26.4 \pm 0.8	1.36 \pm 0.12
84.1 \pm 0.4	34.1 \pm 2.0	9.6 \pm 1.5	67	33	25.6 \pm 0.9	1.07 \pm 0.13
112.1 \pm 0.6	48.3 \pm 4.9	6.9 \pm 1.0	61	39	24.4 \pm 0.0	0.60 \pm 0.07