

Supplementary Table S1. Within family variance estimations in the Dent and Flint-NAM sets under control and cold conditions

	F _v /F _m ¹ Control	F _v /F _m ¹ Cold	Chlorophyll ² Control	Chlorophyll ² Cold	Dry weight Control	Dry weight Cold
Dent						
CFD01 ³	8.6 E-05**	28.61 E-04	5.5515**	0.8891*	12.0 E-05	5.8 E-05**
CFD02	2.0 E-05	206.4 E-04**	3.2199	1.7671*	12.3 E-05	23.5 E-05**
CFD03	3.5 E-05*	9.43 E-04	1.8874	0.2828	28.7 E-05*	16.2 E-05**
CFD04	5.6 E-05*	181.1 E-04**	2.5905**	0.5111**	18.9 E-05	13.4 E-05**
CFD05	1.2 E-05	170.9 E-04**	5.6446**	0	44.2 E-05**	2.8 E-05
CFD06	8.8 E-05**	52.02 E-04**	4.3502**	0.9460**	23.3 E-05**	12.5 E-05**
CFD07	4.2 E-05**	13.29 E-04**	7.2109**	1.5642**	29.7 E-05**	71.6 E-05**
CFD09	7.0 E-05*	8.89E-21	0.3382	0.8632*	0	20.8 E-05**
CFD10	12.7 E-05**	142. E-040**	8.7951**	1.8196**	19.0 E-05**	16.6 E-05*
CFD11	19.7 E-05**	26.16 E-04	5.4324*	0	2.2 E-05	1.1 E-05
CFD12	26.3 E-05**	85.59 E-04**	3.9444*	1.3246**	57.6 E-05*	9.5 E-05
Average	9.10E-05**	74.4 E-04**	4.8153**	0.9874**	22.4 E-05**	22.0 E-05**
Heritability	0.49 ± 0.03	0.56 ± 0.02	0.49 ± 0.03	0.41 ± 0.03	0.38 ± 0.04	0.41 ± 0.03
Flint						
CFF01	9.2 E-05	319.3 E-04**	3.9633*	1.0754*	34.2 E-05**	24.9 E-05**
CFF02	0	240.7 E-04**	3.3865*	2.5199**	31.0 E-05**	36.0 E-05**
CFF03	13.6 E-05*	263.6 E-04**	4.7215*	1.6533**	26.9 E-05**	9.1 E-05**
CFF04	5.0 E-05*	88.0 E-04*	12.4662**	0.4719	37.1 E-05**	3.3 E-05
CFF05	0	164.4 E-04*	1.2453	2.8827**	14.2 E-05	17.4 E-05**
CFF06	47.6 E-05**	215.4 E-04*	6.1067*	0.4229	42.5 E-05**	8.4 E-05*
CFF07	106.7 E-05**	460.2 E-04**	3.0336*	3.4831**	16.0 E-05**	21.7 E-05**
CFF08	3.8 E-05	115.5 E-04	15.2980*	4.8135	29.8 E-05**	16.2 E-05
CFF09	39.3 E-	115.5 E-	0	0	13.6 E-	34.6 E-

	05**	04*			05**	05**
CFF10	7.7 E-05**	0	9.8770	0.5748	32.1 E-05**	20.1 E-05
CFF12	10.3 E-05**	387.0 E-04**	5.7191*	2.6947**	37.2 E-05**	28.5 E-05**
CFF13	29.4 E-05**	142.8 E-04**	3.1942*	1.5662**	12.1 E-05**	9.7 E-05**
CFF15	1.399E-7	20.4 E-04	5.6424**	1.3852**	28.1 E-05*	12.2 E-05**
Average	3.37E-04**	302.9 E-04**	4.7886**	1.9748**	26.6 E-05**	21.6 E-05**
Heritability	0.63 ± 0.02	0.53 ± 0.02	0.29 ± 0.03	0.42 ± 0.02	0.50 ± 0.02	0.51 ± 0.02

¹ F_v/F_m : quantum efficiency of photosystem II, recorded using an OS-30p Chlorophyll Fluorometer (Opti-Sciences)

² Relative leaf chlorophyll content (SPAD) using a hand-held CCM-200 Chlorophyll Content Meter (Opti-Science)

² CFD01: F353 × UH007, CFD02: F353 × B73, CFD03: F353 × D06, CFD04: F353 × D09, CFD05: F353 × EC169, CFD06: F353 × F252, CFD07: F353 × F618, CFD09: F353 × Mo17, CFD10: F353 × UH250, CFD11: F353 × UH304, CFD12: F353 × W117, CFF01: UH007 × F353, CFF02: UH007 × B73, CFF03: UH007 × D152, CFF04: UH007 × EC49A, CFF05: UH007 × EP44, CFF06: UH007 × EZ5, CFF07: UH007 × F03802, CFF08: UH007 × F2, CFF09: UH007 × F283, CFF10: UH007 × F64, CFF12: UH007 × UH006, CFF13: UH007 × UH009, CFF15: UH007 × DK105

*, ** Significantly different from zero at 0.05 and 0.01 probability level, respectively