Supplementary Material

Genetic analysis of maize grain yield components and physiological determinants under contrasting nitrogen availability

Ignacio R. Hisse[A,B,*]*, Karina E. D'Andrea*[A,B]*, and María E. Otegui*[A,C]

[A]Departamento de Producción Vegetal, Facultad de Agronomía, Universidad de Buenos Aires, Avenida San Martín 4453, Ciudad de Buenos Aires C1417DSE, Argentina.

[B]Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET), Ciudad de Buenos Aires, Argentina.

[C]Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET) en INTA, Centro Regional Buenos Aires Norte, Estación Experimental Agropecuaria, Ruta 32 km 4.5, Pergamino C2700, Provincia de Buenos Aires, Argentina.

[*]Correspondence to: Ignacio R. Hisse Departamento de Producción Vegetal, Facultad de Agronomía, Universidad de Buenos Aires, Avenida San Martín 4453, Ciudad de Buenos Aires C1417DSE, Argentina Email: hisse@agro.uba.ar

Supplementary Table S1. Broad-sense heritability (H^2), and variances of hybrid (σ^2_{F1}), hybrid by environment ($\sigma^2_{F1\times E}$) and error (σ^2_e) at each nitrogen (N) level (N0, N200) expressed as absolute values, and as a percentage of the phenotypic variance (in parenthesis) for measured traits evaluated during two years.

Trait	N	σ^2_{F1}		$\sigma^2_{F1\times E}$		σ^2_e		H^2
PGR$_{CP}$[a]	N0	384	(66)	63	(11)	135	(23)	0.67
	N200	892	(85)	47	(4)	113	(11)	0.85
PG$_{EGFP}$	N0	34	(48)	7	(11)	29	(41)	0.48
	N200	150	(62)	51	(21)	41	(17)	0.62
PGR$_{CP}$ kernel[-1]	N0	0.0009	(32)	0.0011	(38)	0.0008	(30)	0.33
	N200	0.0033	(71)	0.0009	(20)	0.0046	(9)	0.71
PG$_{EGFP}$ kernel[-1]	N0	647	(78)	11	(1)	168	(20)	0.78
	N200	492	(56)	293	(33)	100	(11)	0.56
KW	N0	80	(45)	64	(36)	34	(19)	0.46
	N200	66	(33)	104	(52)	32	(15)	0.37
KNP	N0	1725	(74)	387	(16)	234	(10)	0.75
	N200	2625	(80)	428	(13)	227	(7)	0.81

[a]KNP, kernel number per plant; KW, kernel weight; PG$_{EGFP}$, plant growth during the effective grain-filling period; PG$_{EGFP}$ kernel[-1], PG$_{EGFP}$ per kernel; PGR$_{CP}$, plant growth rate during the critical period for kernel set; PGR$_{CP}$ kernel[-1], PGR$_{CP}$ per kernel.

Supplementary Table S2. Estimated variance components (σ^2) of general and specific combining abilities (GCA and SCA, respectively) at each nitrogen (N) level (N0, N200) for measured traits evaluated during two years.

Trait	N	σ^2_{GCA}	σ^2_{SCA}
PGR$_{CP}$[a]	N0	198	21
	N200	385	135
PG$_{EGFP}$	N0	8.2	7.1
	N200	17	30
PGR$_{CP}$ kernel^{-1}	N0	0.0007	0.0007
	N200	0.0022	0.0004
PG$_{EGFP}$ kernel^{-1}	N0	294	23
	N200	315	104
KW	N0	82	9.2
	N200	115	65
KNP	N0	880	102
	N200	1148	167

[a]KNP, kernel number per plant; KW, kernel weight; PG$_{EGFP}$, plant growth during the effective grain-filling period; PG$_{EGFP}$ kernel^{-1}, PG$_{EGFP}$ per kernel; PGR$_{CP}$, plant growth rate during the critical period for kernel set; PGR$_{CP}$ kernel^{-1}, PGR$_{CP}$ per kernel.