Supplementary Materials

Table S1. Macronutrient concentration (g/kg) in root, stem, leaf, CHI (cob, husk, immature ear), and grain from harvested corn plants grown synthetically in indoor grow room. Values are averages across four phosphorus concentration treatments and four replications for each hybrid.

Nutrient	Hybrid	Root	SE	Stem	SE	Leaf	SE	CHI	SE	Grain	SE
Carbon (C)	307HYB	400	8.4	420	2.4	429	2.0	432	1.7	427	1.7
	339HYB	428	4.6	412	3.6	420	2.2	428	1.9	430	1.4
	352HYB	419	4.6	418	2.4	423	1.8	432	1.1	425	1.5
	301B	393	10.5	413	2.8	422	2.7	441	15.5	424	1.8
	33W84	415	5.0	425	2.1	428	1.6	423	1.4	426	1.6
	P1151HR	411	5.7	436	1.4	435	1.3	434	2.0	431	3.3
Nitrogen (N)	307HYB	14.5	0.6	20.9	1.0	27.2	1.6	9.3	1.1	20.4	0.4
	339HYB	15.8	0.3	15.6	1.1	21.4	1.3	8.1	0.7	19.5	0.6
	352HYB	15.0	0.3	18.1	0.7	22.1	2.0	8.2	0.7	19.5	0.5
	301B	15.8	0.4	16.2	0.7	26.3	1.5	11.1	1.0	21.2	0.5
	33W84	15.4	0.3	14.7	0.2	20.1	0.8	8.3	0.4	18.2	0.3
	P1151HR	16.9	0.4	20.4	0.4	35.0	2.3	13.5	1.2	21.8	0.3
Sulfur (S)	307HYB	2.7	0.1	0.8	0.1	2.2	0.2	0.5	0.1	1.0	0.1
	339HYB	3.2	0.2	0.9	0.1	2.9	0.2	0.5	0.1	0.9	0.1
	352HYB	3.2	0.1	1.0	0.1	2.8	0.2	0.6	0.1	1.0	0.1
	301B	3.1	0.1	1.2	0.1	3.0	0.3	0.7	0.1	1.1	0.1
	33W84	3.8	0.2	0.6	0.1	2.6	0.1	0.6	0.1	0.9	0.1
	P1151HR	4.8	0.3	0.9	0.1	3.0	0.1	0.6	0.1	1.0	0.1
Potassium (K)	307HYB	4.1	0.5	13.2	1.2	10.1	0.4	8.8	0.4	3.1	0.2
	339HYB	6.1	0.9	20.4	2.3	18.5	1.1	11.5	1.1	3.3	0.1
	352HYB	6.9	0.7	16.5	1.2	12.9	0.6	8.6	0.7	3.2	0.1
	301B	9.0	1.0	21.7	1.7	17.0	1.3	13.4	1.2	3.3	0.2
	33W84	13.8	1.3	12.2	0.6	12.4	1.6	14.7	0.5	3.1	0.1
	P1151HR	13.3	1.4	10.3	0.7	6.6	0.4	8.2	0.3	3.7	0.2
Calcium (Ca)	307HYB	3.0	0.2	1.3	0.1	6.5	0.5	0.5	0.1	0.1	ND‡
	339HYB	3.1	0.2	1.6	0.2	6.9	0.6	0.6	0.1	0.1	
	352HYB	3.2	0.1	1.4	0.1	5.9	0.3	0.5	0.1	0.1	
	301B	2.7	0.1	1.8	0.1	7.3	0.5	0.8	0.1	0.1	
	33W84	2.2	0.1	1.0	0.1	6.3	0.2	0.7	0.1	0.1	
	P1151HR	2.7	0.1	1.0	0.1	4.4	0.2	1.0		0.1	
Magnesium (Mg)	307HYB	1.3	0.1	1.3	0.1	3.1	0.3	0.7	0.1	0.8	0.1
	339HYB	1.6	0.1	1.3	0.1	2.5	0.2	0.6	0.1	0.9	0.1
	352HYB	1.5	0.1	1.1	0.1	2.7	0.2	0.7	0.1	0.9	0.1
	301B	1.8	0.1	1.2	0.1	2.1	0.3	0.7	0.1	1.0	0.1
	33W84	1.3	0.1	0.9	0.1	3.1	0.1	0.7	0.1	0.9	0.1
	P1151HR	1.8	0.1	1.1	0.1	2.6	0.1	0.7	0.1	1.1	0.1

‡ND-Not Detectable; SE=standard error

Table S2. Micronutrient concentration (mg/kg) in root, stem, leaf, CHI (cob, husk, immature ear), and grain from harvested corn plants grown synthetically in indoor grow room. Values are averages across four phosphorus concentration treatments and four replications for each hybrid.

Nutrient	Hybrid	Root	SE	Stem	SE	Leaf	SE	CHI	SE	Grain	SE
Iron (Fe)	307HYB	564	21	22.5	2.5	79.8	6.5	17.6	1.5	20.0	1.5
	339HYB	560	36	20.9	1.5	66.7	3.4	15.6	1.1	19.8	1.5
	352HYB	670	31	21.3	1.7	60.3	3.8	17.4	1.2	17.7	1.7
	301B	570	33	29.7	2.4	70.4	5.7	21.6	1.6	22.6	1.6
	33W84	478	32	16.5	0.9	52.9	1.2	16.1	1.0	16.7	1.6
	P1151HR	407	14	29.2	1.2	79.4	2.8	18.6	1.0	16.7	1.2
Boron (B)	307HYB	9.7	0.8	11.6	0.7	180	10	10.9	0.6	6.4	0.3
	339HYB	21.9	5.6	17.2	1.7	233	9	15.4	0.7	7.8	0.4
	352HYB	14.3	1.4	13.9	1.0	175	10	13.3	0.7	6.1	0.3
	301B	8.6	0.9	16.7	0.8	172	15	18.0	1.1	13.9	5.2
	33W84	7.2	0.5	9.5	0.5	220	5.7	19.2	1.2	7.4	0.3
	P1151HR	9.9	1.1	15.6	0.8	179	6.5	15.5	0.7	6.8	0.2
Zinc (Zn)	307HYB	18.7	0.9	13.7	1.0	33.6	3.1	12.0	1.1	23.2	1.7
	339HYB	21.6	1.9	14.8	1.9	37.2	3.7	13.1	2.3	23.6	0.9
	352HYB	27.7	2.1	16.4	1.4	36.2	5.7	13.1	2.1	20.7	1.3
	301B	27.5	5.9	17.1	1.3	31.4	2.9	15.0	1.3	25.7	1.1
	33W84	19.0	1.3	10.5	0.7	42.4	2.9	12.2	1.3	18.4	0.7
	P1151HR	26.1	2.3	14.3	0.9	49.6	3.8	14.9	0.9	19.8	1.2
Copper (Cu)	307HYB	39.5	2.2	3.7	0.3	12.8	0.8	3.2	0.2	1.8	0.2
	339HYB	40.1	5.2	5.4	1.1	16.3	1.0	3.5	0.3	2.8	0.3
	352HYB	43.6	4.9	4.1	0.3	14.4	0.9	3.8	0.2	2.4	0.2
	301B	47.1	7.2	5.7	0.6	14.9	1.2	4.0	0.3	3.1	0.2
	33W84	28.0	2.4	5.1	0.7	20.6	0.9	4.8	0.4	1.5	0.1
	P1151HR	31.5	3.2	5.6	0.4	17.5	1.0	3.2	0.2	2.0	0.4
Manganese (Mn)	307HYB	22.1	1.9	18.2	1.0	62.0	7.3	9.7	0.7	5.6	0.4
	339HYB	22.6	1.6	21.1	1.3	77.9	6.9	9.9	0.6	7.2	0.6
	352HYB	21.1	0.5	18.8	0.9	60.1	4.8	10.4	0.9	6.2	0.5
	301B	17.1	1.1	23.9	1.1	79.3	8.2	14.1	0.8	7.5	0.6
	33W84	15.1	0.6	13.0	0.6	50.7	2.3	10.1	0.6	5.2	0.3
	P1151HR	18.2	0.7	18.3	0.8	39.6	1.7	9.8	0.4	8.9	0.5
Molybdenum (Mo)	307HYB	3.6	0.3	0.4	0.1	1.1	0.2	0.2		0.3	0.1
	339HYB	4.3	0.5	0.4	0.1	1.7	0.4	0.3		0.4	0.1
	352HYB	4.9	0.5	0.3	0.1	1.2	0.2	0.2		0.3	
	301B	3.7	0.3	0.7	0.1	2.0	0.4	0.5	0.1	0.4	0.1
	33W84	3.7	0.2	0.2	ND‡	0.9	0.1	0.2		0.2	
	P1151HR	3.7	0.2	0.2		0.6	0.1	0.2		0.2	

‡ND-Not Detectable; SE=standard error

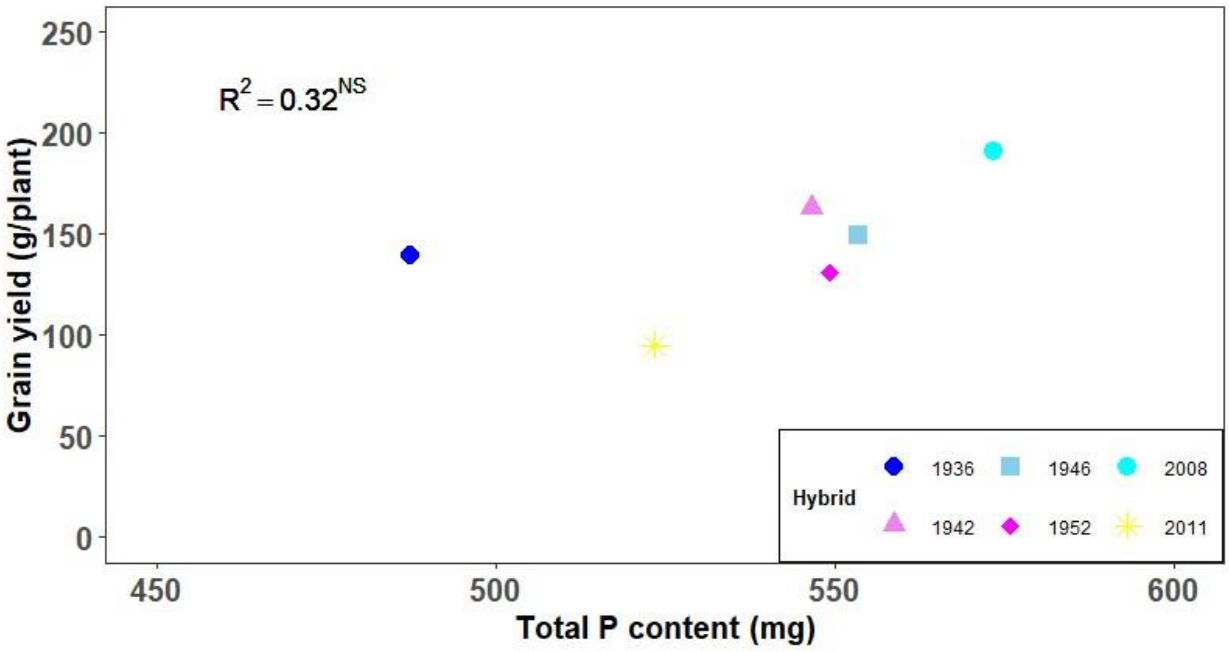


Figure S1. Grain yield shown as a function of total phosphorus (TP) content. Each data point represents the mean of 16 values, derived from four replications for each phosphorus concentration treatment (4, 7, 10, and 12 mg P L^{-1}). NS = non-significant, $p > 0.05$.

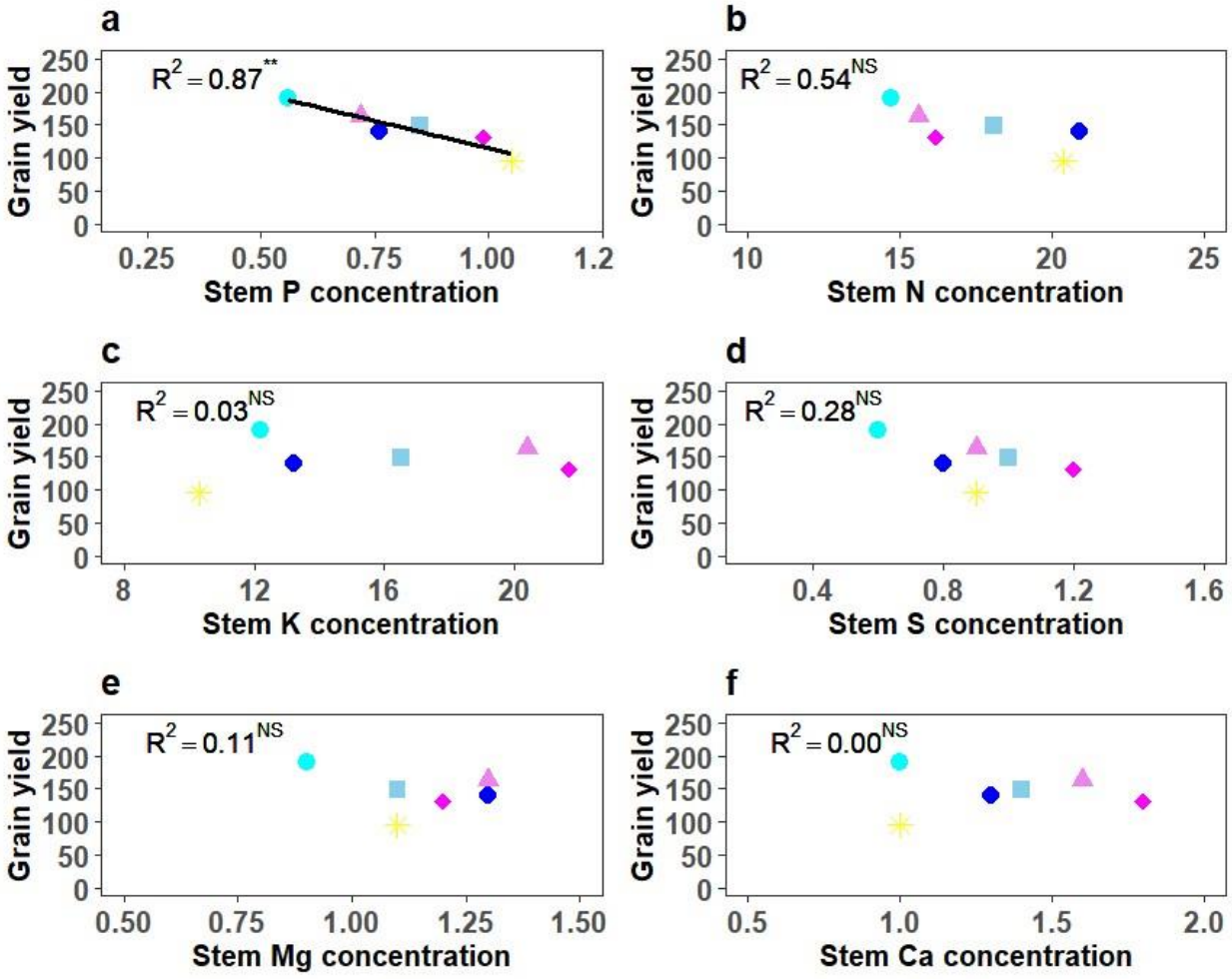


Figure S2. Grain yield (g) shown as a function of phosphorus, P (a), nitrogen, N (b), potassium, K (c), sulfur, S (d), magnesium, Mg (e), and calcium, Ca (f) concentration (g/kg). Each data point represents the mean of 16 values, derived from four replications for each phosphorus concentration treatment (4, 7, 10, and 12 mg P L^{-1}). $^{NS}p \geq 0.05$, $^{**}p \leq 0.01$.

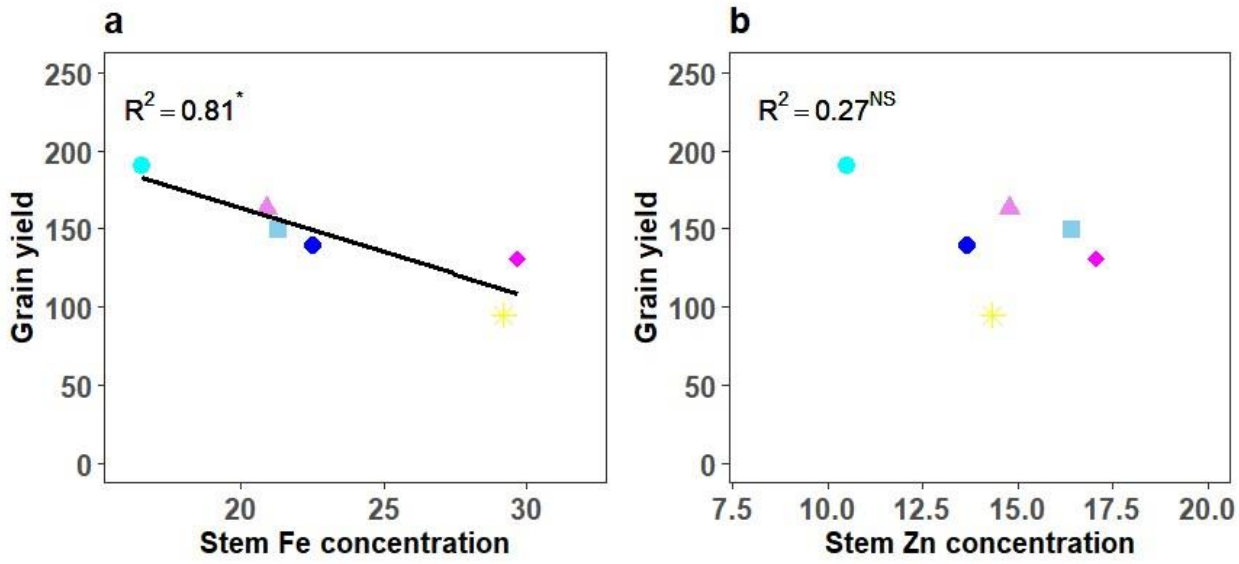


Figure S3. Grain yield (g) shown as a function of iron, Fe (a), and zinc, Zn (b) concentration (mg/kg). Each data point represents the mean of 16 values, derived from four replications for each phosphorus concentration treatment (4, 7, 10, and 12 mg P L^{-1}). $^{NS}p \geq 0.05$, $^{*}p \leq 0.05$.

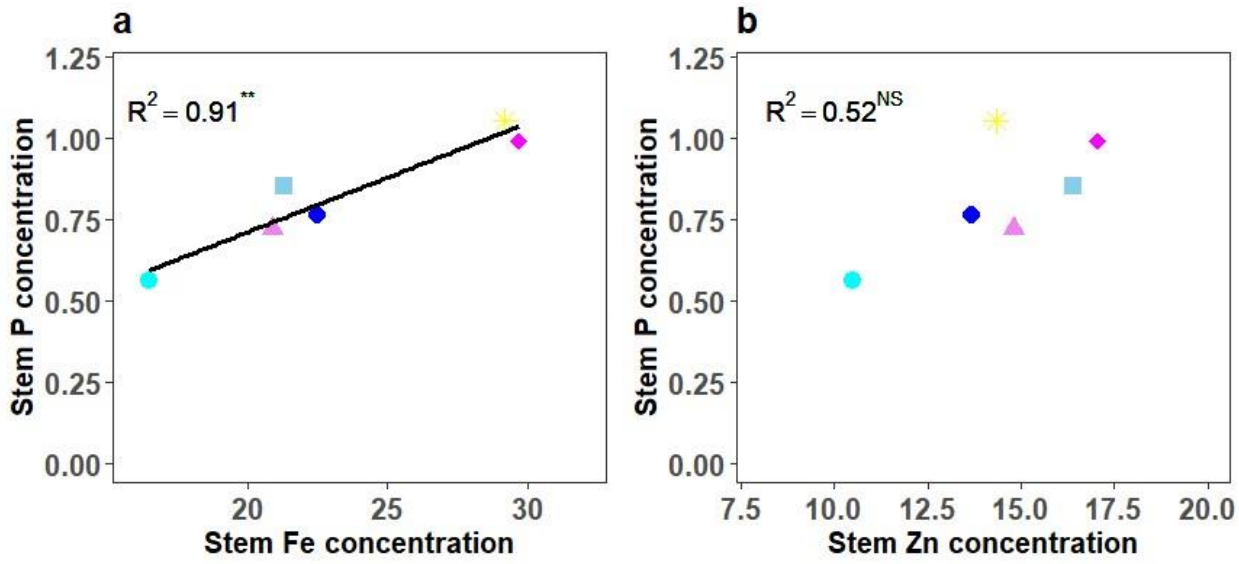


Figure S4. Stem P concentration (g/kg) shown as a function of iron, Fe (a), and zinc, Zn (b) concentration (mg/kg). Each data point represents the mean of 16 values, derived from four replications for each phosphorus concentration treatment (4, 7, 10, and 12 mg P L^{-1}). $^{NS}p \geq 0.05$, $^{**}p \leq 0.01$.