Table S7   Variance Component Estimates from Mixed Linear Models Fitted to 24 Grain Carotenoid Traits

	Trait	Genetic Variance Component	Environmental Variance Component	GxE[a] Variance Component
15 priority traits	Lutein	24.8787	1.5973	1.5368
	Zeinoxanthin	2.0509	0.2717	0.0286
	α-Carotene	0.2446	0.7396	0.0317
	α-Carotene/Zeinoxanthin	4.0856	0.4429	1.3267
	Zeinoxanthin/Lutein	0.0137	0.0018	0.0142
	Zeaxanthin	58.1510	3.6651	0.0000
	β-Cryptoxanthin	1.4692	0.0741	0.0691
	β-Carotene	0.5365	0.1189	0.1785
	β-Cryptoxanthin/Zeaxanthin	0.0099	0.0011	0.0015
	β-Carotene/β-Cryptoxanthin	0.6497	0.0792	0.5125
	Total Carotenoids	129.6260	12.7090	0.0000
	Acyclic and Monocyclic Carotenes	2.3351	1.7549	0.4304
	β-Xanthophylls/α-Xanthophylls	25.9938	5.3756	0.0000
	Provitamin A	1.5758	0.3941	0.2488
	β-Carotenoids/α-Carotenoids	1.9802	0.0337	0.0000
9 additional traits	ζ-Carotene	0.1592	0.1985	0.0697
	Phytofluene	0.2827	0.1545	0.1323
	Tetrahydrolycopene	0.0157	0.0103	0.0223
	Total β-Xanthophylls	74.3102	3.3002	0.0000
	Total α-Xanthophylls	35.2877	3.3811	0.0000
	Provitamin A/Total Carotenoids	0.0017	0.0003	0.0001
	β-Carotene/(β-Cryptoxanthin+Zeaxanthin)	0.0086	0.0007	0.0005
	Acyclic Carotenes/Cyclic Carotenes	0.0047	0.0017	0.0000
	Total Carotenes/Total Xanthophylls	0.0053	0.0002	0.0031

Variance component estimates from mixed linear models fitted to each of the 24 maize grain traits. These mixed liner models included random effects accounting for genotype, environment, and their interaction.

[a]GxE, The variance component accounting for the interaction between genotype and environment.