

Table S1 Proportion of Variance Explained (PVE) by Genetic, Dietary, and GxD contributions to gross phenotypes

Trait	Source	PVE	p Value
Weight	Genetic	0.256	$<10^{-324}$
Weight	Diet	0.006	5.1×10^{-15}
Weight	Genetic x Diet	0.047	2.6×10^{-73}
Weight	Replicate	0.112	6.6×10^{-151}
Triglyceride	Genetic	0.148	2.4×10^{-34}
Triglycerides	Diet	0.034	1.2×10^{-12}
Triglycerides	Genetic x Diet	0.140	1.5×10^{-19}
Triglycerides	Replicate	0.472	6.8×10^{-48}
Sugar	Genetic	0.123	3.9×10^{-18}
Sugar	Diet	0.015	5.3×10^{-4}
Sugar	Genetic x Diet	0.155	4.8×10^{-12}
Sugar	Replicate	0.357	2.2×10^{-19}
Larval Survival	Genetic	0.156	2.2×10^{-16}
Larval Survival	Diet	0.198	1.4×10^{-29}
Larval Survival	Genetic x Diet	0.076	1.1×10^{-1}
Larval Survival	Replicate	0.309	5.5×10^{-6}
Pupal Survival	Genetic	0.065	1.3×10^{-16}
Pupal Survival	Diet	0.487	2.3×10^{-86}
Pupal Survival	Genetic x Diet	0.116	2.4×10^{-17}
Pupal Survival	Replicate	0.186	1.4×10^{-12}
Development Time	Genetic	0.228	3.4×10^{-19}
Development Time	Diet	0.091	1.7×10^{-13}
Development Time	Genetic x Diet	0.087	4.2×10^{-2}
Development Time	Replicate	0.348	3.4×10^{-7}