

**Figure S2.** Manhattan plot of results from a genome-wide association study of the five elemental grain phenotypes without significant associations at the 5% false discovery rate level in the Ames panel. Each point represents a SNP with its  $-\log_{10} P$ -value (y-axis) from a mixed linear model analysis plotted as a function of physical position (B73 RefGen\_v4) across the 10 chromosomes of maize (x-axis).