



**Figure S7** Plots of SNPs associated with relative major lesion length (RMLL) for *Macrophomina phaseolina* based on across year combined data for Manhattan locations. (a) Single-locus mixed model (marked in red; Bonferroni-corrected threshold of 0.05; dashed horizontal line); (b) Multi-locus mixed model (MLMM) which identifies three SNPs on chromosomes 2, 7 and 9 (marked in red) from the optimum model (b). The vertical axis indicates the  $-\log_{10}$  of P-value scores, and the horizontal axis indicates chromosomes and physical positions of SNPs.