| Trait | $\rho_R$ : correlation in reference genotype means | $\rho_G$ : correlation in genomic effects |
|-------|--|---|
|       | (p-value)  | (p-value)                                 |
| DTS   | 0.93 (1.0×10 <sup>-10</sup> )                      | 1.0 (4.6×10 <sup>-21</sup> )              |
| PH    | 0.65 (8.2×10 <sup>-4</sup> )                       | 0.78 (2.9×10 <sup>-8</sup> )              |
| GY    | 0.34 (0.13)  | 0.30 (0.13)                               |
|       |  |   |

## Table S1 – Interactions between genotypes and environments/panels

Trait: days to silking (DTS), plant height (PH), grain yield adjusted for DTS (GY).  $\rho_R$ :

correlation in estimated genotype means, only for reference lines tested in both panels; p-values were estimated by t-tests.  $\rho_G$ : correlation in genomic breeding values, based on a polygenic marker-by-panel interaction model fitted in Ames-H and NAM-H; p-values were estimated by likelihood ratio tests.