

Table S7 Summary of QTL positions and effects for cross 1A5 x 1E4.

| Environment | Colony age (dpi) | QTL peak marker ^a | Chromosome | Estimated position of peaking marker (cM) | Estimated position of peaking marker (kb) | LOD score at peak | P-value | Mean 1A5 allele (grey values) | Mean 1E4 allele (grey values) | Mean difference | Allele effect ^b | Percentage of variance explained by QTL (%) | Estimated position of proximal marker (kb) ^c | Estimated position of distal marker (kb) ^c | Bayes confidence interval length (kb) |
|-------------|------------------|------------------------------|------------|---|---|-------------------|---------|-------------------------------|-------------------------------|-----------------|----------------------------|---|---|---|---------------------------------------|
| Cold | 8 | 1_2840762 | 1 | 445.26 | 2841 | 3.6 | 0.029 | 134.52 | 138.11 | 3.58 | 1E4 | 6.3 | 2604 | 3275 | 671 |
| Cold | 8 | c2.loc226 (p) | 2 | 226.07 | 1699 | 10 | < 0.001 | 139.11 | 133.43 | 5.69 | 1A5 | 17 | 1646 | 1819 | 173 |
| Cold | 8 | c3.loc208 (p) | 3 | 208.04 | 1301 | 8.52 | < 0.001 | 133.71 | 138.79 | 5.08 | 1E4 | 12.1 | 869 | 1749 | 880 |
| Cold | 11 | 1_1553785 | 1 | 219.31 | 1554 | 8.59 | < 0.001 | 103.25 | 117.72 | 14.47 | 1E4 | 14.3 | 1020 | 1627 | 607 |
| Cold | 11 | 2_1814469 | 2 | 243.95 | 1814 | 3.68 | 0.018 | 114.88 | 105.17 | 9.71 | 1A5 | 6.4 | 1428 | 2270 | 842 |
| Cold | 11 | 5_1699464 | 5 | 224.63 | 1699 | 5.9 | < 0.001 | 116.26 | 104.11 | 12.15 | 1A5 | 10.1 | 773 | 1911 | 1138 |
| Cold | 11 | 8_429575 | 8 | 58.42 | 430 | 7.65 | < 0.001 | 117.28 | 103.6 | 13.68 | 1A5 | 12.8 | 348 | 446 | 99 |
| Cold | 14 | 1_1028414 | 1 | 157.63 | 1028 | 7.65 | < 0.001 | 91.91 | 105.6 | 13.69 | 1E4 | 13 | 1014 | 1589 | 575 |
| Cold | 14 | c3.loc249 (p) | 3 | 249.04 | 1780 | 3.44 | 0.046 | 103.29 | 94.17 | 9.12 | 1A5 | 5.7 | 1621 | 1968 | 347 |
| Cold | 14 | 5_1593047 | 5 | 215.71 | 1593 | 5.13 | < 0.001 | 104.07 | 92.71 | 11.36 | 1A5 | 8.9 | 1230 | 1913 | 683 |
| Cold | 14 | 7_841106 | 7 | 181.47 | 841 | 4.01 | 0.014 | 103.42 | 93.3 | 10.13 | 1A5 | 7 | 428 | 1893 | 1464 |
| Cold | 14 | 8_397588 | 8 | 55.79 | 398 | 6.62 | < 0.001 | 105.18 | 92.37 | 12.81 | 1A5 | 11.3 | 348 | 446 | 99 |
| Control | 8 | c1.loc106 (p) | 1 | 106.14 | 771 | 3.4 | 0.037 | 106.6 | 97.98 | 8.62 | 1A5 | 5.8 | 441 | 5371 | 4930 |
| Control | 8 | 2_1526778 | 2 | 205.66 | 1527 | 7.34 | < 0.001 | 108.31 | 95.86 | 12.45 | 1A5 | 12.3 | 1455 | 1646 | 191 |
| Control | 11 | 1_3069693 | 1 | 492.19 | 3070 | 6.24 | < 0.001 | 76.24 | 88.1 | 11.86 | 1E4 | 10.9 | 2919 | 3249 | 331 |
| Control | 14 | 1_3006378 | 1 | 480.86 | 3006 | 5.32 | < 0.001 | 61.69 | 72.61 | 10.92 | 1E4 | 9.2 | 2854 | 5652 | 2798 |
| Control | 14 | 3_1739730 | 3 | 245.64 | 1740 | 4.29 | 0.005 | 62.41 | 72.25 | 9.84 | 1E4 | 7.5 | 1494 | 1968 | 474 |
| Control | 14 | 4_421356 | 4 | 55.21 | 421 | 5.61 | < 0.001 | 61.71 | 72.91 | 11.2 | 1E4 | 9.5 | 161 | 476 | 315 |
| Control | 14 | 5_1919504 | 5 | 249.23 | 1920 | 4.64 | 0.001 | 62.31 | 72.55 | 10.24 | 1E4 | 8 | 1385 | 2105 | 721 |

| | | | | | | | | | | | | | | | |
|-----------|----|---------------|----|--------|------|------|---------|--------|--------|-------|-----|------|------|------|------|
| Control | 14 | 11_523597 | 11 | 66.72 | 524 | 4.71 | < 0.001 | 72.97 | 62.64 | 10.33 | 1A5 | 8.2 | 329 | 581 | 252 |
| Fungicide | 8 | 2_1470426 | 2 | 201.05 | 1470 | 7.55 | < 0.001 | 140.56 | 127.73 | 12.83 | 1A5 | 12.9 | 1464 | 1814 | 350 |
| Fungicide | 8 | c4.loc245 (p) | 4 | 245.04 | 1471 | 7.17 | < 0.001 | 127.64 | 140.17 | 12.53 | 1E4 | 12.3 | 415 | 1802 | 1386 |
| Fungicide | 11 | 1_3249298 | 1 | 511.19 | 3249 | 6.55 | < 0.001 | 108.84 | 124.9 | 16.05 | 1E4 | 11.2 | 2974 | 3275 | 301 |
| Fungicide | 11 | 2_1632971 | 2 | 211.37 | 1633 | 4.01 | 0.011 | 123.66 | 111.06 | 12.6 | 1A5 | 7 | 1428 | 2375 | 947 |
| Fungicide | 11 | 3_1371178 | 3 | 221.45 | 1371 | 4.34 | 0.007 | 111.23 | 124.29 | 13.06 | 1E4 | 7.6 | 1308 | 2180 | 872 |
| Fungicide | 11 | c4.loc52 (p) | 4 | 52.04 | 418 | 9.15 | < 0.001 | 108.37 | 126.55 | 18.18 | 1E4 | 14.8 | 415 | 1094 | 679 |
| Fungicide | 14 | 1_3249289 | 1 | 511.19 | 3249 | 6.24 | < 0.001 | 93.34 | 109.6 | 16.26 | 1E4 | 10.7 | 2840 | 5735 | 2894 |
| Fungicide | 14 | 2_1632971 | 2 | 211.37 | 1633 | 4.14 | 0.01 | 108.58 | 95.31 | 13.27 | 1A5 | 7.2 | 1428 | 2084 | 657 |
| Fungicide | 14 | 3_1739730 | 3 | 245.64 | 1740 | 4.22 | 0.01 | 95.5 | 108.91 | 13.41 | 1E4 | 7.4 | 1315 | 2206 | 891 |
| Fungicide | 14 | c4.loc54 (p) | 4 | 54.04 | 420 | 9.47 | < 0.001 | 92.37 | 111.73 | 19.36 | 1E4 | 16.2 | 417 | 426 | 9 |
| Fungicide | 14 | 6_2299166 | 6 | 289.62 | 2299 | 3.56 | 0.027 | 108.33 | 96 | 12.33 | 1A5 | 6.2 | 1166 | 2438 | 1272 |
| Fungicide | 14 | c11.loc70 (p) | 11 | 70.07 | 533 | 4.48 | 0.007 | 109.68 | 96.1 | 13.58 | 1A5 | 7.8 | 271 | 1160 | 889 |

^a A (p) indicates that a pseudomarker provided the highest LOD score. In all other cases a true marker provided the highest LOD score.

^b 1E4 indicates that the parental 1E4 allele provided the higher phenotypic mean than the parental 1A5 allele, while 1A5 indicates that the parental 1A5 allele provided the higher phenotypic mean than the parental 1E4 allele.

^c Markers flanking Bayes confidence interval.