**Table S2** Separate QTL results of IBM and NAM RILs.

| **Order** | **Subpopulation** | **Marker** | **Chr** | **Genetic1 (cM)** | **Physical2 (Mb)** | **LOD** | **Confidence Interval** | | **h23 (100%)** | **Effect4** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **cM** | **Mb** |
| 1 | B97 | PZA02490.1 | 1 | 52.7 | 32.6 | 3.3 | 47.8 - 60.9 | 26.2 - 45.5 | 4.77 | -0.68 |
| 2 | B97 | PHM10404.8 | 2 | 67.9 | 40.5 | 3.6 | 59.9 - 79.6 | 27.9 - 151.6 | 5.89 | 0.72 |
| 3 | B97 | PZA00865.1 | 5 | 30.8 | 9.3 | 3.7 | 17.9 - 37.4 | 3.5 - 12 | 5.29 | 0.68 |
| 4 | B97 | PZB01017.1 | 5 | 74.5 | 158.7 | 5.9 | 70.2 - 79.3 | 91.8 - 168.5 | 9.51 | 0.9 |
| 5 | B97 | PZA00836.1 | 5 | 134.6 | 211.2 | 4.4 | 129 - 144.7 | 208.7 - 215.8 | 10.16 | -1.06 |
| 6 | B97 | PHM4786.9 | 8 | 102.3 | 166.1 | 4.6 | 92.1 - 105.8 | 162.8 - 168.3 | 7.97 | -0.86 |
| 7 | CML103 | PZB01957.1 | 1 | 47.2 | 26.2 | 6.4 | 41.1 - 52.7 | 22.6 - 34.7 | 5.78 | -0.86 |
| 8 | CML103 | PZA02654.3 | 3 | 91.1 | 180.5 | 7.9 | 85.7 - 93.8 | 175.6 - 187 | 9.61 | 1.05 |
| 9 | CML103 | PZB01021.1 | 4 | 110.6 | 210.7 | 10.9 | 107.7 - 115.8 | 197.1 - 231.7 | 16.16 | 1.39 |
| 10 | CML103 | PZA01909.1/2 | 7 | 36.4 | 6.5 | 3.4 | 31.5 - 48.7 | 6.1 - 51 | 4.3 | -0.74 |
| 11 | CML103 | PZA00708.3 | 9 | 103 | 151.7 | 3.4 | 89.8 - 110.7 | 147.4 - 153 | 6.7 | 0.91 |
| 12 | CML228 | PZA01566.1 | 4 | 107.9 | 199.1 | 13.4 | 107.4 - 111.1 | 197.1 - 215.3 | 20.47 | 1.32 |
| 13 | CML228 | PZA00878.2 | 4 | 114.5 | 220.6 | 13.8 | 113 - 117.6 | 216.6 - 231.7 | 17.33 | 1.21 |
| 14 | CML228 | PZA00529.4 | 4 | 126.5 | 235.2 | 5.5 | 121.1 - 126.8 | 233.6 - 236.4 | 19.49 | 1.3 |
| 15 | CML228 | PZA00067.10 | 5 | 72.5 | 145.9 | 3.7 | 67.6 - 78.4 | 75.9 - 168.5 | 4.64 | 0.65 |
| 16 | CML228 | PZA01186.1 | 8 | 49.6 | 22.4 | 5.9 | 43.5 - 51.6 | 18.1 - 58.5 | 7.81 | -0.83 |
| 17 | CML228 | PHM15278.6 | 8 | 82.3 | 156.7 | 3.3 | 75.4 - 86.9 | 141.6 - 160.2 | 6.45 | -0.81 |
| 18 | CML228 | PZA00675.1 | 8 | 91.3 | 162.8 | 3.4 | 87.3 - 96.3 | 160.2 - 165.4 | 12.16 | -1.06 |
| 19 | CML247 | PZA03568.1 | 2 | 58.8 | 27.9 | 3.7 | 53.1 - 61.9 | 20.1 - 30.9 | 3.8 | 0.71 |
| 20 | CML247 | PHM4145.18 | 3 | 51.2 | 21.4 | 5.3 | 49.6 - 53.1 | 9.8 - 28.3 | 3.59 | 0.66 |
| 21 | CML247 | PZA03198.3 | 3 | 60.5 | 127.4 | 5.5 | 54.9 - 64.9 | 32.4 - 147.7 | 4.48 | 0.76 |
| 22 | CML247 | PHM2438.28 | 4 | 14.2 | 3.9 | 6.7 | 5.2 - 23.2 | 1.3 - 9.8 | 11.73 | 1.25 |
| 23 | CML247 | PZB01021.1 | 4 | 110.6 | 210.7 | 13.7 | 103.5 - 111.8 | 188.4 - 216.6 | 20.48 | 1.59 |
| 24 | CML247 | PZA02585.2 | 4 | 123.8 | 233.8 | 9.9 | 120.3 - 124.3 | 233.6 - 236.1 | 15.51 | 1.46 |
| 25 | CML247 | PZA00256.27 | 7 | 43.9 | 17.5 | 3.7 | 38.3 - 45.8 | 6.1 - 22 | 4.56 | -0.77 |
| 26 | CML247 | PZA02236.1 | 7 | 52.2 | 106.8 | 3.9 | 46.4 - 58.8 | 22 - 127.1 | 4.74 | -0.8 |
| 27 | CML247 | PHM4303.16 | 9 | 98.2 | 150.8 | 3.6 | 91.4 - 100.6 | 147.4 - 151.5 | 3.12 | -0.65 |
| 28 | CML247 | PZA01005.1 | 10 | 49.2 | 124.9 | 4.6 | 46.7 - 53.8 | 111.8 - 132.6 | 2.91 | 0.62 |
| 29 | CML277 | PZB01227.6 | 1 | 186 | 289.5 | 3.9 | 156.6 - 191.5 | 261.2 - 293 | 4.58 | 0.68 |
| 30 | CML277 | PZA00343.31 | 1 | 197.2 | 295.8 | 3.3 | 191.5 - 199 | 293 - 296.9 | 5.15 | 0.74 |
| 31 | CML277 | PZA02450.1 | 2 | 70.4 | 47.2 | 6.6 | 69.6 - 79.5 | 40.5 - 147.3 | 11.07 | 1.04 |
| 32 | CML277 | PZA02705.1 | 4 | 52.1 | 34 | 3.6 | 44.9 - 65.2 | 17.3 - 155.9 | 7.48 | 0.84 |
| 33 | CML277 | PZA00694.6 | 4 | 116.1 | 230.2 | 9.8 | 112.7 - 122.8 | 216.6 - 235.2 | 18.74 | 1.33 |
| 34 | CML322 | PZA02014.3 | 1 | 124.2 | 213.2 | 5.7 | 116.9 - 127.6 | 204.3 - 223 | 5.6 | -0.82 |
| 35 | CML322 | PZA02212.1 | 3 | 88.6 | 176.3 | 4.2 | 84.1 - 99.8 | 173.5 - 191.6 | 13.23 | 1.22 |
| 36 | CML322 | PZA02614.2 | 4 | 108.3 | 200.5 | 10.3 | 108.2 - 111.7 | 199.1 - 216.6 | 15.55 | 1.34 |
| 37 | CML322 | PZA00694.6 | 4 | 117.1 | 230.2 | 10.9 | 112.4 - 122 | 216.6 - 235.2 | 14.35 | 1.31 |
| 38 | CML322 | PZA02207.1 | 5 | 60.6 | 49.9 | 5 | 58.5 - 63.2 | 38.5 - 60.8 | 1.97 | -0.5 |
| 39 | CML322 | PZA01303.1 | 5 | 66 | 73.1 | 5.2 | 63.2 - 67.9 | 60.8 - 84.3 | 5.2 | -0.82 |
| 40 | CML322 | PZA01141.1 | 10 | 47.6 | 120.8 | 3.3 | 39.4 - 50.8 | 72.8 - 130.1 | 8.03 | 1 |
| 41 | CML322 | PZA03607.1 | 10 | 76.4 | 142.2 | 6.6 | 66.8 - 79 | 137.5 - 143.7 | 8.36 | 1.03 |
| 42 | CML333 | PZA00455.14/16 | 1 | 96.5 | 180 | 5.3 | 91.1 - 103.8 | 148.6 - 195.6 | 6.33 | -0.78 |
| 43 | CML333 | PZA01588.1 | 1 | 155.6 | 259.4 | 3.5 | 121 - 162 | 204.8 - 271 | 8.46 | -0.88 |
| 44 | CML333 | PZA02779.1 | 4 | 108.7 | 201.5 | 6.1 | 101.8 - 112.7 | 186.5 - 229.2 | 9.9 | 0.97 |
| 45 | CML333 | PZA02320.1 | 10 | 56.1 | 132.6 | 14.1 | 51 - 60.6 | 124.5 - 136.3 | 19.52 | 1.37 |
| 46 | CML52 | PZA03559.1 | 2 | 44.8 | 15.9 | 9.1 | 39.3 - 50.5 | 12.6 - 21.3 | 9.05 | 1.01 |
| 47 | CML52 | PZB01457.1 | 3 | 124.9 | 214.3 | 3.9 | 100.8 - 131.3 | 193.6 - 218.5 | 6.51 | 0.87 |
| 48 | CML52 | PHM2438.28 | 4 | 15.2 | 3.9 | 3.3 | 0.1 - 21.7 | 1.3 - 9.8 | 7.16 | 0.98 |
| 49 | CML52 | PZA01566.1 | 4 | 107.9 | 199.1 | 14.7 | 106.8 - 110.5 | 192.2 - 212.7 | 30.68 | 1.84 |
| 50 | CML52 | PZA03488.1 | 6 | 25.1 | 95.6 | 3.3 | 17.9 - 31 | 85.8 - 110.6 | 1.1 | 0.41 |
| 51 | CML52 | PZA03728.1 | 7 | 75.3 | 142.8 | 4 | 69.9 - 79.7 | 130.3 - 148.5 | 9.12 | -1.05 |
| 52 | CML69 | PHM8527.2 | 4 | 41.4 | 17.3 | 3.6 | 33.7 - 53.7 | 11.4 - 49.9 | 4.45 | 0.67 |
| 53 | CML69 | PZA01810.2 | 4 | 107.4 | 198.1 | 16.7 | 107 - 109.5 | 196.5 - 207.3 | 29.19 | 1.71 |
| 54 | CML69 | PZA01530.1 | 5 | 58.3 | 38.5 | 4 | 38.8 - 62.3 | 11.5 - 58.6 | 1.16 | 0.43 |
| 55 | CML69 | PZA01796.1 | 5 | 75.6 | 161 | 3.6 | 64.1 - 79.4 | 62.1 - 168.5 | 4.94 | 0.71 |
| 56 | CML69 | PZA01527.1 | 6 | 8.8 | 58.3 | 3.4 | 6.9 - 18.6 | 31.4 - 95.6 | 5.44 | -0.77 |
| 57 | CML69 | PZA01995.2 | 10 | 72.2 | 140 | 3.3 | 63.4 - 80.1 | 136.3 - 143.7 | 5.42 | 0.74 |
| 58 | HP301 | PZA02114.1 | 1 | 69.6 | 56.1 | 4.3 | 66.1 - 72 | 51.3 - 61.1 | 11.9 | 1.08 |
| 59 | HP301 | PZB01013.1 | 2 | 136.3 | 225.3 | 7.5 | 128 - 138.7 | 216.7 - 228.9 | 15.35 | -1.19 |
| 60 | HP301 | PHM565.31 | 5 | 53.9 | 24.4 | 5.3 | 45.8 - 57.5 | 14.1 - 33.3 | 7.18 | 0.98 |
| 61 | HP301 | PZA02197.1 | 9 | 88.4 | 146.9 | 3.7 | 78.1 - 100.2 | 140.8 - 151.5 | 5.39 | -0.74 |
| 62 | IL14H | PZA03551.1 | 1 | 24.4 | 12.2 | 3.6 | 13.9 - 75.4 | 6.2 - 77.2 | 9.45 | 1.17 |
| 63 | IL14H | PHM10404.8 | 2 | 67.9 | 40.5 | 4.6 | 66 - 71.3 | 34.6 - 51.8 | 14.79 | 1.46 |
| 64 | IL14H | PHM3626.3 | 2 | 77.4 | 128.4 | 4.6 | 74 - 81.6 | 59.8 - 160 | 6.84 | 1.02 |
| 65 | IL14H | PZA03644.1 | 2 | 84.2 | 173.8 | 4.9 | 82.2 - 89.3 | 160 - 182.7 | 8.13 | 1.08 |
| 66 | IL14H | PZA02212.1 | 3 | 84.6 | 176.3 | 3.1 | 58.3 - 90.3 | 97.8 - 182.3 | 5.04 | 0.84 |
| 67 | IL14H | PZA03081.1 | 4 | 110.4 | 209.8 | 8.6 | 105.5 - 111.4 | 191.8 - 215.3 | 10.62 | 1.25 |
| 68 | IL14H | PHM2100.21 | 4 | 126.9 | 236.1 | 7.8 | 125 - 132.4 | 235.2 - 238.3 | 9.9 | 1.19 |
| 69 | IL14H | PZA01523.1 | 5 | 48 | 16.3 | 5.2 | 43.1 - 50.8 | 13.7 - 21.9 | 14.42 | 1.45 |
| 70 | IL14H | PZA00148.3 | 5 | 77.9 | 164.7 | 4.8 | 70.4 - 80.6 | 91.8 - 170.4 | 12.92 | 1.42 |
| 71 | IL14H | PZA01909.1/2 | 7 | 28.4 | 6.5 | 3.5 | 18.5 - 37.5 | 0.8 - 13.2 | 6.32 | -0.94 |
| 72 | IL14H | PZA00463.3 | 10 | 31 | 13.5 | 4.2 | 28.2 - 37.1 | 10.2 - 77.7 | 4.76 | -0.87 |
| 73 | IL14H | PHM4341.42 | 10 | 46.7 | 117.6 | 4.1 | 43 - 51.1 | 98.7 - 130.1 | 7.12 | -1.02 |
| 74 | KI11 | PZA01030.1 | 1 | 36.3 | 17.7 | 5 | 31.4 - 44.5 | 15 - 28.4 | 10.51 | -1.08 |
| 75 | KI11 | PZA00235.9 | 1 | 193.1 | 293.8 | 6 | 187 - 196.5 | 287.7 - 295.4 | 5.63 | 0.79 |
| 76 | KI11 | PZA02779.1 | 4 | 108.7 | 201.5 | 9 | 105.3 - 111.2 | 191.8 - 215.3 | 14.04 | 1.26 |
| 77 | KI11 | PZA02164.16 | 5 | 70 | 112.9 | 6.5 | 63 - 74.4 | 59.3 - 159.3 | 8.03 | 0.93 |
| 78 | KI3 | PZA02490.1 | 1 | 53.7 | 32.6 | 3.6 | 45 - 64.3 | 22.9 - 50.1 | 6.01 | 0.9 |
| 79 | KI3 | PZB01021.1 | 4 | 110.6 | 210.7 | 11.5 | 107.5 - 112.1 | 197.1 - 220.6 | 21.04 | 1.55 |
| 80 | KY21 | PZA01902.1 | 2 | 76.3 | 93.1 | 5.6 | 66.9 - 85.1 | 34.6 - 176.7 | 6.67 | 0.84 |
| 81 | KY21 | PZA00308.24 | 3 | 103.7 | 197.9 | 8.5 | 99.6 - 106.7 | 187 - 201.7 | 10.76 | 1.08 |
| 82 | KY21 | PHM5599.20 | 4 | 119.6 | 233.6 | 7.5 | 109.8 - 123.4 | 200.5 - 235.2 | 10.71 | 1.08 |
| 83 | KY21 | PZA02113.1 | 5 | 56.2 | 31 | 4.3 | 56.1 - 60 | 24.4 - 49.9 | 4.33 | 0.7 |
| 84 | KY21 | PZA02862.3 | 5 | 66.8 | 75.9 | 4.2 | 60.7 - 68.3 | 49.9 - 84.3 | 5.3 | 0.79 |
| 85 | M162W | PZA00658.21 | 1 | 132.9 | 225.1 | 4.6 | 123 - 136.8 | 204.8 - 231.7 | 4.25 | -0.58 |
| 86 | M162W | PHM4926.16 | 1 | 144.9 | 241.2 | 4 | 138.4 - 146 | 231.7 - 251.1 | 3.99 | -0.58 |
| 87 | M162W | PZA00193.2 | 4 | 106.4 | 192.2 | 5.6 | 105 - 108.7 | 189 - 207.3 | 5.4 | 0.68 |
| 88 | M162W | PZA02328.5 | 6 | 53.1 | 137.1 | 4.5 | 49.7 - 55.7 | 129.7 - 143.7 | 6.83 | -0.77 |
| 89 | M162W | PZA00925.2 | 9 | 45.9 | 77 | 5.9 | 42.8 - 53.1 | 24.1 - 113.4 | 5.49 | 0.66 |
| 90 | M162W | PZB01111.8 | 10 | 61.4 | 134.4 | 3.5 | 52.6 - 69.6 | 124.9 - 142.2 | 5.96 | 0.67 |
| 91 | M37W | PZA02044.1 | 1 | 188.2 | 291.9 | 4.2 | 186 - 194.2 | 287.7 - 295.4 | 9.27 | 1.02 |
| 92 | M37W | PZA03228.4 | 2 | 50.8 | 20.1 | 7.4 | 49.4 - 55.5 | 15.9 - 24.8 | 13.65 | 1.23 |
| 93 | M37W | PZA03154.4 | 3 | 110.2 | 204.2 | 8.5 | 106.1 - 113.8 | 198.7 - 208.5 | 11.1 | 1.12 |
| 94 | M37W | PZA02668.2 | 3 | 134.6 | 219.7 | 6.4 | 132.6 - 136.4 | 217.7 - 221.4 | 8.95 | 0.99 |
| 95 | M37W | PZA00975.1 | 4 | 25.9 | 9.8 | 4.8 | 14.3 - 29.1 | 3 - 11.4 | 9 | 1 |
| 96 | M37W | PZA01566.1 | 4 | 107.9 | 199.1 | 3.4 | 82.6 - 110.4 | 173.2 - 209.8 | 4.97 | 0.76 |
| 97 | M37W | PZA00694.6 | 4 | 118.1 | 230.2 | 4.1 | 111.5 - 124.5 | 212.7 - 236.1 | 7.53 | 1.07 |
| 98 | M37W | PZA03049.24 | 5 | 69.5 | 89.3 | 5.3 | 64 - 73.5 | 62.1 - 158.7 | 10.6 | 1.06 |
| 99 | MO18W | PZA01790.1 | 4 | 106.7 | 196.5 | 12 | 105.2 - 108.3 | 189 - 201.5 | 22.14 | 1.52 |
| 100 | MO18W | ae1.8/7 | 5 | 79.7 | 168.5 | 3.5 | 70.2 - 82.7 | 91.8 - 172.1 | 3.03 | 0.62 |
| 101 | MO18W | PZA00647.9 | 10 | 52.2 | 130.1 | 3.7 | 49.7 - 65.9 | 124.5 - 140 | 5.33 | 0.78 |
| 102 | MS71 | PZA02094.9 | 1 | 31.7 | 15.8 | 4.9 | 27.5 - 42.7 | 11 - 26.2 | 5.07 | -0.69 |
| 103 | MS71 | PHM4204.69 | 3 | 41.3 | 12.1 | 6.1 | 38 - 53.3 | 8.3 - 30.1 | 14.91 | 1.17 |
| 104 | MS71 | PZA02212.1 | 3 | 84.6 | 176.3 | 5.4 | 83.9 - 96.6 | 173.5 - 187 | 9.49 | 0.92 |
| 105 | MS71 | PZA00445.22 | 4 | 55.2 | 49.9 | 11.2 | 50.3 - 58.2 | 26.3 - 129.7 | 15.74 | 1.18 |
| 106 | MS71 | PZA00904.1 | 8 | 103.7 | 167.1 | 3.3 | 100.5 - 126.3 | 165.7 - 172.9 | 6.75 | -0.77 |
| 107 | MS71 | PZA01995.2 | 10 | 74.2 | 140 | 4 | 66.2 - 81.2 | 137.5 - 144.5 | 2.93 | 0.52 |
| 108 | NC350 | PZA03074.27 | 1 | 116 | 201.5 | 4.6 | 111 - 119.4 | 195.6 - 208.7 | 2.45 | 0.72 |
| 109 | NC350 | PZA02779.1 | 4 | 109.7 | 201.5 | 13.6 | 107.7 - 111.2 | 198.1 - 215.3 | 37.27 | 2.48 |
| 110 | NC350 | PZA02585.2 | 4 | 122.8 | 233.8 | 15.6 | 117.1 - 124.3 | 229.2 - 236.1 | 26.62 | 2.31 |
| 111 | NC350 | PZA02390.1 | 5 | 140 | 212.7 | 7.6 | 137.2 - 145.4 | 211.2 - 215.8 | 6.85 | -1.12 |
| 112 | NC350 | PZA02722.1 | 7 | 85.2 | 148.9 | 3.1 | 41.2 - 91.6 | 6.5 - 158.6 | 1.4 | 0.57 |
| 113 | NC358 | PZA03074.27 | 1 | 115 | 201.5 | 4.1 | 111.4 - 121.2 | 195.6 - 213 | 2.81 | 0.61 |
| 114 | NC358 | PZA00243.25 | 1 | 199.4 | 296.9 | 4.5 | 193.8 - 202 | 293.8 - 298.4 | 8.57 | 1.04 |
| 115 | NC358 | PZA02774.1 | 2 | 71.3 | 48.7 | 4.4 | 68 - 75.1 | 34.7 - 93.1 | 4.82 | 0.77 |
| 116 | NC358 | PZA02705.1 | 4 | 52.1 | 34 | 3.4 | 48.2 - 53.1 | 24.6 - 37.2 | 7.09 | 0.93 |
| 117 | NC358 | PZA00704.1 | 4 | 58.6 | 129.7 | 4.1 | 53.7 - 60.5 | 37.2 - 149.3 | 5.98 | 0.88 |
| 118 | NC358 | PZA01810.2 | 4 | 107.4 | 198.1 | 14.5 | 104.3 - 109.2 | 188.4 - 207.3 | 24.3 | 1.7 |
| 119 | NC358 | PZA01425.2 | 6 | 10.7 | 78.2 | 7.6 | 8 - 12.7 | 35.9 - 86.3 | 11.21 | -1.18 |
| 120 | OH43 | PZA01039.1 | 1 | 125.6 | 213.7 | 4.3 | 120.3 - 127 | 204.8 - 217.6 | 6.18 | 0.83 |
| 121 | OH43 | PZA00186.4 | 3 | 77 | 167.4 | 5.3 | 71.6 - 87.8 | 158.5 - 180 | 8.8 | 0.97 |
| 122 | OH43 | PZA00193.2 | 4 | 105.4 | 192.2 | 7.6 | 102.2 - 110.4 | 186.5 - 210.7 | 12.3 | 1.14 |
| 123 | OH43 | PHM5296.6 | 5 | 90.6 | 181.4 | 3.6 | 83.2 - 96.7 | 170.4 - 189 | 8.35 | -0.96 |
| 124 | OH43 | PZA01964.29 | 8 | 109.9 | 168.3 | 3.2 | 102.3 - 117.2 | 165.7 - 170.8 | 5.77 | -0.81 |
| 125 | OH7B | PHM3034.3 | 1 | 151.8 | 256.5 | 5.7 | 148.8 - 154.3 | 251.1 - 259.4 | 4.45 | -0.61 |
| 126 | OH7B | PHM2100.21 | 4 | 126.9 | 236.1 | 3.8 | 125 - 138.3 | 233.8 - 239.4 | 5.3 | 0.65 |
| 127 | OH7B | PZA01523.1 | 5 | 48 | 16.3 | 8.6 | 45.6 - 52.9 | 14.1 - 23.3 | 10.59 | 0.9 |
| 128 | P39 | PZA00210.1/9 | 3 | 54.3 | 30.1 | 3.3 | 43.7 - 58 | 9.8 - 68.1 | 6.87 | 0.86 |
| 129 | P39 | PHM2100.21 | 4 | 126.9 | 236.1 | 6 | 124.9 - 129 | 233.8 - 236.7 | 13.38 | 1.23 |
| 130 | P39 | PHM12992.5 | 5 | 58.4 | 39.2 | 5.2 | 48.3 - 61.4 | 15.1 - 58.2 | 8.74 | 1.05 |
| 131 | TX303 | PZA01810.2 | 4 | 107.4 | 198.1 | 8.7 | 105.8 - 109.6 | 191.8 - 207.3 | 17.92 | 1.39 |
| 132 | TX303 | PZA02792.26/25 | 5 | 52.8 | 21.9 | 8.4 | 50.1 - 58.5 | 16.3 - 49.9 | 11.21 | 1.1 |
| 133 | TX303 | PZA00067.10 | 5 | 73.5 | 145.9 | 10.6 | 66 - 75.5 | 71.8 - 164.7 | 12.93 | 1.16 |
| 134 | TX303 | PZA01265.1 | 5 | 109 | 202 | 3.3 | 101.9 - 120.1 | 193.7 - 207.7 | 5.07 | 0.73 |
| 135 | TX303 | PZA01744.1 | 7 | 134 | 174.8 | 3.2 | 117.6 - 134.4 | 169.1 - 175.2 | 6.04 | 0.78 |
| 136 | TZI8 | PZA00528.1 | 1 | 15.6 | 8.4 | 3.4 | 5.1 - 29.6 | 3.7 - 15 | 2.68 | -0.65 |
| 137 | TZI8 | PZA01963.15 | 1 | 116.4 | 204.3 | 5.5 | 114.2 - 118.4 | 195.6 - 208.7 | 13.15 | -1.28 |
| 138 | TZI8 | PZA02168.1 | 2 | 72.1 | 51.8 | 4.3 | 63.4 - 76 | 30.9 - 93.1 | 7.32 | 1.06 |
| 139 | TZI8 | PZA00155.1 | 4 | 111.5 | 215.3 | 4.7 | 102.6 - 120.6 | 187.4 - 235.2 | 9.43 | 1.1 |
| 140 | TZI8 | PZA00986.1 | 7 | 63.7 | 129.4 | 5.7 | 55 - 65 | 103.5 - 134.1 | 8.75 | 1.07 |
| 141 | IBM | MAGI\_94934 | 3 | 113.5 | 132.3 | 3.7 | 103.1 - 116.3 | 98.8 - 146.6 | 4.93 | 0.82 |
| 142 | IBM | MAGI\_69213 | 3 | 249.9 | 220.9 | 3.8 | 241.8 - 257.2 | 216.3 - 227.2 | 4.29 | 0.73 |
| 143 | IBM | MAGI\_82913 | 4 | 146.8 | 174.9 | 11.5 | 144.3 - 149 | 170 - 178.5 | 15.15 | 1.32 |
| 144 | IBM | MAGI\_91124 | 4 | 180.8 | 195.6 | 4.6 | 176.5 - 189.8 | 186.6 - 204.3 | 2.98 | 0.78 |
| 145 | IBM | MAGI\_107960 | 5 | 148.5 | 182.2 | 4 | 106 - 154.1 | 44.2 - 188.6 | 4.94 | 0.81 |
| 146 | IBM | MAGI\_99589 | 7 | 128.7 | 136.1 | 4.1 | 113.2 - 134.2 | 121.7 - 152 | 3.38 | -0.65 |

1 Genetic positions according to IBM31 and NAM32 genetic map.

2 Physical positions according to B73 RefGen\_v2.

3 Phenotypic variations explained by the markers.

4 QTL effects were calculated by using B73 subtracting non-B73 alleles.