**SUPPLEMENTAL FIGURES AND TABLES**

**Supplemental Table 1 Field Grown O3 Leaf Damage QTL LOD Support Intervals.** Boundaries of the 1-LOD, 1.5-LOD, and 2-LOD drop off support intervals for the identified QTL are shown.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Data Collection Year** | **LOD Drop Off Support** | **Left Interval Position (bp) AGPv2** | **Left Interval Position (cM) AGPv2** | **Right Interval Position (bp) AGPv2** | **Right Interval Position (cM) AGPv2** | **Support Interval Size (Mb)** |
| 2016 | 2-LOD | 58,587,858.75 | 119.55 | 184,137,304.8 | 140.01 | 125.5 |
|  | 1.5-LOD | 58,587,858.75 | 119.55 | 184,137,304.8 | 140.01 | 125.5 |
|  | 1-LOD | 62,736,623.57 | 122.55 | 184,137,304.8 | 140.01 | 121.4 |
| 2017 | 2-LOD | 78,020,679.50 | 128.96 | 163,562,440.5 | 136.61 | 85.5 |
|  | 1.5-LOD | 160,938,561.90 | 135.22 | 163,562,440.5 | 136.61 | 2.6 |
|  | 1-LOD | 160,938,561.90 | 135.22 | 163,562,440.5 | 136.61 | 2.6 |
| 2016 and 2017 | 2-LOD | 62,736,623.57 | 122.55 | 178,293,533.5 | 140.01 | 115.5 |
| Combined | 1.5-LOD | 160,938,561.90 | 135.22 | 178,293,533.5 | 140.01 | 17.3 |
|  | 1-LOD | 160,938,561.90 | 135.22 | 163,562,440.5 | 136.61 | 2.6 |
|  |  |  |  |  |  |  |

**Supplemental Figure 1 NAM Founder Lines Subset Growth Chamber Experimental Design.** An incomplete block design was implemented. Each chamber was setup in a 10 x 5 (n=50 plants per chamber) layout. Each chamber contained five blocks with 10 plants per block. Each block had a B73 check. B73 was replicated 10 times a chamber for a total of 80 pots across the experiment. Selected NAM founder lines were replicated five times within a chamber for a total of 40 pots across the experiment. In each chamber pair plant location was randomized. Ambient chambers n=4, Elevated [O3] chambers n=4. Chambers were set to maintain constant light (700 mol m-2 s-1; 15 h day), temperature (25°C day, 21°C night), relative humidity (60%), and elevated [O3] (150 ppb) for 9 h per day. Each chamber included NAM founder lines CML322, CML333, Ki3, M37W, Mo18W, MS71, NC358, and P39.

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** |
| **1** | **B73** | **Mo18W** | **Mo18W** | **NC358** | **B73** | **Mo18W** | **CML333** | **MS71** | **CML322** | **NC358** |
| **2** | **CML333** | **CML322** | **B73** | **MS71** | **Ki3** | **CML333** | **Mo18W** | **CML322** | **B73** | **Ki3** |
| **3** | **MS71** | **NC358** | **CML333** | **B73** | **P39** | **M37W** | **B73** | **NC358** | **M37W** | **Mo18W** |
| **4** | **M37W** | **B73** | **M37W** | **CML322** | **MS71** | **CML322** | **Ki3** | **B73** | **MS71** | **P39** |
| **5** | **P39** | **Ki3** | **P39** | **KI3** | **NC358** | **B73** | **M37W** | **P39** | **CML333** | **B73** |

**Supplemental Figure 2 B73-Mo17 NIL Growth Chamber Experimental Design.** An incomplete block design was implemented. Each chamber was setup in a 4 x 8 (n=32 plants per chamber) layout to allow plants to grow without overcrowding through the 6th leaf stage. Each chamber contained four blocks with eight plants per block. Each block had B73, Mo17, and B73 x Mo17 checks. Each check was replicated four times within a chamber for a total of 28 pots across the experiment. Selected NIL lines and hybrids were replicated one time within a chamber for a total of seven pots across the experiment. In each chamber plant location was randomized. Elevated [O3] chambers n=7, no ambient chambers were utilized. Chambers were set to maintain constant light (700 mol m-2 s-1; 15 h day), temperature (25°C day, 21°C night), relative humidity (60%), and elevated [O3] (150 ppb) for 9 h per day. S\_BHYB = sensitive B72 NIL hybrid, S\_mHYB = sensitive Mo17 NIL hybrid, S\_mNIL = sensitive Mo17 NIL, T\_mHYB = tolerant Mo17 NIL hybrid, B73 = check, Mo17 = check, BxM = B73 x Mo17 = check.

****