Locus-dependent selection in crop-wild hybrids of lettuce under field conditions and its implication for GM crop development

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Table S1  Calculations for Locus based expected segregation ratios (E) for the BC1 and BC1S1

generations, based on extrapolated observed segregation patterns of the control (S1) generation for co-
dominant and dominant marker (parentage of locus). The BC1-generation is expected to have the same
level and direction of background segregation distortion as the S1-generation; in the BC1S1 generation
the background segregation distortion is assumed to have occurred for an additional meiosis event
with the same level and direction of distortion. For AFLP loci the expected ratio in the BC1S1 is
additionally corrected for the proportion of offspring derived from heterozygous plants and
homozygous plants. Included are the expected neutral Mendelian segregation ratios. For the S1
generation the observed segregation ratio of homozygous L. serriola alleles is standardized to L.
serriola = 1.

<table>
<thead>
<tr>
<th></th>
<th>Mendelian</th>
<th>Co-dominant</th>
<th>Dominant (L. serriola)</th>
<th>Dominant (L. sativa)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BC1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E_{L. serriola} (F_{ser(B)})</td>
<td>1; -; 1</td>
<td>1</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>E_{heterozygotes} (E_{het(B)})</td>
<td>1; -; -</td>
<td>(\frac{O_{het}}{2})</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>E_{L. sativa} (E_{sat(B)})</td>
<td>-; -; 1</td>
<td>-</td>
<td>-</td>
<td>(\frac{O_{sat}}{3})</td>
</tr>
<tr>
<td>BC1S1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E_{L. serriola}</td>
<td>5; 7; 5</td>
<td>(E_{het(B)} + (1 + O_{het} + O_{sat}))</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>E_{heterozygotes}</td>
<td>2; -; -</td>
<td>(E_{het(B)} \times O_{het})</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>E_{L. sativa}</td>
<td>1; 1; 3</td>
<td>(E_{het(B)} \times O_{sat})</td>
<td>(3 \times O_{sat})^2</td>
<td>(\frac{O_{sat}}{3})^2 \times 3</td>
</tr>
</tbody>
</table>

\(O_{het}\): observed segregation ratio of heterozygotes in the control generation relative to L. serriola

\(O_{sat}\): idem for homozygous L. sativa.

*: Mendelian expected segregation for co-dominant; dominant (L. serriola); dominant (L. sativa)