

Supplemental material

## **Genetic dissection of fruit quality traits in the octoploid cultivated strawberry highlights the role of homoeo-QTLs in their control**

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**Online Resource 1:** Phenotypic correlations for the traits measured in year 2 ( $P < 0.05$ ). The diagonal gives the three phenotypic correlations between years for each trait: 1/2, 1/3, 2/3 for the phenotypic correlation between years 1 and 2, years 1 and 3, and years 2 and 3, respectively. Correlations significant at  $P < 0.0001$  are reported in bold. The number of individuals per trait pair ranges from 178 to 190.

Online Resource 1. Phenotypic correlations for the traits measured in year 2 (P<0.05). The diagonal gives the three phenotypic correlations between years for each trait: 1/2, 1/3, 2/3 for the phenotypic correlation between years 1 and 2, years 1 and 3, and years 2 and 3, respectively. Correlations significant at P<0.0001 are reported in bold. The number of individuals per trait pair ranges from 178 to 190.

| Traits <sup>a</sup> | FD           | FL                          | FD/DL                       | FW                          | DW              | RD              | FIRM         | L               | a               | b               | ANTH            | SSC             | GLU             | FRU             | SUCR            | pH              | TA              | MAL             | CIT             |                 |       |       |
|---------------------|--------------|-----------------------------|-----------------------------|-----------------------------|-----------------|-----------------|--------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-------|-------|
| FD <sup>b</sup>     | 1.00         | <b>1/2:0.38<sup>d</sup></b> | <b>1/3:0.43<sup>d</sup></b> | <b>2/3:0.26<sup>d</sup></b> |                 |                 |              |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |       |       |
| FL <sup>b</sup>     | <b>0.49</b>  | 1.00                        | <b>1/2:0.41</b>             | <b>1/3:0.45</b>             | <b>2/3:0.46</b> |                 |              |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |       |       |
| FD/FL <sup>b</sup>  | <b>-0.46</b> | <b>0.54</b>                 | 1.00                        | <b>1/2:0.69</b>             | <b>1/3:0.50</b> | <b>2/3:0.55</b> |              |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |       |       |
| FW <sup>b</sup>     | <b>0.93</b>  | <b>0.68</b>                 | -0.20                       | 1.00                        | 1/2:0.27        | 1/3:0.37        | 2/3:0.25     |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |       |       |
| DW <sup>c</sup>     | ns           | ns                          | 0.20                        | ns                          | 1.00            | 1/2:0.28        | 1/3:-        | 2/3:-           |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |       |       |
| RD <sup>b</sup>     | ns           | 0.17                        | 0.17                        | ns                          | ns              | 1.00            | 1/2:0.27     | 1/3:0.33        | 2/3:0.15        |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |       |       |
| FIRM <sup>b</sup>   | ns           | ns                          | ns                          | ns                          | ns              | ns              | 1.00         | <b>1/2:0.29</b> | <b>1/3:0.43</b> | <b>2/3:0.35</b> |                 |                 |                 |                 |                 |                 |                 |                 |                 |                 |       |       |
| L <sup>b</sup>      | ns           | ns                          | ns                          | ns                          | 0.20            | ns              | ns           | 1.00            | <b>1/2:0.52</b> | <b>1/3:0.52</b> | <b>2/3:0.66</b> |                 |                 |                 |                 |                 |                 |                 |                 |                 |       |       |
| a <sup>b</sup>      | ns           | ns                          | ns                          | ns                          | 0.26            | ns              | 0.25         | <b>0.77</b>     | 1.00            | <b>1/2:0.55</b> | <b>1/3:0.44</b> | <b>2/3:0.57</b> |                 |                 |                 |                 |                 |                 |                 |                 |       |       |
| b <sup>b</sup>      | ns           | ns                          | ns                          | ns                          | 0.21            | ns              | 0.24         | <b>0.89</b>     | <b>0.90</b>     | 1.00            | <b>1/2:0.56</b> | <b>1/3:0.50</b> | <b>2/3:0.61</b> |                 |                 |                 |                 |                 |                 |                 |       |       |
| ANTH <sup>c</sup>   | ns           | ns                          | ns                          | ns                          | <b>-0.31</b>    | ns              | -0.24        | <b>-0.67</b>    | <b>-0.70</b>    | <b>-0.73</b>    | 1.00            | 1/2:-           | 1/3:-           | <b>2/3:0.64</b> |                 |                 |                 |                 |                 |                 |       |       |
| SSC <sup>b</sup>    | ns           | 0.18                        | ns                          | ns                          | <b>0.80</b>     | ns              | ns           | 0.21            | <b>0.28</b>     | 0.22            | <b>-0.30</b>    | 1.00            | 1/2:0.18        | 1/3: ns         | 2/3:0.24        |                 |                 |                 |                 |                 |       |       |
| GLU <sup>c</sup>    | 0.19         | <b>0.28</b>                 | ns                          | 0.18                        | <b>0.53</b>     | ns              | ns           | 0.22            | 0.26            | 0.21            | -0.23           | <b>0.60</b>     | 1.00            | <b>1/2:0.35</b> | 1/3:-           | 2/3:-           |                 |                 |                 |                 |       |       |
| FRU <sup>c</sup>    | 0.21         | <b>0.28</b>                 | ns                          | 0.19                        | <b>0.54</b>     | ns              | ns           | 0.16            | 0.24            | 0.17            | -0.20           | <b>0.59</b>     | <b>0.93</b>     | 1.00            | <b>1/2:0.36</b> | 1/3:-           | 2/3:-           |                 |                 |                 |       |       |
| SUCR <sup>c</sup>   | ns           | ns                          | ns                          | ns                          | <b>0.55</b>     | 0.20            | ns           | ns              | ns              | ns              | ns              | <b>0.60</b>     | 0.26            | 0.24            | 1.00            | <b>1/2:0.45</b> | 1/3:-           | 2/3:-           |                 |                 |       |       |
| pH <sup>b</sup>     | 0.17         | 0.16                        | ns                          | 0.15                        | 0.21            | ns              | <b>-0.32</b> | ns              | ns              | ns              | -0.16           | <b>0.35</b>     | <b>0.40</b>     | <b>0.41</b>     | 0.15            | 1.00            | <b>1/2:0.41</b> | <b>1/3:0.45</b> | <b>2/3:0.50</b> |                 |       |       |
| TA <sup>b</sup>     | ns           | ns                          | ns                          | ns                          | <b>0.31</b>     | ns              | ns           | ns              | ns              | ns              | ns              | <b>0.31</b>     | ns              | ns              | 0.25            | <b>-0.46</b>    | 1.00            | <b>1/2:0.42</b> | <b>1/3:0.37</b> | <b>2/3:0.46</b> |       |       |
| MAL <sup>c</sup>    | ns           | ns                          | ns                          | ns                          | ns              | ns              | ns           | ns              | ns              | ns              | ns              | ns              | ns              | ns              | ns              | -0.18           | ns              | 1.00            | <b>1/2:0.38</b> | 1/3:-           | 2/3:- |       |
| CIT <sup>c</sup>    | ns           | ns                          | ns                          | ns                          | <b>0.36</b>     | ns              | ns           | ns              | ns              | ns              | ns              | <b>0.37</b>     | <b>0.28</b>     | <b>0.28</b>     | <b>0.35</b>     | -0.24           | <b>0.77</b>     | ns              | 1.00            | <b>1/2:0.40</b> | 1/3:- | 2/3:- |

<sup>a</sup>. Traits are the following: Development: FD fruit diameter, FL fruit length, FD/FL ratio, DW dry weight, FW fruit weight, RD ripening date of the fruit. Texture: FIRM fruit firmness. Colour: skin colour parameters a, b and L, ANTH total anthocyanin. Sugar related traits: SSC soluble-solids content, FRU fructose, GLU glucose, SUCR sucrose. Acid related traits: pH, TA titratable acidity, CIT citrate, MAL malate.

<sup>b</sup>. Traits were evaluated three consecutive years.

<sup>c</sup>. Traits were evaluated two consecutive years.

<sup>d</sup>. In the diagonal, 1/2, 1/3, 2/3 for the phenotypic correlation between years 1 and 2, years 1 and 3, and years 2 and 3, respectively; - for no data.