## Table S1. Kruskal-Wallis analysis for non-parametric data: flowering date (FD), ripening date (RD) and fruit development period (FDP) in 2016, 2017 and 2018 and for shape (SHAPE), skin color (SKC), flesh color (FLSC) and over color (OVC) by visual scale in 2016 for eleven Japanese plum cultivars.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Factors | Traits | Average | SD | Median | H | p-value |
|  | FD | 59.76 | 4.77 | 58 | 8.80 | 0.5485 |
|  | RD | 214.09 | 3.47 | 206 | 25.36 | 0.0045 |
| Genotype | FDP | 153.73 | 2.47 | 147 | 27.00 | 0.0026 |
|  | SHAPE | 2.80 | 0.00 | 3 | 64.75 | <0.0001 |
|  | SKC | 3.90 | 0.00 | 4 | 89.11 | <0.0001 |
|  | FLSC | 3.20 | 0.00 | 3 | 74.85 | <0.0001 |
|  | OVC | 3.79 | 0.17 | 4 | 30.65 | <0.0001 |
|  | FD | 59.38 | 6.77 | 60 | 20.45 | <0.0001 |
| Year | RD | 214.82 | 24.74 | 208 | 2.62 | 0.2684 |
|  | FDP | 155.45 | 21.33 | 147 | 2.74 | 0.2533 |

## Table S2. ANOVA analysis for parametric data: fruit weight (FW), skin chlorophyll index (SIAD\_1- SIAD\_2), flesh chlorophyll index (FIAD\_1- FIAD\_2), skin color (SKC(H°)); flesh color (FLSC(H°)), firmness (Fmax) and soluble solid content (SSC) in 2016.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Traits | Sum of squares | Df | Mean square | F | p-value |
| FW | 80489,92 | 10 | 8943.3 | 65.1 | <0.0001 |
| Skin IAD\_1 | 4,73 | 10 | 0.53 | 23.44 | <0.0001 |
| Skin IAD\_2 | 8,56 | 10 | 0.95 | 45.99 | <0.0001 |
| Flesh IAD\_1 | 3,38 | 10 | 0.38 | 15.89 | <0.0001 |
| Flesh IAD\_2 | 3,22 | 10 | 0.36 | 17.07 | <0.0001 |
| SKC (H°) | 59119,03 | 10 | 6568.78 | 5.53 | <0.0001 |
| FLSC (H°) | 94183,82 | 10 | 10464.87 | 302.05 | <0.0001 |
| Fmax\_1 | 16241,05 | 10 | 1804.56 | 69.8 | <0.0001 |
| Fmax\_2 | 20978,18 | 10 | 2330.91 | 52.12 | <0.0001 |
| SSC\_1 | 609,63 | 10 | 67.74 | 30.71 | <0.0001 |
| SSC\_2 | 574,29 | 10 | 63.81 | 38.78 | <0.0001 |

## Table S3. Summary of alignment results of *Prunus persica* v1 versus *Prunus persica* v2

|  |  |  |
| --- | --- | --- |
| Alignment results | *P. persica* v1.0 | *P persica* v2.0 |
| Total tags | 5,230,374 (100%) | 5,230,374 (100%) |
| Tags aligned to unique position | 2,244,856 (42.92%) | 2,266,937 (43.34%) |
| Tags aligned to multiple position | 190,411 (6.64%) | 198.809 (3.8%) |
| Tags not aligned | 2,795,107 (53.44%) | 2,764,628 (52.86%) |

**Table S4.** Genetic matrix distancefor eleven *Prunus salicina* genotypes using neighbor joining by TASSEL v5.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Genotypes | GK | SD | BS | FR | LAN | 98-99 | OT | SAP | SK | SQ | ANG |
| Golden kiss (GK) | 0.0000 |  |  |  |  |  |  |  |  |  |  |
| Sun dew (SD) | 0.3855 | 0.0000 |  |  |  |  |  |  |  |  |  |
| Black splendor (BS) | 0.3523 | 0.4036 | 0.0000 |  |  |  |  |  |  |  |  |
| Friar (FR) | 0.3941 | 0.4224 | 0.3133 | 0.0000 |  |  |  |  |  |  |  |
| Larry ann (LAN) | 0.3227 | 0.4151 | 0.3239 | 0.3516 | 0.0000 |  |  |  |  |  |  |
| 98-99 | 0.3618 | 0.4177 | 0.3130 | 0.3009 | 0.3057 | 0.0000 |  |  |  |  |  |
| Owen T (OT) | 0.4099 | 0.4303 | 0.3194 | 0.2535 | 0.3524 | 0.3229 | 0.0000 |  |  |  |  |
| Sapphire (SAP) | 0.3415 | 0.4047 | 0.2893 | 0.2839 | 0.2889 | 0.2713 | 0.3064 | 0.0000 |  |  |  |
| September king (SK) | 0.3734 | 0.4257 | 0.3318 | 0.2845 | 0.3190 | 0.2880 | 0.3126 | 0.3008 | 0.0000 |  |  |
| September queen (SQ) | 0.3951 | 0.4204 | 0.3279 | 0.2641 | 0.3459 | 0.2919 | 0.3006 | 0.2940 | 0.3031 | 0.0000 |  |
| Angeleno (ANG) | 0.3880 | 0.4256 | 0.3443 | 0.3605 | 0.3647 | 0.3643 | 0.3688 | 0.3445 | 0.3613 | 0.3097 | 0.0000 |

**Table S5.** Marker trait association by General Linear Model (GLM) in TASSEL v5 for flowering date (FD), ripening date (RD) and fruit development period (FDP) in 2016, 2017 and 2018.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Trait** | **Marker** | **Chr** | **Position (Mbp)** | **marker\_F** | **marker\_df** | **p-value** | **R2** |
| FD\_16 | S1\_40825947 | 1 | 40,825,947 | 15.592 | 2 | 0.004 | 0.809 |
| FD\_16 | S1\_41472171 | 1 | 41,472,171 | 16.652 | 2 | 0.006 | 0.496 |
| FD\_16 | S1\_42831517 | 1 | 42,831,517 | 9.590 | 2 | 0.019 | 0.771 |
| FD\_16 | S1\_47165263 | 1 | 47,165,263 | 9.964 | 2 | 0.018 | 0.769 |
| FD\_16 | S7\_13781041 | 7 | 13,781,041 | 28.246 | 2 | 0.002 | 0.882 |
| FD\_17 | S1\_40825947 | 1 | 40,825,947 | 14.705 | 2 | 0.008 | 0.474 |
| FD\_17 | S1\_41472171 | 1 | 41,472,171 | 14.705 | 2 | 0.008 | 0.474 |
| FD\_17 | S4\_11705678 | 4 | 11,705,678 | 18.907 | 1 | 0.007 | 0.573 |
| FD\_17 | S4\_16636711 | 4 | 16,636,711 | 32.709 | 2 | 0.001 | 0.515 |
| FD\_17 | S6\_27170641 | 6 | 27,170,641 | 10.893 | 2 | 0.015 | 0.451 |
| FD\_17 | S7\_13781041 | 7 | 13,781,041 | 7.159 | 1 | 0.044 | 0.327 |
| FD\_17 | S8\_13172602 | 8 | 13,172,602 | 12.186 | 2 | 0.020 | 0.623 |
| FD\_17 | S8\_15059726 | 8 | 15,059,726 | 7.036 | 1 | 0.038 | 0.299 |
| FD\_18 | S1\_40825947 | 1 | 40,825,947 | 7.968 | 2 | 0.028 | 0.429 |
| FD\_18 | S1\_41472171 | 1 | 41,472,171 | 7.968 | 2 | 0.028 | 0.429 |
| FD\_18 | S1\_42831517 | 1 | 42,831,517 | 7.117 | 1 | 0.044 | 0.407 |
| FD\_18 | S1\_47165263 | 1 | 47,165,263 | 6.980 | 1 | 0.046 | 0.324 |
| FD\_18 | S4\_11138979 | 4 | 11,138,979 | 7.516 | 1 | 0.034 | 0.313 |
| FD\_18 | S4\_11705678 | 4 | 11,705,678 | 20.154 | 1 | 0.006 | 0.555 |
| FD\_18 | S4\_16636711 | 4 | 16,636,711 | 6.166 | 2 | 0.045 | 0.401 |
| FD\_18 | S8\_13172602 | 8 | 13,172,602 | 8.455 | 2 | 0.037 | 0.560 |
| FD\_18 | S8\_15059726 | 8 | 15,059,726 | 7.195 | 1 | 0.036 | 0.307 |
| RD\_16 | S3\_20966457 | 3 | 20,966,457 | 19.805 | 2 | 0.002 | 0.773 |
| RD\_16 | S4\_11138979 | 4 | 11,138,979 | 30.622 | 1 | 0.001 | 0.725 |
| RD\_16 | S4\_16636711 | 4 | 16,636,711 | 13.032 | 2 | 0.007 | 0.724 |
| RD\_16 | S6\_18854841 | 6 | 18854841 | 24.220 | 1 | 0.002 | 0.698 |
| RD\_16 | S8\_15059726 | 8 | 15,059,726 | 18.499 | 2 | 0.003 | 0.766 |
| RD\_17 | S3\_20966457 | 3 | 20,966,457 | 41.660 | 2 | 0.001 | 0.851 |
| RD\_17 | S4\_11138979 | 4 | 11,138,979 | 34.731 | 1 | 0.001 | 0.769 |
| RD\_17 | S4\_16636711 | 4 | 16,636,711 | 14.707 | 2 | 0.008 | 0.771 |
| RD\_17 | S6\_18854841 | 6 | 18854841 | 26.326 | 1 | 0.003 | 0.753 |
| RD\_17 | S8\_15059726 | 8 | 15,059,726 | 38.622 | 1 | 0.001 | 0.781 |
| RD\_18 | S3\_20966457 | 3 | 20,966,457 | 32.351 | 2 | 0.001 | 0.821 |
| RD\_18 | S4\_11138979 | 4 | 11,138,979 | 24.928 | 1 | 0.002 | 0.713 |
| RD\_18 | S4\_16636711 | 4 | 16,636,711 | 11.522 | 2 | 0.013 | 0.727 |
| RD\_18 | S6\_18854841 | 6 | 18854841 | 20.465 | 1 | 0.006 | 0.714 |
| RD\_18 | S8\_15059726 | 8 | 15,059,726 | 29.628 | 1 | 0.002 | 0.735 |
| FDP\_16 | S3\_20966457 | 3 | 20,966,457 | 51.201 | 2 | 0.000 | 0.860 |
| FDP\_16 | S4\_11138979 | 4 | 11,138,979 | 68.205 | 1 | 0.000 | 0.826 |
| FDP\_16 | S4\_16636711 | 4 | 16,636,711 | 10.195 | 2 | 0.012 | 0.704 |
| FDP\_16 | S6\_18854841 | 6 | 18854841 | 51.294 | 1 | 0.000 | 0.802 |
| FDP\_16 | S8\_15059726 | 8 | 15,059,726 | 30.253 | 2 | 0.001 | 0.829 |
| FDP\_17 | S3\_20966457 | 3 | 20,966,457 | 33.557 | 2 | 0.001 | 0.863 |
| FDP\_17 | S4\_11138979 | 4 | 11,138,979 | 33.261 | 1 | 0.001 | 0.786 |
| FDP\_17 | S4\_16636711 | 4 | 16,636,711 | 6.929 | 2 | 0.036 | 0.681 |
| FDP\_17 | S6\_18854841 | 6 | 18854841 | 19.604 | 1 | 0.006 | 0.713 |
| FDP\_17 | S8\_15059726 | 8 | 15,059,726 | 25.814 | 1 | 0.002 | 0.752 |
| FDP\_18 | S3\_20966457 | 3 | 20,966,457 | 19.432 | 2 | 0.004 | 0.819 |
| FDP\_18 | S4\_11138979 | 4 | 11,138,979 | 20.716 | 1 | 0.004 | 0.717 |
| FDP\_18 | S4\_16636711 | 4 | 16,636,711 | 10.499 | 2 | 0.016 | 0.747 |
| FDP\_18 | S6\_18854841 | 6 | 18854841 | 20.478 | 1 | 0.006 | 0.732 |
| FDP\_18 | S8\_15059726 | 8 | 15,059,726 | 25.478 | 1 | 0.002 | 0.749 |

**Table S6.** Marker trait association by General Linear Model (GLM) in TASSEL v5 for skin chlorophyll degradation (SIad\_1-2), flesh chlorophyll degradation (FIad\_1-2), skin color (SKC (H°)), skin color by visually (SKC), flesh color (FLSC (H°)), flesh color by visually (FLSC) and firmness loss (Fmax\_1-2) in 2016.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Trait | Marker | Chr | Position (Mbp) | marker\_F | marker\_df | p-value | R2 |
| SIad\_1-2 | S1\_26544353 | 1 | 26,544,353 | 12.818 | 1 | 0.023 | 0.626 |
| SIad\_1-2 | S1\_28516963 | 1 | 28,516,963 | 34.141 | 2 | 0.003 | 0.688 |
| SIad\_1-2 | S3\_16237589 | 3 | 16,237,589 | 8.692 | 2 | 0.035 | 0.645 |
| SIad\_1-2 | S3\_19122793 | 3 | 19,122,793 | 9.936 | 2 | 0.018 | 0.592 |
| SIad\_1-2 | S3\_19430821 | 3 | 19,430,821 | 9.750 | 2 | 0.029 | 0.604 |
| SIad\_1-2 | S3\_19923654 | 3 | 19,923,654 | 11.235 | 2 | 0.014 | 0.606 |
| SIad\_1-2 | S6\_22121851 | 6 | 22,121,851 | 10.062 | 2 | 0.018 | 0.594 |
| SIad\_1-2 | S6\_23309668 | 6 | 23,309,668 | 10.062 | 2 | 0.018 | 0.594 |
| SIad\_1-2 | S7\_17591211 | 7 | 17,591,211 | 24.996 | 1 | 0.038 | 0.726 |
| FIad\_1-2 | S1\_35732579 | 1 | 35,732,579 | 31.924 | 1 | 0.005 | 0.588 |
| FIad\_1-2 | S1\_36402599 | 1 | 36,402,599 | 19.468 | 2 | 0.019 | 0.835 |
| FIad\_1-2 | S4\_9698928 | 4 | 9,698,928 | 9.585 | 1 | 0.021 | 0.487 |
| FIad\_1-2 | S5\_11985525 | 5 | 11,985,525 | 16.395 | 1 | 0.015 | 0.607 |
| FIad\_1-2 | S5\_12750728 | 5 | 12,750,728 | 9.697 | 1 | 0.036 | 0.642 |
| FIad\_1-2 | S6\_22532541 | 6 | 22,532,541 | 22.913 | 1 | 0.005 | 0.685 |
| SKC | S3\_16326995 | 3 | 16,326,995 | 21.470 | 2 | 0.003 | 0.580 |
| SKCH | S1\_22575965 | 1 | 22,575,965 | 60.217 | 1 | 0.001 | 0.907 |
| SKCH | S1\_22575992 | 1 | 22,575,992 | 60.217 | 1 | 0.001 | 0.907 |
| SKCH | S1\_22576008 | 1 | 22,576,008 | 60.217 | 1 | 0.001 | 0.907 |
| SKCH | S1\_47563921 | 1 | 47,563,921 | 19.633 | 2 | 0.009 | 0.884 |
| SKCH | S3\_22758203 | 3 | 22,758,203 | 29.479 | 1 | 0.032 | 0.917 |
| SKCH | S4\_7987880 | 4 | 7,987,880 | 17.495 | 2 | 0.011 | 0.874 |
| SKCH | S4\_13943802 | 4 | 13,943,802 | 16.959 | 2 | 0.011 | 0.871 |
| SKCH | S6\_12046591 | 6 | 12,046,591 | 14.635 | 2 | 0.014 | 0.857 |
| SKCH | S6\_12683179 | 6 | 12,683,179 | 15.243 | 2 | 0.027 | 0.860 |
| FLSC | S1\_22674807 | 1 | 22,674,807 | 8.155 | 2 | 0.027 | 0.695 |
| FLSC | S1\_40037165 | 1 | 40,037,165 | 7.962 | 2 | 0.028 | 0.691 |
| FLSC | S3\_8499544 | 3 | 8,499,544 | 16.240 | 1 | 0.010 | 0.574 |
| FLSC | S3\_26329049 | 3 | 26,329,049 | 7.542 | 2 | 0.031 | 0.682 |
| FLSC | S3\_26810700 | 3 | 26,810,700 | 12.645 | 2 | 0.019 | 0.783 |
| FLSC | S6\_28826872 | 6 | 28,826,872 | 57.381 | 1 | 0.003 | 0.905 |
| FLSC | S6\_29514112 | 6 | 29,514,112 | 49.257 | 2 | 0.002 | 0.897 |
| FLSC | S7\_15872385 | 7 | 15,872,385 | 10.485 | 2 | 0.011 | 0.702 |
| FLSC | S7\_15872410 | 7 | 15,872,410 | 10.382 | 2 | 0.017 | 0.732 |
| FLSC | S8\_15101431 | 8 | 15,101,431 | 27.739 | 1 | 0.002 | 0.740 |
| FLSC | S8\_15101454 | 8 | 15,101,454 | 17.665 | 2 | 0.005 | 0.789 |
| Fmax\_1-2 | S5\_4987742 | 5 | 4,987,742 | 18.259 | 2 | 0.021 | 0.649 |
| Fmax\_1-2 | S5\_10497397 | 5 | 10,497,397 | 15.794 | 2 | 0.013 | 0.623 |
| Fmax\_1-2 | S6\_4268992 | 6 | 4,268,992 | 32.202 | 1 | 0.005 | 0.625 |