**Table S6.** Variance components of Selection for Early Fecundity (F1-7) and Starvation Resistance (RF) for Adraga (A), Montpellier (B) and Groningen (C)

A) Adraga

|  |  |  |  |  | σ2 | √σ2/M |
| --- | --- | --- | --- | --- | --- | --- |
| Trait | Gen | Model Parameters | MS | Fdf1,df2 | Direct Estimate | Bootstrap Estimate - average | Lower and Upper 95% limits | Direct Estimate | Bootstrap Estimate - average | Lower and Upper 95% limits |
| F1-7 | 6 - 11 | Pop | 480.136 | F2,2 = 0.108 n.s. |  |  |  |  |  |  |  |  |
|  |  | Gen | 1170.530 | F1,2 = 0.263 n.s. | -55.362 | 18.239 | -95.804 | 424.864 | 0 | 0.049 | 0 | 0.240 |
|  |  | Pop\*Gen | 4447.562 | F2,113 = 3.943 \* |  |  |  |  |  |  |  |  |
|  |  | Error | 1127.974 |  |  |  |  |  |  |  |  |  |
|  | 6 - 14 | Pop | 42.718 | F2,2 = 0.023 n.s. |  |  |  |  |  |  |  |  |
|  |  | Gen | 33514.300 | F1,2 = 18.176 m.s. | 521.006 | 548.102 | 278.299 | 1181.786 | 0.263 | 0.270 | 0.191 | 0.397 |
|  |  | Pop\*Gen | 1843.962 | F2,116 = 1.720 n.s. |  |  |  |  |  |  |  |  |
|  |  | Error | 1072.206 |  |  |  |  |  |  |  |  |  |
|  | 6 - 18 | Pop | 4238.033 | F2,2 = 1.940 n.s. |  |  |  |  |  |  |  |  |
|  |  | Gen | 38344.096 | F1,2 = 17.566 m.s. | 605.692 | 644.200 | 271.469 | 1379.499 | 0.315 | 0.322 | 0.211 | 0.445 |
|  |  | Pop\*Gen | 2184.301 | F2,114 = 2.061 n.s. |  |  |  |  |  |  |  |  |
|  |  | Error | 1059.985 |  |  |  |  |  |  |  |  |  |
|  | 6 - 22 | Pop | 4297.272 | F2,2 = 1.320 n.s. |  |  |  |  |  |  |  |  |
|  |  | Gen | 57219.345 | F1,2 = 17.586 m.s. | 788.052 | 834.847 | 289.681 | 1678.111 | 0.369 | 0.377 | 0.227 | 0.503 |
|  |  | Pop\*Gen | 3254.487 | F2,131 = 2.635 m.s. |  |  |  |  |  |  |  |  |
|  |  | Error | 1235.033 |  |  |  |  |  |  |  |  |  |
| RF | 6 - 11 | Pop | 174.116 | F2,2 = 0.925 n.s. |  |  |  |  |  |  |  |  |
|  |  | Gen | 29.644 | F1,2 = 0.157 n.s. | -3.023 | 0.611 | -4.742 | 15.764 | 0 | 0.020 | 0 | 0.103 |
|  |  | Pop\*Gen | 188.198 | F2,100 = 1.818 n.s. |  |  |  |  |  |  |  |  |
|  |  | Error | 103.505 |  |  |  |  |  |  |  |  |  |
|  | 6 - 14 | Pop | 302.651 | F2,2 = 3.377 n.s. |  |  |  |  |  |  |  |  |
|  |  | Gen | 29.828 | F1,2 = 0.333 n.s. | -1.016 | 0.388 | -1.327 | 4.101 | 0 | 0.017 | 0 | 0.055 |
|  |  | Pop\*Gen | 89.622 | F2,116 = 1.155 n.s. |  |  |  |  |  |  |  |  |
|  |  | Error | 77.616 |  |  |  |  |  |  |  |  |  |
|  | 6 - 18 | Pop | 718.125 | F2,2 =5.831 n.s. |  |  |  |  |  |  |  |  |
|  |  | Gen | 173.060 | F1,2 = 1.407 n.s. | 0.872 | 2.849 | -2.223 | 14.047 | 0.024 | 0.045 | 0 | 0.104 |
|  |  | Pop\*Gen | 123.165 | F2,109 = 1.558 n.s. |  |  |  |  |  |  |  |  |
|  |  | Error | 79.058 |  |  |  |  |  |  |  |  |  |
|  | 6 - 22 | Pop | 562.999 | F2,2 = 2.282 n.s. |  |  |  |  |  |  |  |  |
|  |  | Gen | 5.160 | F1,2 = 0.021 n.s. | -3.663 | 0.264 | -3.901 | 13.271 | 0 | 0.014 | 0 | 0.101 |
|  |  | Pop\*Gen | 246.749 | F2,126 = 3.070 \* |  |  |  |  |  |  |  |  |
|  |  | Error | 80.366 |  |  |  |  |  |  |  |  |  |

Note: significance levels: *P*>0.1 n.s.; 0.1>*P*>0.05 m.s.; 0.05>*P*>0.01\*; 0.01>*P*>0.001\*\*; *P*<0.001 \*\*\*

B) Montpellier

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  | σ2 | √σ2/M |
| Trait | Gen | Model Parameters | MS | Fdf1,df2 | Direct Estimate | Bootstrap Estimate - average | Lower and Upper 95% limits | Direct Estimate | Bootstrap Estimate - average | Lower and Upper 95% limits |
| F1-7 | 6 - 11 | Pop | 2309.862 | F2,2 =1.258 n.s. |  |  |  |  |  |  |  |  |
|  |  | Gen | 21176.301 | F1,2 = 11.533 m.s. | 310.606 | 339.612 | 99.661 | 821.021 | 0.250 | 0.259 | 0.151 | 0.390 |
|  |  | Pop\*Gen | 1836.250 | F2,119 = 3.658 \* |  |  |  |  |  |  |  |  |
|  |  | Error | 501.960 |  |  |  |  |  |  |  |  |  |
|  | 6 - 14 | Pop | 366.745 | F2,2 = 1.779 n.s. |  |  |  |  |  |  |  |  |
|  |  | Gen | 103038.334 | F1,2 = 499.837 \*\* | 1680.265 | 1683.764 | 1494.586 | 1981.690 | 0.551 | 0.551 | 0.526 | 0.598 |
|  |  | Pop\*Gen | 206.136 | F2,117 = 0.389 n.s. |  |  |  |  |  |  |  |  |
|  |  | Error | 530.185 |  |  |  |  |  |  |  |  |  |
|  | 6 - 18 | Pop | 1244.346 | F2,2 = 2.237 n.s. |  |  |  |  |  |  |  |  |
|  |  | Gen | 119955.303 | F1,2 = 215.612 \*\* | 1917.575 | 1928.576 | 1442.245 | 2237.092 | 0.661 | 0.662 | 0.598 | 0.714 |
|  |  | Pop\*Gen | 556.348 | F2,119 = 1.087 n.s. |  |  |  |  |  |  |  |  |
|  |  | Error | 512.053 |  |  |  |  |  |  |  |  |  |
|  | 6 - 22 | Pop | 1080.987 | F2,2 = 9.214 m.s. |  |  |  |  |  |  |  |  |
|  |  | Gen | 189074.779 | F1,2 = 1609.906 \*\*\* | 2699.943 | 2703.389 | 2543.432 | 2976.934 | 0.792 | 0.792 | 0.782 | 0.798 |
|  |  | Pop\*Gen | 117.325 | F2,134 = 0.266 n.s. |  |  |  |  |  |  |  |  |
|  |  | Error | 441.569 |  |  |  |  |  |  |  |  |  |
| RF | 6 - 11 | Pop | 361.917 | F2,2 = 2.992 n.s. |  |  |  |  |  |  |  |  |
|  |  | Gen | 196.319 | F1,2 = 1.623 n.s. | 1.339 | 3.290 | -2.098 | 15.983 | 0.031 | 0.047 | 0 | 0.103 |
|  |  | Pop\*Gen | 120.955 | F2,107 = 1.236 n.s. |  |  |  |  |  |  |  |  |
|  |  | Error | 97.883 |  |  |  |  |  |  |  |  |  |
|  | 6 - 14 | Pop | 64.994 | F2,2 = 48.564 \* |  |  |  |  |  |  |  |  |
|  |  | Gen | 320.337 | F1,2 = 233.833 \*\* | 5.612 | 5.613 | 4.558 | 7.161 | 0.063 | 0.063 | 0.055 | 0.071 |
|  |  | Pop\*Gen | 1.338 | F2,108 = 0.021 n.s. |  |  |  |  |  |  |  |  |
|  |  | Error | 64.218 |  |  |  |  |  |  |  |  |  |
|  | 6 - 18 | Pop | 376.890 | F2,2 = 1.495 n.s. |  |  |  |  |  |  |  |  |
|  |  | Gen | 28.472 | F1,2 = 0.113 n.s. | -3.863 | 0.296 | -3.895 | 12.403 | 0 | 0.012 | 0 | 0.096 |
|  |  | Pop\*Gen | 252.034 | F2,110 = 3.769 \* |  |  |  |  |  |  |  |  |
|  |  | Error | 66.863 |  |  |  |  |  |  |  |  |  |
|  | 6 - 22 | Pop | 126.740 | F2,2 = 7.341 n.s. |  |  |  |  |  |  |  |  |
|  |  | Gen | 268.991 | F1,2 = 15.521 m.s. | 3.818 | 4.148 | 0.968 | 6.916 | 0.054 | 0.056 | 0.028 | 0.071 |
|  |  | Pop\*Gen | 17.265 | F2,126 = 0.264 n.s. |  |  |  |  |  |  |  |  |
|  |  | Error | 65.407 |  |  |  |  |  |  |  |  |  |

Note: significance levels: *P*>0.1 n.s.; 0.1>*P*>0.05 m.s.; 0.05>*P*>0.01\*; 0.01>*P*>0.001\*\*; *P*<0.001 \*\*\*

C) Groningen

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  | σ2 | √σ2/M |
| Trait | Gen | Model Parameters | MS | Fdf1,df2 | Direct Estimate | Bootstrap Estimate - average | Lower and Upper 95% limits | Direct Estimate | Bootstrap Estimate - average | Lower and Upper 95% limits |
| F1-7 | 6 - 11 | Pop | 3289.060 | F2,2 =5.015 n.s. |   |   |   |   |   |   |   |   |
|  |  | Gen | 29.673 | F1,2 = 0.045 n.s. | -10.154 | 0.714 | -10.499 | 33.593 | 0 | 0.009 | 0 | 0.062 |
|  |  | Pop\*Gen | 655.886 | F2,118 = 0.754 n.s. |  |  |  |  |  |  |  |  |
|  |  | Error | 869.281 |   |   |   |   |   |   |   |   |   |
|  | 6 - 14 | Pop | 2371.854 | F2,2 = 0.377 n.s. |   |   |   |   |   |   |   |   |
|  |  | Gen | 434.874 | F1,2 = 0.069 n.s. | -93.370 | 7.953 | -94.183 | 282.636 | 0 | 0.030 | 0 | 0.196 |
|  |  | Pop\*Gen | 6293.187 | F2,120 = 7.414 \*\*\* |  |  |  |  |  |  |  |  |
|  |  | Error | 848.784 |   |   |   |   |   |   |   |   |   |
|  | 6 - 18 | Pop | 1019.241 | F2,2 = 0.527 n.s. |   |   |   |   |   |   |   |   |
|  |  | Gen | 3364.416 | F1,2 = 1.739 n.s. | 23.800 | 57.661 | 0.243 | 348.999 | 0.060 | 0.095 | 0.006 | 0.238 |
|  |  | Pop\*Gen | 1935.458 | F2,115 = 1.933 n.s. |  |  |  |  |  |  |  |  |
|  |  | Error | 1001.305 |   |   |   |   |   |   |   |   |   |
|  | 6 - 22 | Pop | 454.359 | F2,2 = 0.139 n.s. |  |  |  |  |  |  |  |  |
|  |  | Gen | 30647.314 | F1,2 = 9.406 m.s. | 391.431 | 443.652 | 176.389 | 1187.112 | 0.240 | 0.257 | 0.158 | 0.427 |
|  |  | Pop\*Gen | 3259.465 | F2,134 = 3.888 \* |  |  |  |  |  |  |  |  |
|  |  | Error | 838.308 |   |   |   |   |   |   |   |   |   |
| RF | 6 - 11 | Pop | 146.161 | F2,2 = 0.702 n.s. |   |   |   |   |   |   |   |   |
|  |  | Gen | 370.813 | F1,2 = 1.783 n.s. | 2.808 | 6.351 | -0.846 | 20.324 | 0.043 | 0.065 | 0 | 0.116 |
|  |  | Pop\*Gen | 208.061 | F2,111 = 3.801 \* |  |  |  |  |  |  |  |  |
|  |  | Error | 54.741 |   |   |   |   |   |   |   |   |   |
|  | 6 - 14 | Pop | 208.898 | F2,2 = 0.763 n.s. |   |   |   |   |   |   |   |   |
|  |  | Gen | 513.732 | F1,2 = 1.877 n.s. | 3.993 | 8.297 | 0.153 | 24.192 | 0.050 | 0.074 | 0.010 | 0.127 |
|  |  | Pop\*Gen | 273.652 | F2,115 = 7.185 \*\* |  |  |  |  |  |  |  |  |
|  |  | Error | 38.087 |   |   |   |   |   |   |   |   |   |
|  | 6 - 18 | Pop | 4.528 | F2,2 = 26.070 \* |   |   |   |   |   |   |   |   |
|  |  | Gen | 1977.699 | F1,2 = 6350.349 \*\*\* | 33.824 | 33.864 | 33.331 | 34.882 | 0.147 | 0.147 | 0.146 | 0.150 |
|  |  | Pop\*Gen | 0.174 | F2,110 = 0.003 n.s. |  |  |  |  |  |  |  |  |
|  |  | Error | 66.325 |   |   |   |   |   |   |   |   |   |
|  | 6 - 22 | Pop | 48.420 | F2,2 = 0.549 n.s. |   |   |   |   |   |   |   |   |
|  |  | Gen | 735.930 | F1,2 = 8.347 n.s. | 9.394 | 10.697 | 4.448 | 18.810 | 0.081 | 0.087 | 0.055 | 0.115 |
|  |  | Pop\*Gen | 88.228 | F2,132 = 2.116 n.s. |  |  |  |  |  |  |  |  |
|  |  | Error | 41.693 |   |   |   |   |   |   |   |   |   |

Note: significance levels: *P*>0.1 n.s.; 0.1>*P*>0.05 m.s.; 0.05>*P*>0.01\*; 0.01>*P*>0.001\*\*; *P*<0.001 \*\*\*

Non-standardized (σ2) and standardized (√σ2/M) values are shown. Estimates were standardized by the square of the mean values of all populations involved in the estimates (see Material and Methods and Supplementary Information). Prior to standardization, negative values were changed to zero.