**Genomic prediction of autotetraploids; influence of relationship matrices, allele dosage, and continuous genotyping calls in phenotype prediction**

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**Table S1.** Predictive ability, mean square error, goodness-of-fit and slope (beta) for eight yield and fruit-related traits analyzed with six linear mixed models with different dosage parameterizations of the relationship matrices. Source of information, and dosage parameterizations for the relationship matrices indicated by the letters (*I*, *A*, or *G*), and numbers (*2* or *4*), respectivelya

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Trait** | **Relationship matrix** | **Predictive ability 2014** | **Predictive ability 2015** | **MSE (2014)** | **MSE (2015)** | **Goodness-of-fit** | **Betab** |
| Soluble Solid (°Brix) | *I* | 0.235 a | -  | 5.795 a | - | 6539.326 d | 0.820 |
| *A2* | 0.290 a | -  | 4.926 a | - | 6679.028 b | 0.854 |
| *A4* | 0.290 a | -  | 4.531 a | - | 6677.926 b | 0.842 |
| *G2* | 0.277 a | -  | 2.238 a | - | 6660.451 c | 0.831 |
| *G4* | 0.281 a | -  | 2.197 a | - | 6675.855 b | 0.831 |
| *Gr* | 0.274 a | -  | 2.216 a | - | 6705.259 a | 0.819 |
| Flower Buds | *I* | -  | 0.152 a | -  | 9.261 a | 8652.663 d | 0.643 |
| *A2* | -  | 0.203 a | -  | 8.280 a | 8832.708 b | 0.693 |
| *A4* | -  | 0.199 a | -  | 8.039 a | 8831.973 b | 0.707 |
| *G2* | -  | 0.187 a | -  | 11.469 a | 8813.498 c | 0.673 |
| *G4* | -  | 0.182 a | -  | 11.718 a | 8841.355 ab | 0.656 |
| *Gr* | -  | 0.181 a | -  | 11.860 a | 8854.885 a | 0.645 |
| Fruit Diameter | *I* | 0.38 a | 0.333 a | 8.827 a | 8.918 a | 17602.478 ab | 0.969 |
| *A2* | 0.396 a | 0.340 a | 8.072 a | 8.638 a | 17572.15 ab | 0.942 |
| *A4* | 0.386 a | 0.345 a | 9.134 a | 3.409 a | 17571.554 ab | 0.931 |
| *G2* | 0.403 a | 0.383 a | 19.796 a | 6.339 a | 17548.998 b | 0.996 |
| *G4* | 0.432 a | 0.377 a | 19.423 a | 6.484 a | 17579.596 ab | 0.983 |
| *Gr* | 0.432 a | 0.376 a | 19.718 a | 7.241 a | 17635.981 a | 0.969 |
| Fruit Firmness | *I* | 0.302 b | 0.425 a | 2725.511 a | 1109.026 a | 33951.819 a | 0.996 |
| *A2* | 0.372 ab | 0.490 a | 2146.811 a | 734.108 a | 33877.711 c | 0.957 |
| *A4* | 0.375 ab | 0.486 a | 778.212 a | 1490.294 a | 33887.371 bc | 0.954 |
| *G2* | 0.415 a | 0.505 a | 1240.152 a | 2083.417 a | 33838.951 c | 0.988 |
| *G4* | 0.426 a | 0.507 a | 1245.192 a | 2085.359 a | 33863.149 c | 0.971 |
| *Gr* | 0.431 a | 0.511 a | 1250.673 a | 2124.308 a | 33929.913 ab | 0.952 |
| pH | *I* | 0.259 a | -  | 0.244 a | - | 1779.113 d | 0.848 |
| *A2* | 0.297 a | -  | 0.257 a | - | 1915.228 c | 0.830 |
| *A4* | 0.285 a | -  | 0.126 a | - | 1913.775 c | 0.807 |
| *G2* | 0.268 a | -  | 0.253 a | - | 1951.383 b | 0.811 |
| *G4* | 0.269 a | -  | 0.259 a | - | 1966.891 ab | 0.804 |
| *Gr* | 0.271 a | -  | 0.256 a | - | 1979.624 a | 0.807 |
| Fruit Scar | *I* | 0.341 b | 0.380 a | 0.236 a | 0.424 a | 2505.509 bc | 1.034 |
| *A2* | 0.434 a | 0.452 a | 0.113 a | 0.416 a | 2496.282 bc | 0.936 |
| *A4* | 0.432 a | 0.45 a | 0.112 a | 0.181 a | 2520.767 b | 0.933 |
| *G2* | 0.475 a | 0.464 a | 0.160 a | 0.197 a | 2458.018 c | 0.952 |
| *G4* | 0.479 a | 0.464 a | 0.160 a | 0.199 a | 2524.347 b | 0.916 |
| *Gr* | 0.488 a | 0.466 a | 0.171 a | 0.184 a | 2610.849 a | 0.880 |
| Fruit Weight | *I* | 0.345 b | 0.363 a | 0.502 a | 0.337 a | 6076.956 b | 1.100 |
| *A2* | 0.403 ab | 0.405 a | 0.529 a | 0.391 a | 5943.302 cd | 0.926 |
| *A4* | 0.403 ab | 0.400 a | 0.404 a | 1.100 a | 5917.202 de | 0.928 |
| *G2* | 0.455 a | 0.438 a | 1.030 a | 0.615 a | 5899.15 e | 0.929 |
| *G4* | 0.453 a | 0.434 a | 1.059 a | 0.630 a | 5975.529 c | 0.877 |
| *Gr* | 0.453 a | 0.430 a | 1.027 a | 0.702 a | 6118.296 a | 0.825 |
| Yield | *I* | 0.251 a | 0.312 b | 0.881 a | 1.221 a | 9020.821 b | 1.003 |
| *A2* | 0.312 a | 0.353 ab | 0.661 a | 1.214 a | 8956.793 bc | 0.924 |
| *A4* | 0.325 a | 0.348 ab | 0.638 a | 1.730 a | 8951.254 bc | 0.920 |
| *G2* | 0.335 a | 0.390 a | 1.191 a | 2.343 a | 8917.214 c | 0.939 |
| *G4* | 0.327 a | 0.389 a | 1.263 a | 2.308 a | 8989.818 bc | 0.902 |
| *Gr* | 0.324 a | 0.384 ab | 1.297 a | 2.294 a | 9135.865 a | 0.872 |

aLetters based on Tukey test performed considering estimations obtained from 10 independent runs of the full models with BGLR (equation 1). bBeta= slope of the regression between the predicted breeding values and the estimated eBLUEs.