***Supplementary Material***

**Setting up decision-making tools towards a quality-oriented participatory maize breeding program**

**Authors**

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**Table S5.** Pearson correlation coefficients among 17 quality traits calculated from a common-garden experiment (Coimbra, 2009) for 26 maize populations analyzed.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|   | PR | FI | FT | BD | SB1 | FV | PV | TV | *b\** | TCC | AT | DT | GT | PH | CU | FE | AL |
| PR | 1.000 | \*\*\* | ns | \*\*\* | ns | ns | \*\* | ns | ns | ns | \*\*\* | \*\*\* | ns | ns | ns | ns | \*\* |
| FI | **0.954** | 1.000 | ns | \*\*\* | ns | ns | \* | ns | ns | ns | \*\*\* | \*\*\* | ns | ns | ns | ns | \*\* |
| FT | -0.138 | 0.132 | 1.000 | ns | ns | ns | ns | ns | \* | \* | ns | ns | ns | ns | ns | ns | ns |
| BD | **-0.752** | **-0.711** | 0.059 | 1.000 | \* | ns | \*\*\* | ns | ns | ns | \*\* | \* | ns | ns | ns | ns | ns |
| SB1 | -0.172 | -0.147 | 0.079 | **0.410** | 1.000 | \*\*\* | \*\*\* | \*\*\* | ns | ns | ns | ns | ns | ns | \* | \* | ns |
| FV | -0.085 | -0.057 | 0.101 | 0.377 | **0.990** | 1.000 | \*\*\* | \*\*\* | ns | ns | ns | ns | ns | ns | \* | \* | ns |
| PV | **-0.505** | **-0.460** | 0.115 | **0.890** | **0.723** | **0.727** | 1.000 | \*\*\* | ns | ns | ns | ns | ns | ns | ns | ns | ns |
| TV | 0.161 | 0.191 | 0.149 | 0.250 | **0.863** | **0.925** | **0.664** | 1.000 | ns | ns | ns | ns | \* | ns | \* | ns | \* |
| *b\** | -0.161 | -0.279 | **-0.417** | 0.130 | 0.330 | 0.295 | 0.182 | 0.172 | 1.000 | \*\*\* | ns | ns | ns | \* | ns | ns | ns |
| TCC | -0.261 | -0.372 | **-0.427** | 0.188 | 0.279 | 0.230 | 0.180 | 0.073 | **0.985** | 1.000 | ns | \* | ns | \* | ns | ns | ns |
| AT | **-0.764** | **-0.786** | -0.133 | **0.569** | -0.045 | -0.124 | 0.285 | -0.329 | 0.248 | 0.371 | 1.000 | \*\*\* | \* | ns | ns | ns | \* |
| DT | **-0.693** | **-0.719** | -0.157 | **0.485** | -0.028 | -0.118 | 0.210 | -0.349 | 0.290 | **0.423** | **0.869** | 1.000 | \* | ns | ns | ns | \*\* |
| GT | -0.230 | -0.247 | -0.126 | 0.069 | -0.257 | -0.305 | -0.137 | **-0.404** | 0.257 | 0.324 | **0.443** | **0.483** | 1.000 | ns | ns | ns | \* |
| PH | 0.084 | 0.186 | 0.331 | -0.025 | 0.021 | 0.064 | 0.063 | 0.174 | **-0.434** | **-0.448** | -0.125 | -0.143 | 0.169 | 1.000 | ns | ns | ns |
| CU | -0.309 | -0.226 | 0.309 | 0.087 | **-0.395** | **-0.418** | -0.138 | **-0.437** | -0.228 | -0.206 | 0.116 | 0.023 | -0.022 | -0.037 | 1.000 | \*\* | ns |
| FE | -0.053 | 0.096 | 0.386 | -0.045 | **-0.439** | **-0.435** | -0.213 | -0.378 | -0.324 | -0.286 | 0.137 | 0.091 | 0.166 | 0.360 | **0.564** | 1.000 | ns |
| AL | **-0.552** | **-0.528** | 0.014 | 0.209 | -0.139 | -0.226 | -0.046 | **-0.440** | 0.115 | 0.197 | **0.463** | **0.558** | **0.486** | -0.179 | 0.335 | 0.211 | 1.000 |

*Sample size N=26; Values bellow the diagonal corresponds to the Person correlation coefficient (r), significant correlations are indicated in bold; Values above the diagonal correspond to the p-value of the significance levels for the correlations: ns – non-significant; \* – significant at P-value < 0.05; \*\* – significant at P-value < 0.01; \*\*\* – significant at P-value < 0.001.*

*Quality traits’ abbreviations: PR – protein; FI – fiber; FT – fat; BD – breakdown; SB1 –setback1; FV – final viscosity; PV – peak viscosity; TV – trough viscosity;* b\* *– yellow/blue index; TCC – total carotenoids; AT – α-tocopherol; DT – δ-tocopherol; GT – γ-tocopherol; PH – total free phenolic compounds; CU –* p*-coumaric acid; FE – ferulic acid; AL – volatile aldehydes*