**S7 Table : Griffing’s *SCA* effects (Griffing’s *sij*) and partitioned *SCA* of straight (Adj*sij*) and their reciprocal cross (Adj*sji*)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Crosses** | **DTT** | **DTS** | **NKR** | **NKRC** |
| **Griffing’s*sij*a** | **Adj*sij*a** | **Adj*sji*a** | **Griffing’s*sij*** | **Adj*sij*** | **Adj*sji*** | **Griffing’s*sij*** | **Adj*sij*** | **Adj*sji*** | **Griffing’s*sij*** | **Adj*sij*** | **Adj*sji*** |
| 1x2 | **0.24** | 0.08 | 0.41 | **-0.07** | -0.23 | 0.10 | **4.00\*\*b** | 2.40\*\* | 5.60\*\* | **0.18** | 0.18 | 0.18 |
| 1x3 | **1.22\*** | 2.22\*\* | 0.22 | **-0.36** | 2.14\*\* | -2.86\*\* | **2.61\*\*** | 0.31 | 4.91\*\* | **-0.18** | 0.02 | -0.38\* |
| 1x4 | **0.12** | -0.38 | 0.62 | **-0.42** | -0.42 | -0.42 | **0.45** | -2.30\*\* | 3.20\*\* | **0.25** | 0.35\* | 0.15 |
| 1x5 | **-1.32\*** | -0.65 | -1.98\*\* | **-0.84** | -0.01 | -1.67\*\* | **-0.13** | -2.53\*\* | 2.27\*\* | **-0.19** | -0.49\*\* | 0.11 |
| 1x6 | **-0.23** | -3.57\*\* | 3.10\*\* | **-0.98** | -4.15\*\* | 2.18\*\* | **0.90\*** | 3.00\*\* | -1.20\*\* | **0.23** | 1.23\*\* | -0.77\*\* |
| 1x7 | **-0.01** | -1.67\*\* | 1.66\*\* | **-0.38** | -1.88\*\* | 1.12\* | **-1.74\*\*** | 0.51 | -3.99\*\* | **0.52\*\*** | 0.72\*\* | 0.32\* |
| 1x8 | **-2.88\*\*** | -2.55\*\* | -3.21\*\* | **-2.15\*\*** | -1.48\*\* | -2.82\*\* | **5.82\*\*** | 4.47\*\* | 7.17\*\* | **0.62\*\*** | 0.72\*\* | 0.52\*\* |
| 2x3 | **-0.05** | 1.45\* | -1.55\*\* | **-0.63** | -0.63 | -0.63 | **0.72\*** | 3.22\*\* | -1.78\*\* | **0.12** | 0.42\* | -0.18 |
| 2x4 | **-0.48** | -0.15 | -0.82 | **-0.69** | -0.19 | -1.19\* | **1.81\*\*** | 2.81\*\* | 0.81\* | **0.36** | 0.56\*\* | 0.16 |
| 2x5 | **-0.92** | -0.76 | -1.09 | **-0.78** | -0.44 | -1.11\* | **3.93\*\*** | 2.58\*\* | 5.28\*\* | **0.77\*\*** | 0.32\* | 1.22\*\* |
| 2x6 | **-0.51** | -1.01 | -0.01 | **-0.59** | -0.92 | -0.26 | **3.07\*\*** | 3.52\*\* | 2.62\*\* | **-0.16** | 0.24 | -0.56\*\* |
| 2x7 | **-1.11** | -1.11 | -1.11 | **-0.65** | -0.65 | -0.65 | **1.02\*\*** | 3.12\*\* | -1.08\*\* | **0.13** | -0.07 | 0.33\* |
| 2x8 | **-0.48** | -0.32 | -0.65 | **-0.59** | -0.92 | -0.26 | **-1.27\*\*** | 1.18\*\* | -3.72\*\* | **-0.38\*** | -0.48\*\* | -0.28 |
| 3x4 | **-0.34** | -1.01 | 0.33 | **-0.82** | -1.48\*\* | -0.15 | **-0.29** | -0.89\*\* | 0.31 | **-0.40\*** | -0.80\*\* | 0.00 |
| 3x5 | **0.06** | -0.61 | 0.72 | **0.10** | -0.40 | 0.60 | **-0.15** | -6.78\*\* | 6.48\*\* | **0.09** | -0.98\*\* | 1.16\*\* |
| 3x6 | **-0.19** | -2.53\*\* | 2.14\*\* | **-0.21** | -2.55\*\* | 2.12\*\* | **-0.88\*** | 0.72\* | -2.48\*\* | **0.38\*** | 0.08 | 0.68\*\* |
| 3x7 | **-0.13** | -1.30\* | 1.04 | **-0.28** | -1.61\*\* | 1.06\* | **0.53** | 0.83\* | 0.23 | **-0.63\*\*** | -0.63\*\* | -0.63\*\* |
| 3x8 | **0.16** | -1.84\*\* | 2.16\*\* | **0.79** | -0.55 | 2.12\*\* | **2.23\*\*** | -0.62 | 5.08\*\* | **0.56\*\*** | 0.96\*\* | 0.16 |
| 4x5 | **0.12** | 0.79 | -0.55 | **0.37** | 1.70\*\* | -0.96 | **-0.38** | -2.53\*\* | 1.77\*\* | **-0.31** | -0.71\*\* | 0.09 |
| 4x6 | **-0.80** | -0.46 | -1.13\* | **-0.61** | -0.11 | -1.11\* | **1.06\*\*** | 3.41\*\* | -1.29\*\* | **-0.28** | 0.02 | -0.58\*\* |
| 4x7 | **-1.40\*** | -1.23\* | -1.57\*\* | **-2.01\*\*** | -1.84\*\* | -2.17\*\* | **3.62\*\*** | 3.12\*\* | 4.12\*\* | **0.90\*\*** | 0.90\*\* | 0.90\*\* |
| 4x8 | **-1.28\*** | -1.44\* | -1.11 | **-1.44\*** | -1.44\*\* | -1.44\*\* | **3.54\*\*** | 4.20\*\* | 2.87\*\* | **0.13** | 0.57\*\* | -0.30 |
| 5x6 | **-1.90\*\*** | -2.40\*\* | -1.40\*\* | **-1.86\*\*** | -2.03\*\* | -1.69\*\* | **-0.32** | -0.32 | -0.32 | **0.87\*\*** | 0.77\*\* | 0.97\*\* |
| 5x7 | **-2.01\*\*** | -3.17\*\* | -0.84 | **-1.76\*\*** | -2.42\*\* | -1.09\* | **1.03\*\*** | 1.78\*\* | 0.28 | **-0.24** | -1.14\*\* | 0.66\*\* |
| 5x8 | **0.79** | 0.95 | 0.62 | **-0.69** | -0.69 | -0.69 | **-3.16\*\*** | -3.76\*\* | -2.56\*\* | **-0.34** | -0.14 | -0.54\*\* |
| 6x7 | **0.08** | 0.91 | -0.76 | **0.27** | 1.43\*\* | -0.90 | **-1.23\*\*** | -4.48\*\* | 2.02\*\* | **-0.82\*\*** | -1.02\*\* | -0.62\*\* |
| 6x8 | **-1.13** | -1.30\* | -0.96 | **-0.84** | -0.51 | -1.17\* | **1.78\*\*** | 0.48 | 3.08\*\* | **0.08** | 0.18 | -0.02 |
| 7x8 | **-0.57** | -0.73 | -0.40 | **-0.57** | -0.57 | -0.57 | **3.43\*\*** | 4.28\*\* | 2.58\*\* | **0.87\*\*** | 0.87\*\* | 0.87\*\* |
| **S.Ed*sij*** | **0.16** | **0.53** | **0.33** | **0.16** |

Cont.,

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Crosses** | **CL** | **CG** | **HGW** | **GY** |
| **Griffing’s*sij*** | **Adj*sij*** | **Adj*sji*** | **Griffing’s*sij*** | **Adj*sij*** | **Adj*sji*** | **Griffing’s*sij*** | **Adj*sij*** | **Adj*sji*** | **Griffing’s*sij*** | **Adj*sij*** | **Adj*sji*** |
| 1x2 | **2.40\*\*** | 0.51 | 4.29\*\* | **0.19\*\*** | -0.05 | 0.44\*\* | **2.83\*\*** | -1.67\*\* | 7.33\*\* | **22.65\*\*** | 9.49\*\* | 35.81\*\* |
| 1x3 | **1.19\*\*** | -0.10 | 2.48\*\* | **0.06** | -0.04 | 0.16\*\* | **4.64\*\*** | 2.39\*\* | 6.89\*\* | **-8.98\*\*** | -11.31\*\* | -6.66\*\* |
| 1x4 | **0.37** | -0.35 | 1.09\*\* | **0.08** | 0.00 | 0.17\*\* | **2.08\*\*** | 1.08\*\* | 3.08\*\* | **0.87** | 8.15\*\* | -6.42\*\* |
| 1x5 | **-1.22\*\*** | -2.43\*\* | -0.02 | **-0.09\*** | -0.33\*\* | 0.15\*\* | **-1.33\*\*** | -3.08\*\* | 0.42 | **-4.26** | -10.73\*\* | 2.22 |
| 1x6 | **0.50** | 0.77 | 0.24 | **-0.11\*** | 0.05 | -0.26\*\* | **-0.48** | -0.98\* | 0.02 | **-2.80** | 6.35\* | -11.96\*\* |
| 1x7 | **-0.91\*** | 0.39 | -2.21\*\* | **0.10\*** | -0.05 | 0.25\*\* | **0.64** | 0.14 | 1.14\*\* | **3.93** | 17.50\*\* | -9.64\*\* |
| 1x8 | **2.00\*\*** | 1.63\*\* | 2.38\*\* | **0.41\*\*** | 0.29\*\* | 0.53\*\* | **5.64\*\*** | 3.39\*\* | 7.89\*\* | **30.52\*\*** | 15.96\*\* | 45.07\*\* |
| 2x3 | **0.07** | 0.81\* | -0.68\* | **0.10\*** | 0.24\*\* | -0.05 | **0.48** | 1.73\*\* | -0.77 | **3.38** | -6.87\*\* | 13.64 |
| 2x4 | **0.72** | 1.15\*\* | 0.28 | **0.08** | 0.18\*\* | -0.02 | **-0.33** | 1.42\*\* | -2.08\*\* | **-2.94** | 2.89 | -8.77\*\* |
| 2x5 | **1.34\*\*** | 0.58 | 2.11\*\* | **0.27\*\*** | 0.15\*\* | 0.39\*\* | **2.02\*\*** | 0.27 | 3.77\*\* | **16.34\*\*** | -5.56 | 38.25\*\* |
| 2x6 | **0.50** | 1.10\*\* | -0.10 | **0.07** | 0.09\* | 0.05 | **1.11\*** | 0.86\* | 1.36\*\* | **-0.47** | -1.51 | 0.57 |
| 2x7 | **0.69** | 1.62\*\* | -0.24 | **0.04** | 0.07 | 0.01 | **0.98\*** | 1.48\*\* | 0.48 | **-15.24\*\*** | -22.90\*\* | -7.59\*\* |
| 2x8 | **-0.97\*** | 0.26 | -2.19\*\* | **0.00** | 0.21\*\* | -0.22\*\* | **-1.27\*\*** | -0.27 | -2.27\*\* | **-9.32\*\*** | -10.51\*\* | -8.13\*\* |
| 3x4 | **-0.89\*** | -0.90\*\* | -0.89\* | **0.03** | -0.07 | 0.12\*\* | **-0.52** | -0.52 | -0.52 | **-2.34** | -2.34 | -2.34 |
| 3x5 | **0.19** | -2.44\*\* | 2.83\*\* | **0.13\*\*** | -0.20\*\* | 0.47\*\* | **2.08\*\*** | -0.17 | 4.33\*\* | **10.81\*\*** | -5.34 | 26.96\*\* |
| 3x6 | **0.13** | -0.18 | 0.45 | **-0.08** | -0.05 | -0.11\*\* | **-1.83\*\*** | -2.08\*\* | -1.58\*\* | **-1.01** | 2.66 | -4.68 |
| 3x7 | **0.14** | -0.61 | 0.89\* | **-0.13\*\*** | -0.17\*\* | -0.09\* | **0.05** | 0.05 | 0.05 | **5.27\*** | -5.25\* | 15.79\*\* |
| 3x8 | **0.73\*** | -0.32 | 1.78\*\* | **0.28\*\*** | 0.19\*\* | 0.37\*\* | **2.30\*\*** | -0.20 | 4.80\*\* | **5.49\*** | -3.65 | 14.63\*\* |
| 4x5 | **0.59** | -0.86\* | 2.04\*\* | **0.26\*\*** | -0.01 | 0.53\*\* | **3.02\*\*** | -0.48 | 6.52\*\* | **8.07\*\*** | -17.45\*\* | 33.60\*\* |
| 4x6 | **1.14\*\*** | 2.05\*\* | 0.24 | **-0.01** | 0.09\* | -0.10\* | **1.11\*** | 1.61\*\* | 0.61 | **5.24\*** | 12.12\*\* | -1.64 |
| 4x7 | **2.22\*\*** | 1.46\*\* | 2.99\*\* | **0.19\*\*** | 0.12\*\* | 0.26\*\* | **1.98\*\*** | 1.23\*\* | 2.73\*\* | **30.56\*\*** | 29.32\*\* | 31.81\*\* |
| 4x8 | **1.87\*\*** | 2.19\*\* | 1.55\*\* | **0.36\*\*** | 0.44\*\* | 0.27\*\* | **4.48\*\*** | 4.98\*\* | 3.98\*\* | **2.71** | -2.64 | 8.05\*\* |
| 5x6 | **0.53** | 0.97\*\* | 0.09 | **0.16\*\*** | 0.28\*\* | 0.05 | **0.70** | 0.45 | 0.95\* | **7.83\*\*** | 35.30\*\* | -19.63\*\* |
| 5x7 | **0.58** | 0.13 | 1.03\*\* | **0.03** | -0.08 | 0.15\*\* | **0.33** | -0.42 | 1.08\*\* | **9.37\*\*** | 15.04\*\* | 3.69 |
| 5x8 | **-1.18\*\*** | -1.53\*\* | -0.83\* | **-0.52\*\*** | -0.48\*\* | -0.57\*\* | **-4.67\*\*** | -3.67\*\* | -5.67\*\* | **-12.55\*\*** | -11.38\*\* | -13.72\*\* |
| 6x7 | **-1.55\*\*** | -3.67\*\* | 0.58 | **-0.11\*** | -0.20\*\* | -0.01 | **-1.58\*\*** | -2.33\*\* | -0.83\* | **-8.41\*\*** | -18.12\*\* | 1.30 |
| 6x8 | **0.69** | 0.36 | 1.01\*\* | **0.21\*\*** | 0.14\*\* | 0.28\*\* | **1.92\*\*** | 0.92\* | 2.92\*\* | **7.74\*\*** | 2.86 | 12.62\*\* |
| 7x8 | **2.03\*\*** | 2.08\*\* | 1.99\*\* | **0.34\*\*** | 0.41\*\* | 0.27\*\* | **1.80\*\*** | 1.55\*\* | 2.05\*\* | **-1.86** | 0.74 | -4.46 |
| **S.Ed*sij*** | **0.34** | **0.04** | **0.39** | **2.49** |

aGriffing’s*sij* – The *SCA* effect estimated following Griffing’s procedure, Adj*sij* – The adjusted *SCA* effect of straight cross after partitioning, Adj*sji* – the adjusted *SCA* effects of reciprocals after partitioning.

b\* and \*\* indicate significance at 0.05 and 0.01 probabilities, respectively.