**Table 1: Analysis of variance for yield and yield component characters in sesame**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Source of variation** | **Degrees of freedom** | **Days to 50% flowering** | **Days to maturity** | **Plant height (cm)** | **No. of effective primaries/plant** | **No. of**  **effective capsules/plant** | **Capsule length (cm)** | **No. of seeds/ capsule** | **1000-seed weight**  **(g)** | **Seed yield/ plant (g)** | **Oil**  **content (%)** | **Chlorophyll content (SPAD Units)** |
| Replications | 2 | 0.96 | 1.45 | 0.96 | 0.19\* | 78.733 | 0.03 | 17.046 | 0.056 | 0.24 | 0.098 | 9.73 |
| Treatments | 75 | 10.96\*\* | 20.58\*\* | 263.23\*\* | 6.59\*\* | 1564.857\*\* | 0.06\*\* | 125.683\*\* | 0.281\*\* | 16.93\*\* | 29.057\*\* | 56.71\*\* |
| Parents | 15 | 24.74\*\* | 22.17\*\* | 158.63\*\* | 2.45\*\* | 1079.83\*\* | 0.05\*\* | 100.09\*\* | 0.34\*\* | 13.73\*\* | 50.70\*\* | 69.24\*\* |
| Parents vs Crosses | 1 | 1.07 | 5.13\*\* | 189.16\*\* | 22.98\*\* | 4224.06\*\* | 0.11\* | 58.82\*\* | 0.43\*\* | 85.80\*\* | 56.54\*\* | 416.82\*\* |
| Crosses | 59 | 7.61\*\* | 20.44\*\* | 291.08\*\* | 7.37\*\* | 1643.10\*\* | 0.06\*\* | 133.30\*\* | 0.26\*\* | 16.57\*\* | 23.08\*\* | 47.42\*\* |
| Lines | 9 | 18.29\*\* | 20.71 | 703.66\*\* | 8.67 | 2533.13 | 0.05\*\* | 121.08 | 0.46 | 18.84 | 39.09 | 84.27 |
| Testers | 5 | 22.29\*\* | 34.71\*\* | 246.84\*\* | 5.79\*\* | 740.04\*\* | 0.06 | 128.30\*\* | 0.20 | 12.27\*\* | 1.07 | 16.13\*\* |
| Line x Testers | 45 | 3.84\*\* | 18.81\*\* | 213.48\*\* | 7.28\*\* | 1565.43\*\* | 0.06\*\* | 136.30\*\* | 0.23\*\* | 16.60\*\* | 22.33\*\* | 43.53\*\* |
| Error | 150 | 0.77 | 0.63 | 6.83 | 0.07 | 120.54 | 0.02 | 14.03 | 0.02 | 1.39 | 0.15\*\* | 12.58 |
| Total | 227 | 4.14 | 7.23 | 91.49 | 2.23 | 597.37 | 0.03 | 50.95 | 0.11 | 6.51 | 9.70 | 27.14 |

**Table 4: Heterosis of some promising hybrids for seed yield per plant and its components in sesame**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Cross** | **Days to 50% flowering** | | | **Days to maturity** | | | **Plant height (cm)** | | | **No. of effective primaries/ plant** | | |
| HB | SH1 | SH2 | HB | SH1 | SH2 | HB | SH1 | SH2 | HB | SH1 | SH2 |
| SI-7818 x SI-3171 | -6.09\* | -5.26\* | -10.00 \*\* | 0.00 | 0.71 | 2.16 | 10.26\*\* | -0.57 | -1.25 | 81.15\*\* | 46.61\*\* | 70.44 \*\* |
| SI-7818 x KMS 5-396 | -1.71 | 0.88 | -4.17 | -1.06 | -0.35 | 1.08 | 2.34 | 7.16\* | 6.42 | -11.02\*\* | -4.24 | 11.33 |
| KKS-98049 x SI-3171 | -8.80\*\* | 0.00 | -5.00 \* | 0.00 | -2.48 | -1.08 | -6.19 | -1.65 | -2.33 | 37.80\*\* | 22.03\*\* | 41.87 \*\* |
| KKS-98049 x KMR-78 | -1.60 | 7.89\*\* | 2.50 | -1.06 | -0.71 | 0.72 | -5.01 | -0.41 | -1.10 | 20.57\*\* | 6.78\* | 24.14 \*\* |
| CST 2001-5 x JCS-507 | -6.15\*\* | 7.02\*\* | 1.67 | 2.48 | 2.48 | 3.96 \*\* | -1.10 | 0.00 | 0.59 | 3.85 | 2.97 | 19.70 \*\* |
| CST 2001-5 x KMS 5-.396 | 4.24 | 7.89\*\* | 2.50 | -0.71 | -0.71 | 0.72 | -0.47 | 4.23 | 3.51 | -27.95\*\* | -22.46\*\* | -9.85 |
| KMR-24 x IS 562 B | -10.00\*\* | -5.26\* | -10.00\*\* | -8.08\*\* | -3.19\* | -1.80 | -2.80 | -0.54 | -1.23 | 6.73\* | -5.93\* | 9.36 |
| KMR-24 x TKG-22 | -0.85 | 2.63 | -2.50 | 4.95\*\* | 5.32\*\* | 6.83 \*\* | -5.09 | -4.85 | -5.50 | 0.00 | -24.58\*\* | -12.32 |
| KMR-24 x KMS 5-396 | -5.13\* | -2.63 | -7.50 \*\* | 3.91\*\* | 3.55\*\* | 5.04 \*\* | -5.88 | -1.44 | -2.12 | -27.95\*\* | -22.46\*\* | -9.85 |
| JCS-720 x IS 562 B | 1.67 | 7.02\*\* | 1.67 | -3.37\*\* | 1.77 | 3.24 \* | -3.20 | -0.95 | -0.61 | -11.54\*\* | -22.03\*\* | -9.36 |
| JCS-720 x TKG-22 | 2.50 | 7.89\*\* | 2.50 | 5.65\*\* | 6.03\*\* | 6.83 \*\* | -2.99 | -8.79 | -9.67 \*\* | -17.28\*\* | -33.05\*\* | -19.21 \*\* |
| JCS-724 x SI-3171 | -3.48 | -2.63 | -7.50 \*\* | 4.00\*\* | 1.42 | 2.88 \* | 3.53 | 3.48 | 2.76 | -29.84\*\* | -43.22\*\* | -33.99 \*\* |
| S-0018 x IS 562 B | -4.76\* | 5.26\* | 0.00 | -5.39\*\* | -0.35 | 1.08 | -11.49 \*\* | -7.84 \* | -8.47 \* | -17.31\*\* | -27.12\*\* | -16.26 \* |
| S-0018 x TKG-22 | -0.79 | 9.65\*\* | 4.17 | -4.48\*\* | -1.77 | -0.36 | -27.23 \*\* | -24.23 \*\* | -24.75 \*\* | 14.61\*\* | -13.56\*\* | 0.49 |
| IS 1547 A x KMS 5-396 | -7.52\*\* | 7.89\*\* | 2.50 | 1.38 | 4.26\*\* | 5.76 \*\* | -7.26 \* | -2.89 | -3.30 | -3.94 | 3.39 | 20.20 \*\* |
| PKDS-62 x IS 562 B | -5.00\* | 0.00 | -5.00 \* | -5.65\*\* | 0.71 | 2.16 | 2.39 | 4.77 | 4.04 | 82.69\*\* | 61.02\*\* | 87.19 \*\* |

**Table 4. contd..**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Cross** | **No. of**  **effective capsules/plant** | | | **Capsule length (cm)** | | | **No. of seeds/ capsule** | | | **1000-seed weight (g)** | | |
| HB | SH1 | SH2 | HB | SH1 | SH2 | HB | SH1 | SH2 | HB | SH1 | SH2 |
| SI-7818 x SI-3171 | 38.02\*\* | 14.85\* | 5.90 | 11.37\*\* | 6.37 | 15.76 \*\* | 3.36 | 8.49 | 25.87 \*\* | 4.75 | 6.50 | 7.18 |
| SI-7818 x KMS 5-396 | 95.07\*\* | 18.65\*\* | 9.41 | -5.15 | -10.24\*\* | -2.31 | -2.91 | 12.47\* | 30.48 \*\* | 13.30\*\* | 18.54\*\* | 19.29 \*\* |
| KKS-98049 x SI-3171 | 19.91\*\* | 13.98\* | 5.10 | -2.34 | -6.37 | 1.90 | 6.88 | -2.21 | 13.45 \* | -5.33 | 2.22 | 2.87 |
| KKS-98049 x KMR-78 | -6.69 | -11.30\* | -18.21 \*\* | -7.03 | -10.86\*\* | -2.99 | 5.50 | 20.63\*\* | 39.96 \*\* | -15.22\*\* | 15.24\*\* | 15.97 \*\* |
| CST 2001-5 x JCS-507 | -14.16\* | -14.76\* | -21.40 \*\* | -11.41\*\* | -9.86\* | -1.90 | 16.20\*\* | 27.48\*\* | 47.90 \*\* | -11.76\*\* | 15.00\*\* | 15.73 \*\* |
| CST 2001-5 x KMS 5-.396 | 28.18\*\* | -2.30 | -9.91 | -4.29 | -2.62 | 5.98 | -7.48 | 7.17 | 24.34 \*\* | -1.70 | 28.11\*\* | 28.93 \*\* |
| KMR-24 x IS 562 B | 1.69 | -8.72 | -15.83 \*\* | 3.58 | -5.99 | 2.31 | -7.18 | 1.32 | 17.55 \*\* | -1.65 | 4.47 | 5.13 |
| KMR-24 x TKG-22 | -22.16\*\* | -30.14\*\* | -35.58 \*\* | 3.63 | -7.37 | 0.82 | -9.05\* | 4.30 | 21.01 \*\* | -22.36\*\* | 4.51 | 5.18 |
| KMR-24 x KMS 5-396 | -2.61 | -12.59\* | -19.40 \*\* | 11.34\* | -4.37 | 4.08 | 9.29\* | 26.59\*\* | 46.87 \*\* | -8.73 | -3.04 | -2.43 |
| JCS-720 x IS 562 B | 10.48 | -2.05 | -9.68 | -11.45\*\* | -15.98\*\* | -8.56 \* | -12.23\*\* | 2.20 | 18.57 \*\* | -12.48\* | -4.09 | -3.48 |
| JCS-720 x TKG-22 | 7.87 | -8.51 | -15.64 \*\* | -0.13 | -5.24 | 3.13 | -10.33\* | 4.41 | 20.11 \*\* | -30.75\*\* | -6.77 | -6.18 |
| JCS-724 x SI-3171 | 4.00\*\* | 1.42 | -23.43 \*\* | 3.53 | 3.48 | 0.54 | 19.96\*\* | 25.71\*\* | 45.85  \*\* | -7.18 | 2.25 | 2.90 |
| S-0018 x IS 562 B | -5.39\*\* | -0.35 | -28.63 \*\* | -11.49\*\* | -7.84\* | 1.63 | -26.39\*\* | -16.56\*\* | -3.19 | -5.69 | 2.83 | 3.48 |
| S-0018 x TKG-22 | -4.48\*\* | -1.77 | 1.23 | -27.23\*\* | -24.23\*\* | 0.54 | -13.19\*\* | -0.45 | 15.50 \*\* | -13.19\*\* | -0.45 | 10.87 \* |
| IS 1547 A x KMS 5-396 | 35.73\*\* | 4.63 | -3.52 | 6.41 | -2.62 | 5.98 | -11.39\* | 2.64 | 19.09 \*\* | -13.76\*\* | 0.60 | 1.24 |
| PKDS-62 x IS 562 B | 33.90\*\* | 22.22\*\* | 12.70 \* | 23.93\*\* | 12.48\*\* | 22.42 \*\* | 5.30 | 2.97 | 19.47 \*\* | 8.32 | 9.24 | 9.94 |

**Table 4. contd..**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Cross** | **Seed yield/plant (g)** | | | **Oil content (%)** | | | **Chlorophyll content (SPAD Units)** | | |
| HB | SH1 | SH2 | HB | SH1 | SH2 | HB | SH1 | SH2 |
| SI-7818 x SI-3171 | 58.11\*\* | 17.90\*\* | 38.04 \*\* | 6.91\*\* | -1.28\* | 2.99 \*\* | 3.69 | 0.20 | -19.60 \*\* |
| SI-7818 x KMS 5-396 | 36.48\*\* | 1.77 | 19.16 **\*\*** | -10.81\*\* | -18.94\*\* | -15.44 \*\* | 5.41 | -0.19 | -19.91 \*\* |
| KKS-98049 x SI-3171 | 30.38\*\* | 14.35\* | 33.88 \*\* | -14.23\*\* | -20.79\*\* | -17.37 \*\* | 13.80\* | 21.36\*\* | -2.62 |
| KKS-98049 x KMR-78 | 35.73\*\* | 19.04\*\* | 40.27 \*\* | -7.79\*\* | -22.19\*\* | -18.83 \*\* | 1.97 | 8.74 | -12.74 \* |
| CST 2001-5 x JCS-507 | 29.16\*\* | 2.53 | 20.05 \*\* | -6.08\*\* | -20.22\*\* | -16.77 \*\* | 0.81 | 6.47 | -14.57 \*\* |
| CST 2001-5 x KMS 5-.396 | 37.99\*\* | 9.54 | 28.25 \*\* | -11.96\*\* | -22.07\*\* | -18.70 \*\* | -0.65 | 4.93 | -15.81 \*\* |
| KMR-24 x IS 562 B | 16.26 | -20.57\*\* | -7.00 | 1.66\* | -18.18\*\* | -14.64 \*\* | -17.64\*\* | -1.41 | -20.89 \*\* |
| KMR-24 x TKG-22 | -11.47 | -26.80\*\* | -14.30 \* | 2.77\*\* | -17.28\*\* | -13.71 \*\* | -22.67\*\* | -7.43 | -25.72 \*\* |
| KMR-24 x KMS 5-396 | 22.54\* | -26.52\*\* | -13.97 \* | -7.85\*\* | -18.43\*\* | -14.90 \*\* | -1.20 | 18.26\*\* | -5.11 |
| JCS-720 x IS 562 B | -10.12 | -27.36\*\* | -14.96 \* | 6.52\*\* | -18.75\*\* | -15.24 \*\* | 24.71\*\* | 21.53\*\* | -2.48 |
| JCS-720 x TKG-22 | -20.45\*\* | -34.23\*\* | -22.99 \*\* | 6.61\*\* | -18.69\*\* | -15.17 \*\* | 13.73\* | 10.96 | -10.97 \* |
| JCS-724 x SI-3171 | 45.00\*\* | -7.93 | 7.80 | -14.36\*\* | -20.92\*\* | -17.50 \*\* | 27.07\*\* | 22.79\*\* | -1.47 |
| S-0018 x IS 562 B | -3.54 | -18.59\*\* | -4.69 | 7.03\*\* | -21.36\*\* | -17.96 \*\* | 10.02 | 20.85\*\* | -3.03 |
| S-0018 x TKG-22 | -0.54 | -16.06\* | -4.28 | 10.94\*\* | -18.49\*\* | -14.97 \*\* | -3.99 | 5.47 | -15.38 \*\* |
| IS 1547 A x KMS 5-396 | 41.26\*\* | 7.97 | 26.41 \*\* | -12.46\*\* | -22.51\*\* | -19.16 \*\* | 3.71 | 10.93 | -10.99 \* |
| PKDS-62 x IS 562 B | 47.41\*\* | 19.51\*\* | 45.03 \*\* | -6.51\*\* | -20.34\*\* | -16.90 \*\* | -7.95 | 19.60\*\* | -4.04 |

**Table 5: Over all performance of superior 10 heterotic crosses for seed yield and other component characters in sesame**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Cross** | ***per se*** | **Heterosis & *sca*** | **Days to 50% flowering** | **Days to maturity** | **Plant height**  **(cm)** | **No. of effective primaries/ plant** | **No. of**  **effective capsules/plant** | **Capsule length**  **(cm)** | **No. of seeds/ capsule** | **1000-seed weight**  **(g)** | **Seed**  **yield/plant (g)** | **Oil**  **content**  **(%)** | **Chlorophyll content (SPAD Units)** |
| PKDS-62 x IS 562 B | 18.24 | MP | -3.39 | -5.02\*\* | 5.12 | 103.21\*\* | 35.58\*\* | 25.49\*\* | 6.72 | 16.87\*\* | 59.99\*\* | 6.75\*\* | 10.33 |
|  |  | BP | -5.00\* | -5.65\*\* | 2.39 | 82.69\*\* | 33.90\*\* | 23.93\*\* | 5.30 | 8.32 | 47.41\*\* | -6.51\*\* | -7.95 |
|  |  | SH | 0.00 | 0.71 | 4.77 | 61.02\*\* | 22.22\*\* | 12.48\*\* | 2.97 | 9.24 | 19.51\*\* | -20.34\*\* | 19.60\*\* |
|  |  | *sca* | -1.11\* | -0.45 | 8.05\*\* | 4.55\*\* | 38.41\*\* | 0.42\*\* | -0.62 | 0.19\* | 6.33\*\* | 0.53\* | 4.36\* |
| KKS-98049 x KMR-78 | 18.17 | MP | 2.93 | 0.36 | -3.04 | 27.59\*\* | -5.06 | -3.58 | 18.87\*\* | -5.51 | 38.71\*\* | -3.71\*\* | 2.21 |
|  |  | BP | -1.60 | -1.06 | -5.01 | 20.57\*\* | -6.69 | -7.03 | 5.50 | -15.22\*\* | 35.73\*\* | -7.79\*\* | 1.97 |
|  |  | SH | 7.89\*\* | -0.71 | -0.41 | 6.78\* | -11.30\* | -10.86\*\* | 20.63\*\* | 15.24\*\* | 19.04\*\* | -22.19\*\* | 8.74 |
|  |  | *sca* | 1.36\*\* | -0.72 | 1.62 | 0.64\*\* | -12.79\* | 0.00 | 10.18\*\* | 0.24\*\* | 4.54\*\* | -0.48\* | 1.92 |
| SI-7818 x SI-3171 | 17.99 | MP | -4.42 | 1.61 | 13.37\*\* | 99.42\*\* | 62.61\*\* | 11.88\*\* | 10.45\* | 6.57 | 79.24\*\* | 7.76\*\* | 4.74 |
|  |  | BP | -6.09\* | 0.00 | 10.26\*\* | 81.15\*\* | 38.02\*\* | 11.37\*\* | 3.36 | 4.75 | 58.11\*\* | 6.91\*\* | 3.69 |
|  |  | SH | -5.26\* | 0.71 | -0.57 | 46.61\*\* | 14.58\* | 6.37 | 8.49 | 6.50 | 17.90\*\* | -1.28\* | 0.20 |
|  |  | *sca* | -1.85\*\* | 1.83\*\* | -1.56 | 3.82\*\* | 24.53\*\* | 0.29\*\* | 7.73\*\* | 0.06 | 3.23\*\* | 9.18\*\* | -2.29 |
| CST 2001-5 x TKG-22 | 17.69 | MP | 0.00 | -3.01\*\* | 5.82 | 9.71\*\* | 23.07\*\* | -3.33 | -1.86 | -2.84 | 43.08\*\* | 11.35\*\* | 4.79 |
|  |  | BP | 0.00 | -3.18\* | 3.12 | -3.42 | 16.83\* | -9.20\* | -5.87 | -4.38 | 40.22\*\* | 0.15 | 0.80 |
|  |  | SH | 3.51 | -2.84\* | -1.19 | -4.24 | -0.91 | -7.62 | 7.94 | 28.72\*\* | 15.94\* | -14.92\*\* | 6.46 |
|  |  | *sca* | -0.99 | -1.59\*\* | 0.31 | 1.42\*\* | 26.02\*\* | -0.10 | 0.42 | 0.21\* | 3.85\*\* | 1.41\*\* | -0.25 |
| KKS-98049 x SI-3171 | 17.45 | MP | -5.00\* | 0.00 | 0.86 | 44.00\*\* | 27.88\*\* | -2.15 | 8.58 | -0.84 | 58.07\*\* | -10.36\*\* | 19.41\*\* |
|  |  | BP | -8.80\*\* | 0.00 | -6.19 | 37.80\*\* | 19.91\*\* | -2.34 | 6.88 | -5.33 | 30.38\*\* | -14.23\*\* | 13.80\* |
|  |  | SH | 0.00 | -2.48 | 1.65 | 22.03\*\* | 13.98\* | -6.34 | -2.21 | 2.22 | 14.35\* | -20.79\*\* | 21.36\*\* |
|  |  | *sca* | -1.07\* | -2.12\*\* | -0.73 | 1.41\*\* | 26.17\*\* | 0.03 | 1.89 | -0.06 | 3.07\*\* | 0.7099 | 5.12\* |

**Table 5. contd…**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Cross** | ***per se*** | **Heterosis & *sca*** | **Days to 50% flowering** | **Days to maturity** | **Plant height**  **(cm)** | **No. of effective primaries/ plant** | **No. of**  **effective capsules/plant** | **Capsule length**  **(cm)** | **No. of seeds/ capsule** | **1000-seed weight**  **(g)** | **Seed**  **yield/plant (g)** | **Oil**  **content**  **(%)** | **Chlorophyll content (SPAD Units)** |
| KMR-24 x KMR-78 | 16.90 | MP | 7.34\*\* | -3.55\*\* | 5.34 | 26.38\*\* | 7.06 | 5.07 | 8.64\* | -6.15 | 53.90\*\* | 2.55\*\* | -1.78 |
|  |  | BP | 2.63 | -3.89\*\* | 5.18 | 17.20\*\* | 5.87 | 3.23 | 6.18 | -16.40\*\* | 31.91\*\* | 0.48 | -7.34 |
|  |  | SH | 2.63 | -3.55\*\* | 5.77 | -7.63\*\* | -2.81 | -8.11\* | 21.41\*\* | 13.63\* | 10.73 | -19.13\*\* | 10.91 |
|  |  | *sca* | 1.69\*\* | -3.38\*\* | 9.41\*\* | 1.13\*\* | 14.56\* | 0.03 | 6.80\*\* | 0.36\*\* | 4.71\*\* | -0.35 | 3.23 |
| CST 2001-5 x KMS 5-396 | 16.72 | MP | 4.68\* | -0.36 | 3.95 | -25.00\*\* | 42.58\*\* | 5.41 | -3.07 | 9.05\* | 67.58\*\* | -10.15\*\* | 5.28 |
|  |  | BP | 4.24 | -0.71 | -0.47 | -27.95\*\* | 28.18\*\* | -4.29 | -7.48 | -1.70 | 37.99\*\* | -11.96\*\* | -0.65 |
|  |  | SH | 7.89\*\* | -0.71 | 4.23 | -22.46\*\* | -2.30 | -2.62 | 7.17 | 28.11\*\* | 9.54 | -22.07\*\* | 4.93 |
|  |  | *sca* | 1.14\* | -0.86 | 5.03\*\* | -0.79\*\* | 11.79 | 0.07 | -2.90 | 0.02 | 1.43\* | -2.20\*\* | -0.70 |
| IS-1547 A x KMS 5-396 | 16.48 | MP | -1.60 | 3.16\*\* | -5.16 | 15.91\*\* | 51.73\*\* | 11.59\*\* | -6.65 | -9.07\* | 68.99\*\* | -10.79\*\* | 10.55 |
|  |  | BP | -7.52\*\* | 1.38 | -7.26\* | -3.94 | 35.73\*\* | 6.41 | -11.39\* | -13.76\*\* | 41.26\*\* | -12.46\*\* | 3.71 |
|  |  | SH | 7.89\*\* | 4.26\*\* | -2.89 | 3.39 | 4.64 | -2.62 | 2.64 | 0.60 | 7.97 | -22.51\*\* | 10.93 |
|  |  | *sca* | 0.25 | 0.53 | 7.59\*\* | 0.80\*\* | 35.92\*\* | 0.15\* | 0.04 | -0.10 | 4.00\*\* | 2.44\*\* | -2.31 |
| KMR-108 x SI-3171 | 15.96 | MP | -0.45 | 0.53 | -18.83\*\* | 1.75 | 16.91\*\* | 5.16 | 2.38 | 15.02\*\* | 33.22\*\* | -10.19\*\* | 22.75\*\* |
|  |  | BP | -3.48 | -1.74 | -22.48\*\* | -2.86 | 12.24 | -1.44 | 1.33 | 14.11\*\* | 4.55 | -11.46\*\* | 20.96\*\* |
|  |  | SH | -2.63 | 0.35 | -23.20\*\* | -13.56\*\* | 1.50 | -5.87 | -7.29 | 12..04\* | 4.60 | -21.62\*\* | 16.78\* |
|  |  | *sca* | 0.04 | -0.95\* | -15.37\*\* | -0.46\*\* | 8.89 | 0.07 | 0.08 | 0.34\*\* | 2.29\*\* | -6.81\*\* | 0.31 |
| S-0018 x KMR-78 | 15.71 | MP | -7.50\*\* | -3.66\*\* | -9.29\*\* | 38.50\*\* | -3.45 | 0.56 | -11.68\*\* | -17.68\*\* | 22.27\*\* | 0.97 | 16.79\*\* |
|  |  | BP | -11.90\*\* | -4.83\*\* | -10.84\*\* | 34.44\*\* | -4.99 | 0.14 | -12.07\*\* | -25.83\*\* | 21.95\*\* | -1.49 | 14.82\* |
|  |  | SH | -2.63 | -2.13 | -7.16\* | 5.93\* | -9.90 | -10.86\*\* | 0.55 | 0.82 | 2.92 | -23.92\*\* | 26.12\*\* |
|  |  | *sca* | -2.42\*\* | -0.88 | 7.43\*\* | 1.23\*\* | 4.15 | -0.06 | -1.24 | -0.02 | 2.52\*\* | -1.45\*\* | 4.70\* |