**Table S1. Details of the parents (lines and testers) and check**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Sr. No. | ID No. | Parents | Pod colour | Source |
|  | **Lines** |  |  |  |
| 1 | L1 | IC-685583 | Red | NBPGR, New Delhi |
| 2 | L2 | Arka Anamika | Dark green | IIHR, Bangalore |
| 3 | L3 | DOV-92 | Dark green | IARI, New Delhi |
| 4 | L4 | VRO-6 | Medium green | IIVR, Varanasi |
| 5 | L5 | DOV-2 | Medium green | IARI, New Delhi |
| 6 | L6 | DOV-62 | Medium green | IARI, New Delhi |
| 7 | L7 | DOV-37 | Light green | IARI, New Delhi |
| 8 | L8 | DOV-25 | Medium green | IARI, New Delhi |
| 9 | L9 | DOV-1 | Dark green | IARI, New Delhi |
| 10 | L10 | DOV-64 | Medium green | IARI, New Delhi |
|  | **Testers** |  |  |  |
| 11 | T1 | Pusa Sawani | Light green | IARI, New Delhi |
| 12 | T2 | Pusa Bhindi-5 | Medium green | IARI, New Delhi |
| 13 | T3 | Pusa A-4 | Medium green | IARI, New Delhi |
| 14 | **Check** | Shakti | Pod colour | Nunhems India Pvt. Lt., Haryana |

**Table S2.** Classification of disease symptom, severity grade, coefficient of infection and categorization of disease reaction

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Symptoms | Severity grade | Response Value (RV) | Coefficient of Infection (CI) value | Disease reaction |
| Symptoms completely absent | 0 | 0 | 0-4 | Highly Resistant (HR) |
| Mild symptom upto 25% leaves | 1 | 0.25 | 5-9 | Resistant (R) |
| Occurrence of symptoms upto 26-50% of leaves | 2 | 0.50 | 10-19 | Moderately Resistant (MR) |
| Occurrence of leaves upto 51-75% leaves | 3 | 0.75 | 20-39 | Moderately Susceptible (MS) |
| Severe disease infection in symptoms (> 75% leaves) | 4 | 1.00 | 40- 69 | Susceptible (S) |
|  | | | 70-100 | Highly Susceptible (HS) |

**Table S3. List of 50 polymorphic SSR markers, their forward and reverse sequences and annealing temperature (Tm)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Sr. No. | Marker | Forward primer | Reverse primer | Tm |
| 1 | **AVRDC OKRA 1** | ATGGAGTGATTTTTGTGGAG | GACCCGAACTCACGTTACTA | 52.05 |
| 2 | **AVRDC OKRA 8** | TGCTGTGGAAGGTTTTTACT | ATGACGAAAGTGGTGAAAAG | 51.40 |
| 3 | **AVRDC OKRA 9** | ACCTTGAACACCAGGTACAG | TTGCTCTTATGAAGCAGTGA | 53.00 |
| 4 | **AVRDC OKRA 17** | ACGAGAGTGAAGTGGAACTG | CTCCTCTTTCCTTTTTCCAT | 52.10 |
| 5 | **AVRDC OKRA 21** | TCATGTCTTTCCACTCAACA | CCAAACAAAATATGCCTCTC | 50.40 |
| 6 | **AVRDC OKRA 28** | CCTCTTCATCCATCTTTTCA | GGAAGATGCTGTGAAGGTAG | 51.10 |
| 7 | **AVRDC OKRA 39** | TGAGGTGATGATGTGAGAGA | TTGTAGATGAGGTTTGAACG | 51.30 |
| 8 | **AVRDC OKRA 52** | AACACATCCTCATCCTCATC | ACCGGAAGCTATTTACATGA | 51.40 |
| 9 | **AVRDC OKRA 54** | CGAAAAGGAAACTCAACAAC | TGAACCTTATTTTCCTCGTG | 50.00 |
| 10 | **AVRDC OKRA 56** | GGCAACTTCGTAATTTCCTA | TGAGTAAAAGTGGGGTCTGT | 51.70 |
| 11 | **AVRDC OKRA 63** | GTGTTTGAAAGGGACTGTGT | CTTCATCAAAACCATGCAG | 51.30 |
| 12 | **AVRDC OKRA 64** | AAGGAGGAGAAAGAGAAGGA | ATTTACTTGAGCAGCAGCAG | 52.80 |
| 13 | **AVRDC OKRA 70** | GTAGCTGAACCCTTTGCTTA | CTATCATGGCGGATTCTTTA | 50.90 |
| 14 | **AVRDC OKRA 77** | CTGTTTGTTCGTCGTAATCA | AAAGTTTCTTCCTTTCCACC | 50.60 |
| 15 | **AVRDC OKRA 78** | CTCCGACAATTCAAGAAAAG | CACCCAATCAAGCTATGTTA | 49.60 |
| 16 | **AVRDC OKRA 86** | ATGCAAACAAGCTAGTGGAT | ATTCTCTTCAGGGTTTCCTC | 51.90 |
| 17 | **AVRDC OKRA 89** | TTTGAGTTCTTTCGTCCACT | GTATTTGGACATGGCGTTAT | 51.10 |
| 18 | **OKRA 12** | AATGAAGTTGGAGTCGACAG | CAATACTCGTTGTTGTGGTG | 51.95 |
| 19 | **OKRA 14** | GGCTTAAGAATAGCGATTGA | AATCATCCAAGCATATCCAC | 50.05 |
| 20 | **OKRA 103** | GAATTCGATTCCAATACAGG | TCGTCGTCTTCATTTCTCTT | 49.85 |
| 21 | **OKRA 109** | TTTCCCTAATGAGTGGACC | GGGTCTGTTTTGTTGTTGTT | 51.45 |
| 22 | **OKRA 110** | GGCAACAACAGTTCTCCTT | AATTGGGGTTAGTGACGATA | 51.90 |
| 23 | **OKRA 113** | ACGAGAGTGAAGTGGAACTG | CTCCTCTTTCCTTTTTCCAT | 52.10 |
| 24 | **OKRA 115** | CCAAAGTCTGGTTCTCATTC | CAATCTCCCATGGTTTAGAA | 50.25 |
| 25 | **OKRA 119** | GCAGCGGTAGAAATAAATGT | GGAGGGTTTAGGTATGGTTT | 51.20 |
| 26 | **OKRA 124** | CGTCGAAGGATTTCACTATC | CAATTGCACATCAGATTCAC | 50.10 |
| 27 | **OKRA 125** | CCCCTTCCTCTAGATCTCAT | GACGGTGGAGATTGAACTT | 52.35 |
| 28 | **OKRA 126** | TGAAGCACAGATCAAAGATG | ATACAGGCAAAGCACAGAGT | 52.30 |
| 29 | **OKRA 127** | ATTCCCACCATCACAACTAC | GTCGAATTCCACCAATAAGA | 51.05 |
| 30 | **OKRA 128** | GAACTTCTGTGCGGTATGAT | ACCGTTATTTTCTGCCTCTT | 52.15 |
| 31 | **OKRA 131** | GTGATTTCTCGTTTCTTTGC | AGGGAAGGATTAGACTGAGG | 51.45 |
| 32 | **OKRA 135** | GTGATTATGGTTGCCTGAAT | CCCACTGACAGCTTATTGAA | 51.45 |
| 33 | **OKRA 141** | TATCCCGATACTTTCTCCAA | TTAGCCTCTAAGGGGAAAAG | 50.70 |
| 34 | **OKRA 142** | AAGCAAAGTGAAGAGAGTCG | CCTCTCTGAGTCGGTATCTG | 53.10 |
| 35 | **OKRA 144** | ATCTCCTATCTGTCTCCGGT | ACTTGGCAACTAAGCAAAAG | 52.80 |
| 36 | **OKRA 145** | TTCTAGCTGCACATAAAGCA | TACCACCCTTGTACCTGTTC | 52.90 |
| 37 | **OKRA 147** | GAGGAATGTAATGTTGTGGG | ATTAGATCGACTCAGCGAAA | 51.05 |
| 38 | **OKRA 148** | TGCTTATTCATGCTGACCTA | AGCACTTGATATCCAAGGAA | 51.10 |
| 39 | **OKRA 151** | AAAAGACTCATCGTGGACC | GTGATTCCCTAATCCAAACA | 51.05 |
| 40 | **OKRA 152** | GCTCTATTGATGGCGAGTAA | AAAGTCATCCAAGGTGACAA | 50.90 |
| 41 | **OKRA 156** | CTCTCTTTGATCAGGAGCTG | TCAAGGACCGAATTATCATC | 50.95 |
| 42 | **OKRA 157** | CAGAAACATCTCCAACATCA | ACACTTTTCAAGGGAAACC | 50.30 |
| 43 | **OKRA 164** | CAGAAGGTCCCTTTATTCCT | TCACCCAACCATTTCTCTAC | 51.65 |
| 44 | **OKRA 165** | GAGCTAAACCTTGCTTTTGA | CTCTTATGACTTCGGTCCAG | 51.55 |
| 45 | **OKRA 166** | TTCCAGTTGGAGAGGTAAGA | CTTCCATTTCATCGACTTTC | 50.75 |
| 46 | **OKRA 167** | CGGCACTCACATTTTACATA | GCTGTGAAGCTCTCAAAAGT | 51.75 |
| 47 | **OKRA 169** | CTGATTCAAAGCCTCAAGAC | ATTATCTTTCCCAAGGCAAC | 50.85 |
| 48 | **OKRA 174** | ATGAGCTGTTCTTTGCAGAT | CTCCTTTAAGAACTGGGGAT | 51.80 |
| 49 | **OKRA 175** | CCATTTACTACCCCTTCTCC | CTCAGAATGTGTGATGATGC | 51.65 |
| 50 | **OKRA 183** | TCCCACATCAAAGGTATTTC | ATAGCAGAGGCAATCTTTCA | 50.50 |

**Table S4. Details of genetic distance between 13 parents revealed from calibration of 50 polymorphic SSR loci**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Parents | Pusa Sawani | Pusa Bhindi-5 | DOV- 92 | IC- 685583 | Arka Anamika | Pusa A-4 | VRO-6 | DOV-2 | DOV-62 | DOV-37 | DOV-25 | DOV-1 |
| **Pusa Bhindi-5** | 0.031 |  |  |  |  |  |  |  |  |  |  |  |
| **DOV- 92** | 0.073 | 0.079 |  |  |  |  |  |  |  |  |  |  |
| **IC- 685583** | 0.065 | 0.072 | 0.094 |  |  |  |  |  |  |  |  |  |
| **Arka Anamika** | 0.067 | 0.073 | 0.095 | 0.062 |  |  |  |  |  |  |  |  |
| **Pusa A-4** | 0.062 | 0.069 | 0.091 | 0.040 | 0.059 |  |  |  |  |  |  |  |
| **VRO-6** | 0.077 | 0.084 | 0.106 | 0.073 | 0.030 | 0.069 |  |  |  |  |  |  |
| **DOV-2** | 0.083 | 0.090 | 0.112 | 0.061 | 0.080 | 0.043 | 0.091 |  |  |  |  |  |
| **DOV-62** | 0.034 | 0.040 | 0.062 | 0.054 | 0.055 | 0.051 | 0.066 | 0.072 |  |  |  |  |
| **DOV-37** | 0.073 | 0.080 | 0.074 | 0.094 | 0.096 | 0.091 | 0.106 | 0.112 | 0.063 |  |  |  |
| **DOV-25** | 0.065 | 0.072 | 0.082 | 0.086 | 0.088 | 0.083 | 0.098 | 0.104 | 0.055 | 0.083 |  |  |
| **DOV-1** | 0.048 | 0.055 | 0.065 | 0.069 | 0.071 | 0.066 | 0.081 | 0.087 | 0.038 | 0.066 | 0.040 |  |
| **DOV-64** | 0.052 | 0.058 | 0.069 | 0.073 | 0.074 | 0.070 | 0.085 | 0.091 | 0.041 | 0.069 | 0.044 | 0.027 |

**Table S5. *Per se* Performance of the Parents and hybrids for yield and its attributing traits in okra**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Parents | Days to first flower | Days to 50% flower | Node at first flower | Average fruit weight (g) | Fruit length (cm) | Fruit diameter (cm) | Plant height (cm) | Yield per plant (g) | Number of fruits | CI |
| Lines |  |  |  |  |  |  |  |  |  |  |
| IC- 685583 | 46.33 ± 2.08 | 52.00 ± 2.65 | 10.00 ± 0.42 | 10.19 ± 0.23 | 8.93 ± 4.92 | 1.49 ± 0.04 | 83.67 ± 8.96 | 120.00 ± 10.41 | 11.79 ± 0.76 | 22.50± 2.50 |
| Arka Anamika | 43.33 ± 1.53 | 49.00 ± 1.00 | 8.00 ± 0.12 | 16.24 ± 0.78 | 12.33 ± 7.05 | 1.63 ± 0.01 | 76.67 ± 2.52 | 129.70 ± 2.05 | 8.06 ± 2.00 | 9.83± 1.01 |
| DOV- 92 | 51.33 ± 2.52 | 57.00 ± 2.65 | 6.67 ± 1.41 | 16.49 ± 3.23 | 11.48 ± 5.40 | 1.71 ± 0.07 | 126.00 ± 21.52 | 200.00 ± 9.29 | 12.41 ± 2.17 | 0.00± 0.00 |
| VRO- 6 | 44.00 ± 3.00 | 52.00 ± 2.00 | 9.00 ± 0.77 | 10.49 ± 1.56 | 8.65 ± 4.55 | 1.63 ± 0.01 | 92.00 ± 2.00 | 145.00 ± 6.10 | 13.93 ± 1.13 | 13.83±1.26 |
| DOV- 2 | 45.00 ± 2.00 | 48.00 ± 2.00 | 6.67 ± 0.12 | 19.86 ± 2.59 | 10.07 ± 5.74 | 2.37 ± 0.25 | 72.33 ± 5.51 | 149.67 ± 8.90 | 7.67 ± 1.59 | 13.83± 1.26 |
| DOV- 62 | 44.67 ± 2.52 | 50.00 ± 1.00 | 7.33 ± 1.42 | 15.89 ± 2.56 | 11.10 ± 5.57 | 1.55 ± 0.14 | 97.00 ± 8.00 | 160.33 ± 5.10 | 10.30 ± 2.05 | 6.83± 1.53 |
| DOV- 37 | 47.00 ± 3.00 | 51.00 ± 1.00 | 8.00 ± 1.21 | 17.03 ± 2.52 | 10.42 ± 5.32 | 1.87 ± 0.05 | 61.67 ± 4.51 | 119.57 ± 4.05 | 7.12 ± 1.00 | 13.33± 2.08 |
| DOV- 25 | 45.00 ± 2.00 | 50.00 ± 1.00 | 7.33 ± 0.19 | 11.78 ± 1.34 | 7.45 ± 4.19 | 1.58 ± 0.15 | 66.00 ± 4.00 | 143.00 ± 1.90 | 12.28 ± 2.05 | 10.50± 1.32 |
| DOV- 1 | 43.33 ± 3.51 | 50.33 ± 3.51 | 7.00 ± 0.63 | 10.78 ± 0.15 | 8.45 ± 4.51 | 1.75 ± 0.03 | 99.00 ± 1.00 | 145.00 ± 3.71 | 13.46 ± 0.75 | 20.75± 1.52 |
| DOV- 64 | 44.00 ± 1.00 | 48.33 ± 1.53 | 10.33 ± 1.39 | 15.88 ± 1.37 | 8.52 ± 4.12 | 1.82 ± 0.01 | 59.00 ± 2.00 | 158.63 ± 6.61 | 10.03 ± 0.68 | 27.67± 2.52 |
| Tester |  |  |  |  |  |  |  |  |  |  |
| Pusa Sawani | 43.00 ± 2.00 | 48.00 ± 3.00 | 7.67 ± 7.67 | 9.26 ± 0.14 | 7.27 ± 4.13 | 1.61 ± 0.05 | 78.00 ± 7.00 | 113.00 ± 5.10 | 12.20 ± 0.68 | 57.50± 4.67 |
| Pusa Bhindi- 5 | 42.00 ± 4.00 | 46.00 ± 3.00 | 6.67 ± 6.67 | 15.71 ± 1.41 | 11.37 ± 6.47 | 1.77 ± 0.08 | 91.67 ± 11.93 | 180.00 ± 10.41 | 11.47 ± 0.96 | 5.00± 1.15 |
| Pusa A-4 | 41.00 ± 3.00 | 45.00 ± 2.00 | 7.00 ± 7.00 | 11.25 ± 2.22 | 7.56 ± 3.84 | 1.79 ± 0.17 | 56.67 ± 1.53 | 150.00 ± 6.10 | 14.04 ± 1.06 | 9.58± 2.60 |
| Mean | 44.62 | 49.74 | 7.82 | 13.91 | 9.51 | 1.74 | 81.51 | 147.22 | 11.13 | 16.24 |
| Range | 40.00-45.33 | 44.00-52.67 | 5.33-11.33 | 7.32-18.76 | 6.67-13.33 | 1.38-1.98 | 58.67-146.00 | 123.97-240.00 | 7.12-14.04 | 0.00-57.50 |
| CD (5%) | 2.98 | 4.20 | 3.79 | 18.87 | 1.47 | 0.18 | 3.21 | 14.00 | 2.579 | 3.38 |
| CV | 3.94 | 5.54 | 4.50 | 7.56 | 9.14 | 6.22 | 13.58 | 10.13 | 13.64 | 12.29 |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Hybrid | Days to first flower | Days to 50% flower | Node at first flower | Average fruit weight (g) | Fruit length (cm) | Fruit diameter (cm) | Plant height (cm) | Yield per plant (g) | Number of fruits | CI |
| IC- 685583 x Pusa Sawani | 44.00 | 47.00 | 11.33 | 16.59 | 10.45 | 1.92 | 83.67 | 123.97 | 8.32 | 59.00 |
| IC- 685583 x Pusa Bhindi- 5 | 42.00 | 50.00 | 10.00 | 7.32 | 6.67 | 1.38 | 82.67 | 190.00 | 13.90 | 2.08 |
| IC- 685583 x Pusa A-4 | 40.00 | 45.33 | 8.33 | 12.00 | 10.52 | 1.50 | 79.00 | 160.00 | 13.63 | 8.75 |
| Arka Anamika x Pusa Sawani | 42.00 | 49.00 | 6.33 | 18.22 | 12.10 | 1.90 | 60.67 | 150.23 | 8.19 | 17.83 |
| Arka Anamika x Pusa Bhindi-5 | 41.00 | 51.00 | 7.00 | 12.29 | 10.71 | 1.60 | 59.67 | 159.57 | 13.64 | 2.17 |
| Arka Anamika x Pusa A-4 | 40.00 | 47.00 | 7.33 | 15.00 | 10.90 | 1.80 | 59.00 | 150.00 | 10.00 | 8.50 |
| DOV- 92 x Pusa Sawani | 43.67 | 48.33 | 8.67 | 15.00 | 13.17 | 1.80 | 143.33 | 230.00 | 15.36 | 1.33 |
| DOV- 92 x Pusa Bhindi- 5 | 41.00 | 49.00 | 7.33 | 16.33 | 13.33 | 1.90 | 146.00 | 240.00 | 17.67 | 0.00 |
| DOV- 92 x Pusa A-4 | 40.00 | 47.00 | 6.00 | 14.33 | 11.00 | 1.80 | 139.33 | 235.00 | 17.00 | 1.08 |
| VRO- 6 x Pusa Sawani | 44.00 | 52.00 | 9.33 | 12.66 | 9.11 | 1.79 | 95.00 | 150.33 | 11.95 | 31.25 |
| VRO- 6 x Pusa Bhindi- 5 | 42.00 | 47.67 | 7.33 | 10.05 | 10.21 | 1.58 | 92.33 | 185.13 | 17.07 | 8.00 |
| VRO- 6 x Pusa A-4 | 41.00 | 47.33 | 6.00 | 15.00 | 9.53 | 1.70 | 93.33 | 191.67 | 12.83 | 6.58 |
| DOV- 2 x Pusa Sawani | 42.00 | 45.00 | 6.67 | 13.65 | 7.89 | 1.92 | 78.00 | 180.00 | 13.23 | 11.17 |
| DOV- 2 x Pusa Bhindi- 5 | 42.00 | 52.67 | 8.00 | 12.19 | 10.12 | 1.58 | 77.67 | 179.77 | 14.87 | 6.50 |
| DOV- 2 x Pusa A-4 | 41.00 | 47.00 | 7.67 | 13.00 | 9.50 | 1.50 | 80.00 | 175.00 | 13.39 | 5.00 |
| DOV- 62 X Pusa Sawani | 44.00 | 47.00 | 7.67 | 12.43 | 9.66 | 1.63 | 102.67 | 175.20 | 14.16 | 4.83 |
| DOV- 62 x Pusa Bhindi- 5 | 42.00 | 48.00 | 8.00 | 13.33 | 10.28 | 1.68 | 94.00 | 184.47 | 13.87 | 3.17 |
| DOV- 62 x Pusa A-4 | 42.00 | 47.00 | 7.33 | 13.67 | 10.57 | 1.60 | 105.00 | 170.00 | 12.31 | 4.58 |
| DOV- 37 x Pusa Sawani | 44.00 | 51.00 | 7.00 | 17.89 | 11.65 | 1.95 | 78.33 | 135.90 | 7.72 | 13.33 |
| DOV- 37 x Pusa Bhindi- 5 | 43.00 | 51.00 | 7.67 | 17.40 | 9.05 | 1.70 | 75.67 | 180.00 | 10.59 | 3.58 |
| DOV- 37 x Pusa A-4 | 41.00 | 48.00 | 6.00 | 16.67 | 10.17 | 1.70 | 81.00 | 154.67 | 9.38 | 4.17 |
| DOV- 25 x Pusa Sawani | 45.33 | 48.67 | 7.67 | 10.78 | 8.65 | 1.52 | 58.67 | 138.50 | 12.87 | 13.25 |
| DOV- 25 x Pusa Bhindi- 5 | 43.33 | 45.67 | 6.67 | 9.88 | 7.31 | 1.58 | 59.00 | 171.00 | 15.65 | 14.33 |
| DOV- 25 x Pusa A-4 | 41.00 | 45.33 | 5.33 | 12.00 | 8.17 | 1.60 | 62.33 | 161.67 | 13.63 | 17.50 |
| DOV- 1 x Pusa Sawani | 42.00 | 46.33 | 6.33 | 8.52 | 7.19 | 1.70 | 84.00 | 150.67 | 16.45 | 24.00 |
| DOV- 1 x Pusa Bhindi- 5 | 42.00 | 48.00 | 6.33 | 17.58 | 11.44 | 1.93 | 73.00 | 170.67 | 9.91 | 7.00 |
| DOV- 1 x Pusa A-4 | 41.00 | 44.00 | 6.00 | 13.67 | 9.50 | 1.90 | 83.33 | 176.00 | 12.98 | 17.50 |
| DOV- 64 X Pusa Sawani | 44.33 | 48.33 | 7.00 | 15.29 | 9.33 | 1.85 | 67.67 | 150.53 | 10.05 | 43.33 |
| DOV- 64 X Pusa Bhindi- 5 | 45.00 | 49.00 | 9.00 | 18.76 | 11.06 | 1.98 | 61.67 | 180.33 | 9.61 | 26.75 |
| DOV- 64 x Pusa A-4 | 43.00 | 47.00 | 7.33 | 16.67 | 10.57 | 1.80 | 71.00 | 160.00 | 9.60 | 30.50 |
| Mean | 42.29 | 47.99 | 7.42 | 13.94 | 9.99 | 1.73 | 84.23 | 172.01 | 12.66 | 13.24 |
| Range | 40.00-45.33 | 44.00-52.67 | 5.33-11.33 | 7.32-18.76 | 6.67-13.33 | 1.38-1.98 | 58.67-146.00 | 123.97-240.00 | 7.72-17.67 | 0.00-59.00 |
| CD (5%) | 2.92 | 3.26 | 1.85 | 2.77 | 1.42 | 0.21 | 8.33 | 20.39 | 3.21 | 4.02 |
| CV | 4.21 | 4.24 | 15.24 | 12.11 | 8.69 | 7.28 | 6.03 | 7.24 | 15.45 | 18.51 |

**Table S6. Details of PDI, RV and CI of 30 hybrids and their parents for YVMV disease of okra**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Parents | Percent Disease Incidence (PDI) | Response Value (RV) | Coefficient of Infection (CI) | Disease reaction |
| IC- 685583 | 45.00 | 0.50 | 23 | MR |
| Arka Anamika | 39.33 | 0.25 | 10 | MR |
| DOV- 92 | 0.00 | 0.00 | 0 | HR |
| VRO- 6 | 27.67 | 0.50 | 14 | MR |
| DOV- 2 | 27.67 | 0.50 | 14 | MR |
| DOV- 62 | 13.67 | 0.50 | 7 | R |
| DOV- 37 | 26.67 | 0.25 | 7 | R |
| DOV- 25 | 29.50 | 0.75 | 22 | MS |
| DOV- 1 | 27.67 | 0.75 | 21 | MS |
| DOV- 64 | 27.67 | 1.00 | 28 | MS |
| Pusa Sawani | 76.67 | 0.75 | 58 | S |
| Pusa Bhindi- 5 | 6.67 | 0.25 | 2 | HR |
| Pusa A-4 | 38.33 | 0.75 | 29 | MS |

**Contd…**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Parents** | **Percent Disease Incidence (PDI)** | **Response Value (RV)** | **Coefficient of Infection (CI)** | **Disease reaction** |
| **IC- 685583 x Pusa Sawani** | 78.67 | 0.75 | 59 | S |
| **IC- 685583 x Pusa Bhindi- 5** | 8.33 | 0.25 | 2 | HR |
| **IC- 685583 x Pusa A-4** | 35.00 | 0.25 | 9 | R |
| **Arka Anamika x Pusa Sawani** | 35.67 | 0.50 | 18 | MR |
| **Arka Anamika x Pusa Bhindi- 5** | 8.67 | 0.25 | 2 | HR |
| **Arka Anamika x Pusa A-4** | 17.00 | 0.50 | 9 | R |
| **DOV- 92 x Pusa Sawani** | 5.33 | 0.25 | 1 | HR |
| **DOV- 92 x Pusa Bhindi- 5** | 0.00 | 0.00 | 0 | HR |
| **DOV- 92 x Pusa A-4** | 4.33 | 0.25 | 1 | HR |
| **VRO- 6 x Pusa Sawani** | 41.67 | 0.75 | 31 | MS |
| **VRO- 6 x Pusa Bhindi- 5** | 32.00 | 0.25 | 8 | R |
| **VRO- 6 x Pusa A-4** | 26.33 | 0.25 | 7 | R |
| **DOV- 2 x Pusa Sawani** | 25.33 | 0.50 | 13 | MR |
| **DOV- 2 x Pusa Bhindi- 5** | 26.00 | 0.25 | 7 | R |
| **DOV- 2 x Pusa A-4** | 20.00 | 0.25 | 5 | R |
| **DOV- 62 X Pusa Sawani** | 19.33 | 0.25 | 5 | R |
| **DOV- 62 x Pusa Bhindi- 5** | 12.67 | 0.25 | 3 | HR |
| **DOV- 62 x Pusa A-4** | 18.33 | 0.25 | 5 | R |
| **DOV- 37 x Pusa Sawani** | 26.67 | 0.50 | 13 | MR |
| **Dov- 37 x Pusa Bhindi- 5** | 14.33 | 0.25 | 4 | HR |
| **Dov- 37 x Pusa A-4** | 16.67 | 0.25 | 4 | HR |
| **DOV- 25 x Pusa Sawani** | 17.67 | 0.75 | 13 | MR |
| **DOV- 25 x Pusa Bhindi- 5** | 28.67 | 0.50 | 14 | MR |
| **DOV- 25 x Pusa A-4** | 35.00 | 0.50 | 18 | MR |
| **DOV- 1 x Pusa Sawani** | 32.00 | 0.75 | 24 | MS |
| **DOV- 1 x Pusa Bhindi- 5** | 14.00 | 0.50 | 7 | R |
| **DOV- 1 x Pusa A-4** | 23.33 | 0.75 | 18 | MR |
| **DOV- 64 X Pusa Sawani** | 43.33 | 1.00 | 43 | S |
| **DOV- 64 X Pusa Bhindi- 5** | 35.67 | 0.75 | 27 | MS |
| **DOV- 64 x Pusa A-4** | 40.67 | 0.75 | 31 | MS |

[HR = Highly Resistant; R = Resistant; MR = Moderately Resistant; MS = Moderately Susceptible; S = Susceptible]

**Table S7. SCA effect of hybrids for yield and its attributing traits in okra**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Hybrids | Days to first flower | Days to 50% flower | Node at first flower | Average fruit weight (g) | Fruit length (cm) | Fruit diameter (cm) | Plant height (cm) | Yield per plant (g) | Number of fruits per plant | CI (%) |
| IC- 685583 x Pusa Sawani | 0.76 | -0.72 | 1.07 | 4.46\*\* | 1.31\*\* | 0.25\*\* | 0.92 | -20.55\*\* | -2.80\*\* | 27.03\*\* |
| IC- 685583 x Pusa Bhindi- 5 | -0.04 | 1.34 | -0.20 | -4.23\*\* | -2.57\*\* | -0.18\*\* | 2.96 | 19.93\*\* | 0.93 | -15.32\*\* |
| IC- 685583 x Pusa A-4 | -0.71 | -0.62 | -0.87 | -0.23 | 1.26\* | -0.06 | -3.88 | 0.62 | 1.86 | -11.71\*\* |
| Arka Anamika x Pusa Sawani | -0.24 | -0.28 | -0.93 | 2.89\*\* | 0.94 | 0.06 | -0.08 | 10.44 | -1.59 | -0.36 |
| Arka Anamika x Pusa Bhindi- 5 | -0.04 | 0.79 | -0.20 | -2.46\*\* | -0.55 | -0.13 | 1.96 | -5.78 | 2.02 | -1.46 |
| Arka Anamika x Pusa A-4 | 0.29 | -0.51 | 1.13 | -0.43 | -0.39 | 0.07 | -1.88 | -4.66 | -0.42 | 1.82 |
| DOV- 92 x Pusa Sawani | 0.87 | -0.06 | 0.96 | -0.39 | 0.74 | -0.11 | -0.52 | 8.48 | -0.49 | -8.17\*\* |
| DOV- 92 x Pusa Bhindi- 5 | -0.60 | -0.32 | -0.31 | 1.54 | 0.81 | 0.10 | 5.18 | -7.08 | -0.03 | 5.07\*\* |
| DOV- 92 x Pusa A-4 | -0.27 | 0.38 | -0.64 | -1.15 | -1.55\*\* | 0.00 | -4.66 | -1.39 | 0.51 | 3.10\* |
| VRO- 6 x Pusa Sawani | 0.42 | 2.72\* | 1.40\* | -0.07 | -0.44 | 0.03 | 0.48 | -11.90 | -1.17 | 7.28\*\* |
| VRO- 6 x Pusa Bhindi- 5 | -0.38 | -2.54\* | -0.53 | -2.10\*\* | 0.57 | -0.08 | 0.84 | -2.66 | 2.10 | -1.40 |
| VRO- 6 x Pusa A-4 | -0.04 | -0.18 | -0.87 | 2.17\*\* | -0.13 | 0.05 | -1.32 | 14.56\* | -0.93 | -5.88\*\* |
| DOV- 2 x Pusa Sawani | -0.91 | -3.50\*\* | -1.16 | 0.54 | -1.21\* | 0.18\* | -1.52 | 15.22\* | 0.23 | -5.09\*\* |
| DOV- 2 x Pusa Bhindi- 5 | 0.29 | 3.23 | 0.24 | -0.33 | 0.93 | -0.05 | 1.18 | -10.57 | 0.02 | 4.82\*\* |
| DOV- 2 x Pusa A-4 | 0.62 | 0.27 | 0.91 | -0.21 | 0.28 | -0.13 | 0.34 | -4.65 | -0.25 | 0.26 |
| DOV- 62 X Pusa Sawani | 0.09 | -0.61 | -0.38 | -0.88 | -0.44 | -0.08 | 1.14 | 12.12 | 1.55 | -8.06\*\* |
| DOV- 62 x Pusa Bhindi- 5 | -0.71 | -0.54 | 0.02 | 0.62 | 0.08 | 0.08 | -4.49 | -4.17 | -0.59 | 4.85\*\* |
| DOV- 62 x Pusa A-4 | 0.62 | 1.16 | 0.36 | 0.26 | 0.35 | 0.00 | 3.34 | -7.95 | -0.96 | 3.21\* |
| DOV- 37 x Pusa Sawani | 0.09 | 0.72 | -0.27 | 0.41 | 1.44\*\* | 0.10 | -0.97 | -7.48 | -0.68 | -2.39 |
| DOV- 37 x Pusa Bhindi- 5 | 0.29 | -0.21 | 0.47 | 0.51 | -1.27\* | -0.05 | -0.60 | 11.06 | 0.35 | 2.43 |
| DOV- 37 x Pusa A-4 | -0.38 | -0.51 | -0.20 | -0.91 | -0.17 | -0.05 | 1.57 | -3.58 | 0.33 | -0.04 |
| DOV- 25 x Pusa Sawani | 0.87 | 1.83 | 0.73 | -0.27 | 0.68 | -0.12 | -2.30 | -5.08 | -0.35 | -10.48\*\* |
| DOV- 25 x Pusa Bhindi- 5 | 0.07 | -2.10 | -0.20 | -0.58 | -0.76 | 0.05 | 1.07 | 1.86 | 0.58 | 5.18\*\* |
| DOV- 25 x Pusa A-4 | -0.93 | 0.27 | -0.53 | 0.85 | 0.07 | 0.07 | 1.23 | 3.22 | -0.23 | 5.29\*\* |
| DOV- 1 x Pusa Sawani | -0.91 | -0.06 | -0.27 | -4.90\*\* | -2.12\*\* | -0.22\*\* | 2.92 | -1.64 | 4.17\*\* | -0.86 |
| DOV- 1 x Pusa Bhindi- 5 | 0.29 | 0.68 | -0.20 | 4.75\*\* | 2.04\*\* | 0.12 | -5.04 | -7.20 | -4.22\*\* | -3.29\* |
| DOV- 1 x Pusa A-4 | 0.62 | -0.62 | 0.47 | 0.15 | 0.08 | 0.10 | 2.12 | 8.83 | 0.05 | 4.15\*\* |
| DOV- 64 X Pusa Sawani | -1.02 | -0.06 | -1.16 | -1.78 | -0.92 | -0.10 | -0.08 | 0.39 | 1.13 | 1.11 |
| DOV- 64 X Pusa Bhindi- 5 | 0.84 | -0.32 | 0.91 | 2.28\* | 0.72 | 0.14\* | -3.04 | 4.63 | -1.17 | -0.90 |
| DOV- 64 x Pusa A-4 | 0.18 | 0.38 | 0.24 | -0.50 | 0.20 | -0.04 | 3.12 | -5.01 | 0.04 | -0.21 |
| SEm.(sij) | 1.41 | 1.19 | 0.69 | 1.00 | 0.50 | 0.07 | 3.66 | 6.88 | 0.868 | 1.332 |
| SEm.(sij - sji) | 1.99 | 1.68 | 0.98 | 1.41 | 0.71 | 0.10 | 5.17 | 9.73 | 1.503 | 1.884 |

\*, \*\* significant at 5% and significant at 1% probability levels, respectively

**Table S8. Promising parents of okra selected on the basis of gca effect and *per se* performance for yield and its attributing traits**

|  |  |  |  |
| --- | --- | --- | --- |
| Characters | Best parent with gca effect | Best parent with *per se* performance | Best parent based on both gca effect and *per se* performance |
| Days to first flower | Pusa A-4 (-1.29) | Pusa A-4 (41.00) | Pusa A-4 |
| Arka Anamika (-1.29) | Pusa Bhindi- 5 (42.00) |
| DOV- 92 (-0.73) | Pusa Sawani (43.00) |
| Days to 50% flower | DOV- 1 (-1.88) | Pusa A-4 (45.00) | Pusa A-4 |
| Pusa A-4 (-1.49) | Pusa Bhindi- 5 (46.00) |
| DOV- 25 (-1.43) | Pusa Sawani (48.00)  DOV- 2 (48.00) |
| Node at first flower | DOV- 1 (-1.20) | DOV- 92 (6.67) | - |
| Pusa A-4 (-0.69) | DOV- 2 (6.67) |
| DOV- 25 (-0.87) | Pusa Bhindi- 5 (6.67) |
| Average fruit weight (g) | DOV- 37 (3.38) | DOV- 2 (19.86) | DOV-37  DOV-64 |
| DOV- 64 (2.97) | DOV- 37 (17.03) |
| DOV- 92 (1.28) | DOV- 92 (16.49) |
| Fruit length (cm) | DOV- 92 (2.51) | Arka Anamika (12.33) | DOV-92  Arka Anamika |
| Arka Anamika (1.25) | DOV- 92 (11.48) |
| DOV- 64 (0.33) | Pusa Bhindi- 5 (11.37) |
| Fruit diameter (cm) | DOV- 64 (0.15) | DOV- 2 (2.37) | DOV-64 |
| DOV- 1 (0.12) | DOV- 37 (1.87) |
| DOV- 92 (0.11) | DOV- 64 (1.82) |
| Plant height (cm) | DOV- 92 (58.66) | DOV- 92 (126.00) | DOV- 92  DOV-62 |
| DOV- 62 (16.32) | DOV- 1 (99.00) |
| VRO- 6 (9.32) | DOV- 62 (97.00) |
| Yield per plant (g) | DOV- 92 (62.99) | DOV- 92 (200.00) | DOV-92  Pusa Bhindi-5 |
| Pusa Bhindi- 5 (12.08) | Pusa Bhindi- 5 (180.00) |
| DOV- 2 (6.25) | DOV- 62 (160.00) |
| Number of fruits | DOV-92 (4.01) | Pusa A-4 (14.04) | VRO-6 |
| VRO-6 (1.39) | VRO-6 (13.93) |
| DOV-25 (1.29) | DOV-1 (13.43) |
| CI | DOV-92 (-12.43) | DOV-92 (0.00) | DOV-92  DOV-62 |
| DOV-62 (-9.04) | Pusa Bhindi- 5 (5.00) |
| DOV-37 (-6.21) | DOV-62 (6.83) |

**Table S9. Promising F1 hybrids of okra selected on the basis of sca effect and *per se* performance for yield and its attributing traits**

|  |  |  |  |
| --- | --- | --- | --- |
| Character | Best hybrid with sca effect | Best parent with *per se* performance | Best hybrid based on both sca effect and *per se* performance |
| Days to first flower | DOV- 64 x Pusa Sawani (-1.02) | DOV- 92 x Pusa A-4 (40.00) | - |
| DOV- 25 x Pusa A-4 (-0.93) | IC- 685583 x Pusa A-4 (40.00) |
| DOV- 1 x Pusa Sawani (-0.91) | Arka Anamika x Pusa A-4 (40.00) |
| Days to 50% flower | DOV- 2 x Pusa Sawani (-3.50) | DOV- 1 x Pusa A-4 (44.00) | DOV- 2 x Pusa Sawani |
| VRO- 6 x Pusa Bhindi- 5 (-2.54) | DOV- 2 x Pusa Sawani (45.00) |
| DOV- 25 x Pusa Bhindi- 5 (-2.10) | IC- 685583 x Pusa A-4 (45.33)  DOV- 25 x Pusa A-4 (45.33) |
| Node at first flower | DOV- 64 x Pusa Sawani (-1.16) | DOV- 25 x Pusa A-4 (5.33) | - |
| DOV- 2 x Pusa Sawani (-1.16) | Dov- 37 x Pusa A-4 (6.00) |
| Arka Anamika x Pusa Sawani (-0.93) | DOV- 1 x Pusa A-4 (6.00) |
| Average fruit weight (cm) | DOV- 1 x Pusa Bhindi- 5 (4.75) | DOV- 64 X Pusa Bhindi- 5 (18.76) | DOV- 1 x Pusa Bhindi- 5 |
| IC- 685583 x Pusa Sawani (4.46) | DOV- 37 x Pusa Sawani (17.89) |
| Arka Anamika x Pusa Sawani (2.89) | DOV- 1 x Pusa Bhindi- 5 (17.58) |
| Fruit length (cm) | DOV- 1 x Pusa Bhindi- 5 (2.04) | DOV- 92 x Pusa Bhindi- 5 (13.33) | - |
| DOV- 37 x Pusa Sawani (1.44) | DOV- 92 x Pusa Sawani (13.17) |
| IC- 685583 x Pusa Sawani (1.31) | Arka Anamika x Pusa Sawani (12.10) |
| Fruit diameter (cm) | IC- 685583 x Pusa Sawani (0.25) | DOV- 64 X Pusa Bhindi- 5 (1.98) | DOV- 64 x Pusa Bhindi- 5 |
| DOV- 2 x Pusa Sawani (0.18) | DOV- 37 x Pusa Sawani (1.95) |
| DOV- 64 X Pusa Bhindi- 5 (0.14) | DOV- 1 x Pusa Bhindi- 5 (1.93) |
| Plant height (cm) | DOV- 92 x Pusa Bhindi- 5 (5.18) | DOV- 92 x Pusa Bhindi- 5 (146.00) | DOV- 92 x Pusa Bhindi- 5 |
| DOV- 62 x Pusa A-4 (3.34) | DOV- 92 x Pusa Sawani (143.33) |
| DOV- 64 x Pusa A-4 (3.12) | DOV- 92 x Pusa A-4 (139.33) |
| Yield per plant (g) | IC- 685583 x Pusa Bhindi- 5 (19.93) | DOV- 92 x Pusa Bhindi- 5 (240.00) |
| DOV- 2 x Pusa Sawani (15.22) | DOV- 92 x Pusa A-4 (235.00) | - | |
| VRO- 6 x Pusa A-4 (14.56) | DOV- 92 x Pusa Sawani (230.00) |
| Number of fruits | DOV- 1 x Pusa Sawani (4.17) | DOV- 92 x Pusa Bhindi- 5 (17.67) | VRO- 6 x Pusa Bhindi- 5 |
| VRO- 6 x Pusa Bhindi- 5 (2.10) | VRO- 6 x Pusa Bhindi- 5 (17.07) |
| Arka Anamika x Pusa Bhindi- 5 (2.02) | DOV- 92 x Pusa A-4 (17.00) |
| CI | IC- 685583 x Pusa Bhindi- 5 (-15.32) | DOV- 92 x Pusa Bhindi- 5 (0.00) |
| IC- 685583 x Pusa A-4 (-11.71) | DOV- 92 x Pusa A-4 (1.08) | - | |
| DOV- 25 x Pusa Sawani (-10.48) | DOV- 92 x Pusa Sawani (1.33) |  |