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| **Table S1 Details of the genotypes used in the study** | | | | | |
| **S.No.** | **Genotype** | **Type** | **Pedigree** | **Year of Release** | **Origin** |
| 1 | 14\_3S | BIL | Swarna x *O. nivara* IRGC81848 | - | IIRR, India |
| 2 | 148S | BIL | Swarna x *O. nivara* IRGC81848 | - | IIRR, India |
| 3 | 14S | BIL | Swarna x *O. nivara* IRGC81848 | - | IIRR, India |
| 4 | 166\_1S | BIL | Swarna x *O. nivara* IRGC81848 | - | IIRR, India |
| 5 | 166\_2S | BIL | Swarna x *O. nivara* IRGC81848 | - | IIRR, India |
| 6 | 166S | BIL | Swarna x *O. nivara* IRGC81848 | - | IIRR, India |
| 7 | 248S (DRR Dhan 40) | BIL | Swarna x *O. nivara* IRGC81848 | 2014 | IIRR, India |
| 8 | 65S | BIL | Swarna x *O. nivara* IRGC81848 | - | IIRR, India |
| 9 | 70S | BIL | Swarna x *O. nivara* IRGC81848 | - | IIRR, India |
| 10 | 75S | BIL | Swarna x *O. nivara* IRGC81848 | - | IIRR, India |
| 11 | 24K | BIL | Swarna x *O. nivara* IRGC81832 | - | IIRR, India |
| 12 | 250K | BIL | Swarna x *O. nivara* IRGC81832 | - | IIRR, India |
| 13 | 3\_1K | BIL | Swarna x *O. nivara* IRGC81832 | - | IIRR, India |
| 14 | 7K | BIL | Swarna x *O. nivara* IRGC81832 | - | IIRR, India |
| 15 | Swarna | *indica* | Vasistha/Mahsuri | 1982 | ARI, Maruteru |
| 16 | IR64 | *indica* | IR5657-33-2-1/IR2061-465-1-5-5 | 1991 | IRRI, Philippines |
| 17 | Jaya | *indica* | TN-1/T-141 | 1968 | DRR, Hyderabad |
| 18 | MTU1010 | *indica* | Krishnaveni/IR64 | 2000 | ARI, Maruteru |
| 19 | MTU1081 | *indica* | Ajaya/BPT5204 | - | ARI, Maruteru |
| 20 | NLR34449 | *indica* | IR 72 / BPT5204 | 2009 | ARS, Nellore |
| 21 | Sahbhagi Dhan | *indica* | IR55419-4\*2/WayRarem | 2009 | CRRI and IRRI |
| 22 | Tellahamsa (RNR-10329) | *indica* | HR12/TN1 | 1971 | ARI, Rajendranagar |
| 23 | Tulasi | *indica* | Rasi/Finegora | 1988 | IIRR, India |

**Table S2 Descriptive statistics of mean phenotypic data Kharif 2013**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **BILs** |  |  | **30DAT** | | **60DAT** | | **At Maturity** | | | **After harvest** | | | | **Rate of increase** | |
|  | DFF | DM | 30 PH | 30 TN | 60 PH | 60 TN | M PH | M TN | M PTN | SPY | BY | BM | HI | PH | TN |
| 14 S | 112.00 | 137.00 | 60.87 | 11.87 | 94.47 | 15.60 | 93.47 | 9.80 | 9.47 | 14.29 | 1.15 | 13.57 | 51.43 | 0.55 | 0.31 |
| 14\_3S | 124.00 | 149.00 | 55.47 | 12.60 | 63.07 | 13.60 | 79.90 | 14.00 | 13.20 | 5.35 | 0.47 | 12.12 | 30.41 | 0.14 | 0.08 |
| 148 S | 97.00 | 120.00 | 79.00 | 8.20 | 151.80 | 8.10 | 149.40 | 7.80 | 7.33 | 12.10 | 1.23 | 15.45 | 39.08 | 0.92 | 0.01 |
| 166 S | 123.33 | 148.33 | 63.33 | 9.27 | 75.33 | 11.20 | 106.07 | 8.47 | 7.47 | 12.86 | 1.77 | 20.41 | 38.59 | 0.19 | 0.21 |
| 166-1S | 123.00 | 153.00 | 64.70 | 9.67 | 81.47 | 12.60 | 109.53 | 8.33 | 7.20 | 11.45 | 1.53 | 15.97 | 35.56 | 0.26 | 0.30 |
| 166-2S | 120.00 | 150.00 | 60.00 | 8.07 | 86.00 | 9.90 | 94.87 | 6.40 | 5.67 | 12.56 | 1.68 | 20.25 | 38.07 | 0.43 | 0.23 |
| 24 K | 135.67 | 162.67 | 63.33 | 10.27 | 95.20 | 10.87 | 116.20 | 7.87 | 7.40 | 11.26 | 1.06 | 19.91 | 36.13 | 0.50 | 0.06 |
| 248 S | 130.00 | 160.00 | 53.00 | 11.67 | 79.00 | 14.53 | 95.20 | 9.33 | 8.20 | 12.04 | 1.18 | 20.64 | 36.85 | 0.49 | 0.25 |
| 250 K | 127.00 | 153.00 | 48.40 | 12.40 | 76.60 | 11.87 | 99.00 | 9.87 | 8.20 | 7.59 | 0.93 | 19.70 | 27.83 | 0.58 | 0.05 |
| 3-1 K | 126.33 | 151.33 | 54.20 | 11.00 | 71.47 | 12.67 | 91.27 | 8.53 | 7.13 | 8.99 | 1.10 | 18.05 | 33.25 | 0.32 | 0.15 |
| 65 S | 133.67 | 163.67 | 52.07 | 10.80 | 90.70 | 10.67 | 121.40 | 8.40 | 7.67 | 7.47 | 1.27 | 17.28 | 30.18 | 0.74 | 0.01 |
| 7 K | 138.33 | 168.33 | 45.27 | 14.20 | 73.80 | 14.33 | 89.07 | 10.73 | 9.47 | 10.41 | 1.35 | 18.12 | 36.48 | 0.63 | 0.01 |
| 70 S | 124.00 | 153.00 | 50.13 | 14.00 | 68.53 | 15.53 | 84.93 | 10.13 | 9.00 | 9.28 | 1.29 | 20.30 | 31.38 | 0.37 | 0.11 |
| 75 S | 126.00 | 156.00 | 50.80 | 13.20 | 67.30 | 17.30 | 81.93 | 7.80 | 6.47 | 11.16 | 1.16 | 15.65 | 41.63 | 0.32 | 0.31 |
| IR64 | 117.67 | 141.67 | 60.07 | 12.47 | 94.20 | 15.60 | 97.27 | 9.00 | 7.87 | 15.59 | 1.81 | 16.93 | 47.95 | 0.57 | 0.25 |
| Jaya | 122.00 | 152.00 | 59.10 | 9.93 | 82.07 | 11.40 | 98.27 | 8.47 | 7.53 | 14.03 | 1.86 | 20.37 | 40.78 | 0.39 | 0.15 |
| MTU 1010 | 103.00 | 128.00 | 60.20 | 10.07 | 94.27 | 11.00 | 102.47 | 8.87 | 8.13 | 17.40 | 2.16 | 14.50 | 54.54 | 0.57 | 0.09 |
| MTU 1081 | 116.33 | 160.33 | 56.53 | 9.73 | 95.73 | 9.87 | 100.13 | 8.00 | 7.60 | 13.62 | 1.26 | 16.89 | 44.63 | 0.69 | 0.01 |
| NLR 34449 | 110.00 | 137.00 | 43.30 | 12.27 | 64.13 | 15.70 | 75.33 | 10.27 | 9.98 | 12.48 | 1.36 | 18.18 | 40.71 | 0.48 | 0.28 |
| Sahbhagidhan | 101.00 | 127.00 | 60.70 | 8.60 | 111.67 | 7.90 | 102.53 | 8.87 | 8.40 | 13.18 | 1.86 | 12.84 | 50.64 | 0.84 | 0.09 |
| Swarna | 126.67 | 155.67 | 52.87 | 12.40 | 77.93 | 12.20 | 91.93 | 9.20 | 7.93 | 14.31 | 1.72 | 21.42 | 40.06 | 0.47 | 0.02 |
| Tellahamsa | 100.00 | 125.00 | 60.50 | 8.93 | 105.53 | 10.20 | 103.53 | 9.33 | 8.40 | 15.32 | 1.61 | 12.51 | 55.04 | 0.74 | 0.14 |
| Tulasi | 103.00 | 128.00 | 57.80 | 13.47 | 99.73 | 18.00 | 96.53 | 13.53 | 12.40 | 19.78 | 2.12 | 15.34 | 56.32 | 0.73 | 0.34 |
| Min | 97.00 | 120.00 | 43.30 | 8.07 | 63.07 | 7.90 | 75.33 | 6.40 | 5.67 | 5.35 | 0.47 | 12.12 | 27.83 | 0.14 | 0.01 |
| Max | 138.33 | 168.33 | 79.00 | 14.20 | 151.80 | 18.00 | 149.40 | 14.00 | 13.20 | 19.78 | 2.16 | 21.42 | 56.32 | 0.92 | 0.34 |
| Average | 119.13 | 146.96 | 57.03 | 11.09 | 86.96 | 12.64 | 99.14 | 9.26 | 8.35 | 12.28 | 1.43 | 17.23 | 40.76 | 0.52 | 0.15 |
| SDev | 11.92 | 13.84 | 7.54 | 1.87 | 19.44 | 2.79 | 15.43 | 1.72 | 1.71 | 3.28 | 0.40 | 2.88 | 8.37 | 0.20 | 0.11 |

BM- biomass, BY- bulk yield, DFF- days to fifty percent flowering, DM- days to maturity, 30DAT- 30 days after transplanting, 60DAT- 60 days after transplanting, HI- harvest index, M PH- plant height at maturity, M TN- tiller number at maturity, M PTN- productive tiller number at maturity, 30 PH- plant height at 30 days after transplanting, 60 PH- plant height at 60 days after transplanting, SPY- single plant yield, 30 TN- tiller number at 30 days after transplanting, 60 TN- tiller number at 60days after transplanting, Min- Minimum, Max – Maximum, SDev- Standard deviation

**Table S3 Descriptive statistics of mean phenotypic data of seedling vigour**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **BILs** |  | **7 days after sowing** | | **14 days after sowing** | | **Rate of increase** | | | **Dry weight at 14das** | | | **Vigor index** | | | | | | |
| **G%** | **7SL** | **7RL** | **14SL** | **14RL** | **SL** | **RL** | | **SDW** | | **RDW** | **7 SVI-1** | | **14 SVI-1** | | **SVI-2** | | |
| 14 S | 100.00 | 1.02 | 0.56 | 10.40 | 16.92 | 8.86 | | 29.36 | 0.04 | 0.01 | | | 1.58 | | 27.31 | | 0.05 |
| 14\_3S | 56.00 | 0.39 | 1.34 | 7.22 | 17.34 | 17.57 | | 11.19 | 0.01 | 0.01 | | | 0.97 | | 13.75 | | 0.01 |
| 148 S | 100.00 | 1.44 | 0.38 | 12.75 | 18.65 | 8.08 | | 46.55 | 0.06 | 0.02 | | | 1.82 | | 31.40 | | 0.08 |
| 166 S | 100.00 | 0.16 | 0.29 | 9.33 | 11.07 | 62.23 | | 39.79 | 0.05 | 0.03 | | | 0.45 | | 20.40 | | 0.08 |
| 166-1S | 100.00 | 0.32 | 1.38 | 11.68 | 18.77 | 35.47 | | 13.74 | 0.04 | 0.02 | | | 1.70 | | 30.45 | | 0.06 |
| 166-2S | 100.00 | 0.30 | 0.92 | 8.67 | 19.82 | 27.97 | | 21.17 | 0.04 | 0.02 | | | 1.22 | | 28.49 | | 0.07 |
| 24 K | 68.00 | 0.45 | 0.46 | 10.71 | 19.03 | 24.09 | | 41.46 | 0.05 | 0.02 | | | 0.62 | | 20.22 | | 0.05 |
| 248 S | 92.00 | 0.70 | 0.30 | 9.28 | 18.65 | 11.57 | | 62.07 | 0.03 | 0.02 | | | 0.92 | | 25.69 | | 0.05 |
| 250 K | 88.00 | 0.67 | 0.56 | 10.62 | 17.95 | 15.10 | | 31.21 | 0.04 | 0.02 | | | 1.08 | | 25.14 | | 0.05 |
| 3-1 K | 100.00 | 0.40 | 0.22 | 8.26 | 15.15 | 21.25 | | 67.33 | 0.04 | 0.01 | | | 0.61 | | 23.41 | | 0.05 |
| 65 S | 96.00 | 0.41 | 1.26 | 8.73 | 18.36 | 19.27 | | 13.65 | 0.03 | 0.02 | | | 1.60 | | 26.00 | | 0.04 |
| 7 K | 48.00 | 0.82 | 2.30 | 10.38 | 22.10 | 11.57 | | 8.91 | 0.05 | 0.02 | | | 1.50 | | 15.59 | | 0.04 |
| 70 S | 92.00 | 0.78 | 1.71 | 8.98 | 18.61 | 9.85 | | 10.29 | 0.03 | 0.01 | | | 2.29 | | 25.37 | | 0.04 |
| 75 S | 84.00 | 0.78 | 0.50 | 8.58 | 17.50 | 9.46 | | 37.66 | 0.03 | 0.02 | | | 1.08 | | 21.91 | | 0.05 |
| IR64 | 92.00 | 0.61 | 1.31 | 8.88 | 19.76 | 15.15 | | 14.07 | 0.04 | 0.02 | | | 1.77 | | 26.34 | | 0.05 |
| Jaya | 100.00 | 0.62 | 1.18 | 8.65 | 20.04 | 13.45 | | 16.87 | 0.04 | 0.02 | | | 1.80 | | 28.69 | | 0.06 |
| MTU 1010 | 100.00 | 0.84 | 1.61 | 12.15 | 18.52 | 13.62 | | 10.73 | 0.06 | 0.02 | | | 2.45 | | 30.67 | | 0.09 |
| MTU 1081 | 100.00 | 0.63 | 1.87 | 7.53 | 16.02 | 8.60 | | 6.49 | 0.03 | 0.01 | | | 2.50 | | 23.55 | | 0.04 |
| NLR 34449 | 96.00 | 0.34 | 1.22 | 7.98 | 18.47 | 23.35 | | 15.18 | 0.02 | 0.02 | | | 1.50 | | 25.39 | | 0.04 |
| Sahbhagidhan | 100.00 | 0.83 | 1.30 | 9.86 | 21.46 | 11.01 | | 15.97 | 0.03 | 0.02 | | | 2.13 | | 31.32 | | 0.05 |
| Swarna | 100.00 | 0.92 | 0.89 | 9.48 | 17.79 | 8.99 | | 19.94 | 0.05 | 0.02 | | | 1.81 | | 27.27 | | 0.07 |
| Tellahamsa | 100.00 | 0.23 | 0.74 | 11.23 | 20.11 | 51.83 | | 23.26 | 0.06 | 0.02 | | | 0.97 | | 31.33 | | 0.08 |
| Tulasi | 100.00 | 0.60 | 3.56 | 11.36 | 20.02 | 23.73 | | 4.27 | 0.08 | 0.03 | | | 4.16 | | 31.38 | | 0.10 |
| Min | 48.00 | 0.16 | 0.22 | 7.22 | 11.07 | 8.08 | | 4.27 | 0.01 | 0.01 | | | 0.45 | | 13.75 | | 0.01 |
| Max | 100.00 | 1.44 | 3.56 | 12.75 | 22.10 | 62.23 | | 67.33 | 0.08 | 0.03 | | | 4.16 | | 31.40 | | 0.10 |
| Mean | 91.83 | 0.62 | 1.12 | 9.68 | 18.35 | 19.66 | | 24.40 | 0.04 | 0.02 | | | 1.59 | | 25.70 | | 0.06 |
| SDev | 14.70 | 0.30 | 0.77 | 1.49 | 2.24 | 13.87 | | 17.37 | 0.01 | 0.01 | | | 0.80 | | 4.89 | | 0.02 |

G% - germination percent, RDW – root dry weight, RL – root length, 7RL – root length at 7 days, 14RL – root length at 14 days, SDW – shoot dry weight, SL – shoot length, 7SL – shoot length at 7 days, 14SL – shoot length at 14 days, 7 SVI-1 – seedling vigour index-1 at 7 days, 14 SVI-1 - seedling vigour index-1 at 14 days, SVI-2 - seedling vigour index-2, Min- Minimum, Max – Maximum, SDev- Standard deviation

**Table S4 Descriptive statistics of mean phenotypic data Rabi 2014**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **BILs** |  |  | **30DAT** | | **60DAT** | | **At Maturity** | | | **After harvest** | | | | **Rate of increase** | |
|  | DFF | DM | 30 PH | 30 TN | 60 PH | 60 TN | M PH | M TN | M PTN | SPY | BY | BM | HI | PH | TN |
| 14 S | 109.00 | 134.00 | 42.53 | 17.93 | 61.87 | 19.67 | 77.27 | 14.47 | 14.40 | 23.23 | 1.81 | 18.28 | 53.63 | 0.45 | 0.10 |
| 14\_3S | 118.00 | 143.00 | 48.40 | 10.53 | 62.00 | 23.13 | 73.53 | 16.00 | 15.20 | 7.95 | 0.30 | 15.86 | 32.97 | 0.28 | 1.20 |
| 148 S | 99.00 | 122.00 | 55.00 | 12.00 | 131.47 | 15.87 | 136.47 | 14.07 | 13.87 | 14.53 | 1.13 | 28.03 | 33.27 | 1.39 | 0.32 |
| 166 S | 129.00 | 154.00 | 42.33 | 18.53 | 60.53 | 20.60 | 88.07 | 13.93 | 13.53 | 25.66 | 1.61 | 26.15 | 48.04 | 0.43 | 0.11 |
| 166-1S | 128.00 | 158.00 | 38.60 | 11.40 | 57.67 | 15.07 | 92.67 | 10.20 | 9.60 | 16.24 | 1.40 | 23.45 | 39.52 | 0.49 | 0.32 |
| 166-2S | 122.00 | 152.00 | 39.93 | 5.73 | 60.47 | 11.20 | 84.47 | 9.53 | 9.33 | 17.63 | 0.83 | 19.63 | 46.29 | 0.51 | 0.95 |
| 24 K | 129.00 | 156.00 | 47.27 | 8.73 | 71.40 | 14.27 | 102.13 | 10.80 | 10.87 | 15.98 | 1.71 | 24.01 | 38.32 | 0.51 | 0.63 |
| 248 S | 128.00 | 158.00 | 31.40 | 16.33 | 50.33 | 28.40 | 81.96 | 16.35 | 15.98 | 20.56 | 1.38 | 26.75 | 42.23 | 0.60 | 0.74 |
| 250 K | 130.00 | 156.00 | 43.44 | 14.98 | 64.47 | 22.88 | 93.80 | 17.33 | 17.13 | 21.44 | 0.62 | 31.83 | 39.78 | 0.48 | 0.53 |
| 3-1 K | 130.00 | 155.00 | 32.58 | 10.80 | 51.60 | 25.33 | 76.60 | 18.13 | 18.07 | 15.67 | 1.33 | 25.95 | 36.47 | 0.58 | 1.35 |
| 65 S | 129.00 | 159.00 | 43.47 | 12.73 | 66.60 | 20.33 | 111.67 | 15.93 | 15.80 | 15.98 | 1.16 | 32.25 | 32.35 | 0.53 | 0.60 |
| 7 K | 133.00 | 163.00 | 43.04 | 10.40 | 64.80 | 24.53 | 91.07 | 12.73 | 10.47 | 22.03 | 0.61 | 41.77 | 34.21 | 0.51 | 1.36 |
| 70 S | 132.00 | 161.00 | 30.13 | 15.73 | 46.47 | 29.40 | 78.08 | 22.92 | 21.78 | 23.18 | 1.27 | 28.44 | 43.82 | 0.54 | 0.87 |
| 75 S | 122.00 | 152.00 | 30.87 | 10.60 | 47.40 | 32.07 | 71.00 | 21.33 | 18.60 | 19.89 | 1.29 | 21.61 | 46.48 | 0.54 | 2.03 |
| IR64 | 111.00 | 135.00 | 45.20 | 22.13 | 63.05 | 28.40 | 75.87 | 16.67 | 14.87 | 15.42 | 1.34 | 16.59 | 46.24 | 0.39 | 0.28 |
| Jaya | 128.00 | 158.00 | 39.40 | 15.87 | 62.07 | 22.40 | 92.73 | 13.60 | 13.20 | 17.69 | 1.41 | 24.59 | 40.48 | 0.58 | 0.41 |
| MTU 1010 | 109.00 | 134.00 | 44.33 | 14.27 | 65.73 | 17.07 | 88.20 | 12.13 | 12.73 | 20.35 | 1.80 | 17.19 | 51.73 | 0.48 | 0.20 |
| MTU 1081 | 108.00 | 152.00 | 47.27 | 9.47 | 76.60 | 12.53 | 90.53 | 10.80 | 10.73 | 21.55 | 1.27 | 20.63 | 49.60 | 0.62 | 0.32 |
| NLR 34449 | 119.00 | 146.00 | 32.20 | 14.20 | 49.33 | 24.53 | 68.13 | 18.53 | 18.33 | 16.60 | 1.56 | 18.69 | 45.05 | 0.53 | 0.73 |
| Sahbhagidhan | 111.00 | 137.00 | 39.53 | 3.93 | 71.20 | 17.67 | 87.00 | 13.20 | 13.13 | 24.65 | 0.83 | 16.99 | 58.04 | 0.80 | 3.49 |
| Swarna | 129.00 | 158.00 | 35.40 | 14.67 | 55.60 | 20.40 | 83.20 | 16.73 | 16.00 | 23.76 | 1.46 | 34.47 | 39.80 | 0.57 | 0.39 |
| Tellahamsa | 107.00 | 132.00 | 51.33 | 13.40 | 81.27 | 15.60 | 96.53 | 13.00 | 12.47 | 20.07 | 1.62 | 22.52 | 45.40 | 0.58 | 0.16 |
| Tulasi | 109.00 | 134.00 | 45.00 | 16.27 | 75.87 | 17.13 | 87.13 | 14.07 | 13.40 | 19.73 | 1.51 | 21.61 | 46.05 | 0.69 | 0.05 |
| Min | 99.00 | 122.00 | 30.13 | 3.93 | 46.47 | 11.20 | 68.13 | 9.53 | 9.33 | 7.95 | 0.30 | 15.86 | 32.35 | 0.28 | 0.05 |
| Max | 133.00 | 163.00 | 55.00 | 22.13 | 131.47 | 32.07 | 136.47 | 22.92 | 21.78 | 25.66 | 1.81 | 41.77 | 58.04 | 1.39 | 3.49 |
| Average | 120.39 | 148.22 | 41.25 | 13.07 | 65.12 | 20.80 | 88.18 | 14.89 | 14.33 | 19.12 | 1.27 | 24.23 | 43.03 | 0.57 | 0.75 |
| SDev | 10.26 | 11.70 | 6.76 | 4.15 | 17.22 | 5.65 | 14.67 | 3.40 | 3.15 | 4.06 | 0.40 | 6.49 | 6.84 | 0.21 | 0.78 |

BM- biomass, BY- bulk yield, DFF- days to fifty percent flowering, DM- days to maturity, 30DAT- 30 days after transplanting, 60DAT- 60 days after transplanting, HI- harvest index, M PH- plant height at maturity, M TN- tiller number at maturity, M PTN- productive tiller number at maturity, 30 PH- plant height at 30 days after transplanting, 60 PH- plant height at 60 days after transplanting, SPY- single plant yield, 30 TN- tiller number at 30 days after transplanting, 60 TN- tiller number at 60days after transplanting, Min- Minimum, Max – Maximum, SDev- Standard deviation

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**Figure S1**. Representative amplification pattern of genotypes using RM212, RM204 and RM263