**Identification of parents for early vigor and high TDM**

A total of 17 genotypes which include male lines, pistillate lines and preliminary hybrids along with 48-1, DCH-519 as checks were sown during *kharif*, 2015 to select genotypes with early vigor, high TDM, seed yield and HI. Seedling dry weight at 15 DAS was positively correlated with 100 seed weight (seed size) before sowing ((0.46) and with TDM at 35 DAS. TDM at 35 DAS showed strong correlation with TDM at harvest (0.543), seed yield (0.536).Genotypes with more seed size, early vigor , TDM at 35 DAS, TDM at harvest, total seed yield, HI are listed in Table 1.

Table 1: Selected genotypes for different characters

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| Genotypes with more seed size  (29.5-37.8 g/100seeds) | DPC-9, DPC-21, DCS-105, DCS-107 and DCS-119 and 48-1 |
| Genotypes with early vigor  (0.45-0.58 g/pl.) | DPC-9, DPC-21, DCS-9, DCS-105, DCS-107, DCS-119, PHT-14-44 and 48-1 |
| Genotypes with high TDM at 35 DAS  (12.5-15.7g/pl.) | DPC-21, DCS-78, DCS-107, DCS-119, PHT-14-44, M-571, DCH-519 and 48-1 |
| Genotypes with high TDM at harvest  (300-470g/pl.) | DPC-9, DPC-19, DPC-21, DCS-78, DCS-105, DCS-107, DCS-119, M-571, DCH-519, DCH-1715, DCH-1720 and 48-1 |
| Genotypes with high seed yield /plant  (100-153g/pl.) | DPC-9, DPC-21, DCS-107, DCS-119, M-571, DCH-177, DCH-1715, DCH-1720, PHT-14-44 and 48-1 |
| Genotypes with high Harvest Index (HI)  (30.0-39.6%) | DPC-9, DCS-9, DCS-78, M-571, M-574, DCH-177, DCH-1715, DCH-1720 and PHT-14-44 and 48-1 |

Genotypes were ranked for 6 characters viz: seed size, early vigor, TDM at 35 DAS, TDM at harvest, seed yield/pl., HI based on principal component analysis and data is presented in Table 2. Genotypes with good seed size showed early vigor. Only few maintained high TDM at 35 DAS. Among them, DPC-9, DCS-107, DCS-119 and 48-1 recorded high TDM at harvest and high seed yield also. But, only DPC-9 (32.3%) and 48-1 (39.6%) recorded high HI also which shows the need for increasing the partitioning efficiency of DCS-107, DCS-119 etc. Based on ranking for 6 characters, the selected top 5 genotypes include 48-1, DCS-119, DPC-21, DCS-107 and PHT-14-44.

Table 2: Ranking of breeding lines and data for the 6 characters viz: seed size, early vigor, TDM at 35 DAS, TDM at harvest, seed yield/pl. used for ranking (K. Alivelu).

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| **Rank** | **Genotypes** | **Seed size (g/100 seeds)** | **Early vigor (g/pl.)** | **TDM at 35 DAS (g/pl.)** | **TDM at harvest (g/pl.)** | **Seed yield**  **(g/pl.)** | **HI (%)** |
| 1 | 48-1 | 29.4 | 0.58 | 13.6 | 349.5 | 138.4 | 39.6 |
| 2 | DCS-119 | 26.2 | 0.56 | 12.9 | 440.3 | 129.6 | 29.4 |
| 3 | DPC-21 | 24.5 | 0.51 | 15.7 | 373.7 | 108.1 | 28.9 |
| 4 | DCS-107 | 29.5 | 0.49 | 12.6 | 346.2 | 102.9 | 29.7 |
| 5 | PHT-14-44 | 25 | 0.47 | 13.1 | 277.4 | 108.1 | 39.0 |
| 6 | DCH-1715 | 23 | 0.43 | 11.4 | 378.5 | 123.0 | 32.5 |
| 7 | DPC-9 | 30 | 0.45 | 11.3 | 345.5 | 111.5 | 32.3 |
| 8 | DCH-1720 | 21 | 0.42 | 11.2 | 470.1 | 152.7 | 32.5 |
| 9 | M-571 | 25 | 0.31 | 12.9 | 312.6 | 115.1 | 36.8 |
| 10 | DCS-105 | 32 | 0.58 | 10.3 | 333.1 | 95.7 | 28.7 |
| 11 | DCH-177 | 27 | 0.31 | 8.5 | 296.8 | 116.3 | 39.2 |
| 12 | DCS-9 | 23.5 | 0.55 | 8.6 | 185.1 | 69.7 | 37.6 |
| 13 | DCH-519 | 25.8 | 0.44 | 12.5 | 319.2 | 94.5 | 29.6 |
| 14 | DCS-78 | 24.4 | 0.39 | 12.5 | 240.2 | 75.9 | 31.6 |
| 15 | DPC-19 | 19 | 0.40 | 10.0 | 358.0 | 67.7 | 18.9 |
| 16 | M-574 | 25 | 0.26 | 7.2 | 258.0 | 86.8 | 33.6 |
| 17 | DCS-108 | 15.6 | 0.33 | 5.6 | 189.8 | 55.7 | 29.3 |