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| Table S1. Mean performance of selected yield traits of 100 accessions of Bambara groundnut for three years (2017/2018, 2018/2019 and 2019/2020) |  |
| Accession | NDtoF | NDto50F | NFpP | Y/Plantg | NPpP | YpPg | YkgpHa | NSdpd | PdLmm | PdWmm |   |  |
| TVSu-119 | 37.22b-p | 39.22b-p | 1.48s-za | 15.75i-n | 126.74f-t | 122.04n-v | 488.10j-n | 1.06vw | 17.34zzo | 12.87r-zh |  |  |
| TVSu-12 | 37.66a-p | 39.66a-p | 1.45x-za | 18.71f-n | 221.41ab | 176.85a-u | 707.40b-n | 1.61a | 20.24g-r | 11.60zzq |  |  |
| TVSu-1222 | 39.44a-f | 41.44a-f | 1.43za | 15.16k-n | 117.35i-z | 130.40j-v | 521.60g-n | 1.08q-w | 17.77y-zm | 12.15zzn |  |  |
| TVSu-1239 | 35.66h-p | 37.66h-p | 1.43za | 17.21i-n | 121.38g-x | 132.28j-v | 529.10f-n | 1.23d-v | 16.33zzq | 12.03zzo |  |  |
| TVSu-1241 | 35.22l-p | 37.22l-p | 1.63c-n | 20.55d-n | 124.88f-t | 158.20d-v | 632.80c-n | 1.26d-p | 18.42t-zg | 12.58y-zk |  |  |
| TVSu-1242 | 35.44j-p | 37.44j-p | 1.56h-y | 23.27b-n | 131.38f-s | 219.32a-d | 877.30a-e | 1.24d-t | 18.57r-zf | 13.29k-za |  |  |
| TVSu-1245 | 35.33k-p | 37.33k-p | 1.59f-v | 24.03b-m | 162.88c-i | 193.20a-m | 772.80b-l | 1.21e-v | 18.00v-zk | 11.74zzp |  |  |
| TVSu-1246 | 37.22b-p | 39.22b-p |  1.48r-za | 19.33e-n | 125.97f-t | 141.86g-v | 567.40e-n | 1.28d-o | 18.79o-ze | 11.38zzq |  |  |
| TVSu-1252 | 36.66c-p | 38.66c-p | 1.52l-z | 18.48f-n | 144.09d-m | 165.53b-v | 662.10b-n | 1.25d-r | 16.49zzp | 12.38zzl |  |  |
| TVSu-127 | 36.44d-p | 38.44d-p | 1.48s-za | 13.87lmn | 69.58zze | 109.70uv | 438.80mn | 1.31c-k | 20.40f-o | 13.24l-zb |  |  |
| TVSu-129 | 36.11e-p | 38.11e-p | 1.51n-za | 28.17b-h | 153.17c-k | 204.83a-i | 819.30a-i | 1.22d-v | 17.83x-zm | 12.03zzo |  |  |
| TVSu-14 | 37.11b-p | 39.11b-p | 1.54k-z | 42.34a | 238.67a | 208.58a-g | 834.30a-h | 1.10p-w | 16.88zzo | 11.22zzq |  |  |
| TVSu-173 | 39.55a-e | 41.55a-e | 1.73a-d | 17.23h-n | 142.33d-n | 162.70b-v | 650.80b-n | 1.11o-w | 16.58zzo | 11.72zzp |  |  |
| TVSu-178 | 36.88b-p | 38.88b-p | 1.59f-u | 19.28e-n | 114.63j-zb | 141.19g-v | 564.80e-n | 1.22d-v | 18.32t-zh | 11.19zzr |  |  |
| TVSu-179 | 38.00a-o | 40.00a-o | 1.59f-v | 33.15b | 137.91e-q | 212.05a-f | 848.20a-g | 1.22d-v | 19.48j-x | 12.86s-zh |  |  |
| TVSu-181 | 38.44a-m | 40.44a-m | 1.46v-za | 18.64f-n | 143.06d-n | 144.53f-v | 578.10d-n | 1.11o-w | 17.09zzo | 11.81zzp |  |  |
| TVSu-2090 | 37.33b-p | 39.33b-p |  1.47t-za | 18.04g-n | 164.19c-g | 165.97b-v | 663.90b-n | 1.17g-w | 17.05zzo | 11.73zzp |  |  |
| TVSu-2093 | 35.66h-p | 37.66h-p |  1.46w-za | 18.76f-n | 119.89g-y | 157.21d-v | 628.80c-n | 1.31c-l | 19.57h-w | 13.91f-n |  |  |
| TVSu-2094 | 34.66nop | 36.66nop | 1.50p-za | 19.72d-n | 89.26r-ze | 154.58d-v | 618.30c-n | 1.11o-w | 19.75h-u | 14.47c-h |  |  |
| TVSu-2095 | 35.77g-p | 37.77g-p | 1.46v-za | 20.51d-n | 97.92m-ze | 161.85c-v | 647.40b-n | 1.13l-w | 17.97v-zl | 14.07f-l |  |  |
| TVSu-2099 | 37.22b-p | 39.22b-p | 1.70a-g | 24.86b-l | 86.03s-ze | 166.20b-v | 664.80b-n | 1.11o-w | 20.75e-l | 15.08abc |  |  |
| TVSu-2100 | 36.88b-p | 38.88b-p | 1.63c-n | 26.75b-i | 158.53c-j | 213.85a-e | 855.40a-f | 1.38b-e | 22.78cd | 13.58j-u |  |  |
| TVSu-2101 | 39.88a-d | 41.88a-d | 1.64b-l | 24.77b-l | 67.13zze | 132.39j-v | 529.60f-n | 1.12n-w | 21.76d-g | 13.24l-zb |  |  |
| TVSu-2102 | 36.00f-p | 38.00f-p | 1.54j-z | 17.94g-n | 75.04x-ze | 111.04tuv | 444.20lmn | 1.10p-w | 18.11u-zj | 13.18m-zc |  |  |
| TVSu-2103 | 38.00a-o | 40.00a-o | 1.72a-e | 16.03i-n | 119.11g-y | 128.28l-v | 513.10h-n | 1.36b-f | 19.40k-z | 11.43zzq |  |  |
| Mean in a column with the same letter(s) are not significantly different according to DMRT (P = 0.05) |   |   |  |
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| **Legend** NDtoF=Number of days to first flowering, NDto50F=Number of days to 50%flowering, NFpP=Number of flower per peduncle |
|  Y/Plantg=Yield per plant g, NPpP=Number of pods per plot, YpP g=Yield per plot, YkgpHa=Yield per Hectare,  |  |  |
| NSdpd=Number of seed per pod, PdL mm=Pod length, PdW mm= Pod width  |  |  |  |  |  |
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| Table S1 cont’d. Mean performance of selected yield traits of 100 accessions of Bambara groundnut for three years (2017/2018, 2018/2019 and 2019/2020) |  |
| Accession | NDtoF | NDto50F | NFpP | Y/Plantg | NPpP | YpPg | YkgpHa | NSdpd | PdLmm | PdWmm |   |  |
| TVSu-2104 | 34.88nop | 36.88nop | 1.54k-z | 21.76c-n | 115.74j-za | 185.33a-p | 741.30b-n | 1.19g-w | 18.22t-zi | 13.33k-za |  |  |
| TVSu-2105 | 36.66c-p | 38.66c-p | 1.59f-v | 24.75b-l | 152.07c-k | 192.52a-m | 770.10b-l | 1.67a | 24.68a | 12.97p-zg |  |  |
| TVSu-2106 | 35.55i-p | 37.55i-p | 1.70a-f | 21.37d-n | 157.43c-j | 192.96a-m | 771.80b-l | 1.22e-v | 21.73d-g | 13.45j-y |  |  |
| TVSu-2108 | 37.22b-p | 39.222b-p | 1.57f-x | 17.05i-n | 84.63s-ze | 149.78e-v | 599.10c-n | 1.15i-w | 17.23zzo | 13.14n-zd |  |  |
| TVSu-2109 | 37.88a-p | 39.88a-p | 1.77a | 23.90b-m | 121.79g-w | 197.31a-k | 789.30b-j | 1.39bcd | 23.25bc | 12.87s-zh |  |  |
| TVSu-2110 | 34.44p | 36.44p | 1.56h-y | 21.53c-n | 66.31zze | 170.88b-v | 683.50b-n | 1.16h-w | 17.30zzo | 13.24l-zb |  |  |
| TVSu-2112 | 37.33b-p | 39.33b-p | 1.65b-l | 15.77i-n | 118.83g-y | 136.84i-v | 547.40f-n | 1.15j-w | 17.92w-zl | 12.69v-zh |  |  |
| TVSu-256 | 37.00b-p | 39.00b-p | 1.72a-e | 16.63i-n | 81.47t-ze | 120.10o-v | 480.40j-n | 1.21e-v | 18.90n-zd | 12.86s-zh |  |  |
| TVSu-261 | 37.55b-p | 39.55b-p | 1.66a-j | 24.30b-l | 214.78ab | 241.55a | 966.20ab | 1.15j-w | 16.31zzq | 12.64w-zi |  |  |
| TVSu-262 | 39.88a-d | 41.88a-d | 1.53l-z | 16.86i-n | 122.29f-v | 134.17j-v | 536.70f-n | 1.38b-e | 20.70e-l | 12.77t-zh |  |  |
| TVSu-263 | 37.77a-p | 39.77a-p | 1.49p-za | 15.60j-n | 114.86j-zb | 117.65p-v | 470.60j-n | 1.27d-p | 18.67p-zf | 12.21zzn |  |  |
| TVSu-267 | 37.00b-p | 39.00b-p | 1.45yza | 13.25mn | 140.61d-o | 114.67q-v | 458.70k-n | 1.20f-v | 17.74zzm | 12.75t-zh |  |  |
| TVSu-268 | 37.44b-p | 39.44b-p | 1.66a-j | 17.86g-n | 76.89u-ze | 104.06v | 416.20n | 1.24d-u | 18.09u-zj | 12.51zzl |  |  |
| TVSu-269 | 36.55c-p | 38.55c-p | 1.58f-w | 16.60i-n | 101.71l-ze | 129.67k-v | 518.70g-n | 1.16h-w | 14.96zzq | 10.44zzr |  |  |
| TVSu-271 | 36.77c-p | 38.77c-p | 1.60e-t | 15.99i-n | 63.35zze | 129.33k-v | 517.30h-n | 1.13m-w | 21.21e-h | 14.92b-e |  |  |
| TVSu-273 | 38.00a-o | 40.00a-o | 1.60e-s | 18.74f-n | 152.56c-k | 127.86l-v | 511.40h-n | 1.19g-w | 19.81h-t | 12.80t-zh |  |  |
| TVSu-275 | 34.66nop | 36.66nop | 1.53l-z | 21.95c-n | 158.63c-j | 187.35a-o | 749.40b-m | 1.45bc | 19.27k-za | 12.49zzl |  |  |
| TVSu-277 | 38.00a-o | 40.00a-o | 1.59f-v | 18.18g-n | 94.31p-ze | 133.68j-v | 534.70f-n | 1.25d-t | 19.58h-w | 12.11zzn |  |  |
| TVSu-278 | 36.00f-p | 38.00f-p | 1.59f-t | 17.72g-n | 105.47l-ze | 112.36r-v | 449.50lmn | 1.17h-w | 17.96w-zl | 12.64w-zi |  |  |
| TVSu-280 | 37.55b-p | 39.55b-p | 1.62d-p | 23.80b-m | 129.50f-s | 198.50a-j | 794.00b-j | 1.16h-w | 17.23zzo | 13.06n-ze |  |  |
| TVSu-285 | 38.66a-l | 40.66a-l | 1.61d-q | 13.17mn | 113.00j-zc | 109.20uv | 436.80mn | 1.14l-w | 20.59e-m | 12.82t-zh |  |  |
| TVSu-287 | 38.66a-l | 40.66a-l | 1.58f-w | 16.45i-n | 152.55c-k | 139.34h-v | 557.30e-n | 1.27d-p | 18.83o-ze | 12.69v-zh |  |  |
| TVSu-330 | 38.11a-n | 40.11a-n | 1.61d-q | 29.18b-f | 98.64m-ze | 179.82a-s | 719.30b-n | 1.12n-w | 19.66h-v | 14.24d-j |  |  |
| TVSu-331 | 37.22b-p | 39.22b-p | 1.46w-za | 24.51b-l | 87.06r-ze | 157.00d-v | 628.00c-n | 1.32b-j | 19.44j-y | 13.73g-s |  |  |
| TVSu-333 | 40.00abc | 42.00abc | 1.61d-q | 26.58b-j | 117.82h-z | 196.88a-k | 787.50b-k | 1.26d-p | 20.33g-p | 14.03f-m |  |  |
| Mean in a column with the same letter(s) are not significantly different according to DMRT (P = 0.05) |   |   |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Legend** NDtoF=Number of days to first flowering, NDto50F=Number of days to 50%flowering, NFpP=Number of flower per peduncle |
|  Y/Plantg=Yield per plant g, NPpP=Number of pods per plot, YpP g=Yield per plot, YkgpHa=Yield per Hectare,  |  |  |
| NSdpd=Number of seed per pod, PdL mm=Pod length, PdW mm= Pod width  |  |  |  |  |  |

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| Table S1 cont’d. Mean performance of selected yield traits of 100 accessions of Bambara groundnut for three years (2017/2018, 2018/2019 and 2019/2020) |  |
| Accession | NDtoF | NDto50F | NFpP | Y/Plantg | NPpP | YpPg | YkgpHa | NSdpd | PdLmm | PdWmm |   |  |
| TVSu-334 | 36.66c-p | 38.66c-p | 1.74abc | 21.04d-n | 168.06c-f | 179.26a-t | 717.00b-n | 1.29c-n | 21.07e-j | 13.82g-p |  |  |
| TVSu-336 | 37.33b-p | 39.33b-p | 1.57g-x | 33.51b | 117.58h-z | 229.44ab | 917.80abc | 1.17h-w | 23.10bcd | 13.57j-v |  |  |
| TVSu-34 | 37.22b-p | 39.22b-p | 1.56h-y | 18.98f-n | 82.44t-ze | 144.44f-v | 577.80d-n | 1.30c-m | 20.89e-k | 14.53c-g |  |  |
| TVSu-340 | 41.00a | 43.00a | 1.57h-y | 19.03e-n | 94.83o-ze | 136.86i-v | 547.40f-n | 1.16h-w | 19.15l-zb | 13.18m-zc |  |  |
| TVSu-346 | 39.88a-d | 41.88a-d | 1.54j-z | 19.53d-n | 92.57q-ze | 154.73d-v | 618.90c-n | 1.16h-w | 20.67e-l | 13.75g-r |  |  |
| TVSu-347 | 40.00abc | 42.00abc | 1.58f-w | 23.41b-n | 100.94m-ze | 182.50a-q | 730.00b-n | 1.08s-w | 18.93n-zc | 14.05f-m |  |  |
| TVSu-348 | 36.66c-p | 38.66c-p | 1.68a-i | 21.11d-n | 96.53n-ze | 147.94e-v | 591.80c-n | 1.18g-w | 18.45t-zg | 13.49j-x |  |  |
| TVSu-349 | 36.88b-p | 38.88b-p | 1.49q-za | 20.63d-n | 69.32zze | 151.96d-v | 607.80c-n | 1.32b-i | 20.15g-s | 13.43j-y |  |  |
| TVSu-350 | 35.33k-p | 37.33k-p | 1.72a-e | 29.88b-e | 184.56bcd | 225.84abc | 903.30a-d | 1.16h-w | 17.72zzn | 12.92q-zg |  |  |
| TVSu-351 | 37.77a-p | 39.77a-p | 1.50o-za | 19.48d-n | 75.29w-ze | 130.84j-v | 523.30g-n | 1.19g-w | 17.96w-zl | 13.18m-zc |  |  |
| TVSu-355 | 36.33e-p | 38.33e-p | 1.66a-k | 15.90i-n | 71.94zze | 114.64q-v | 458.60k-n | 1.19g-w | 19.59h-w | 13.90f-o |  |  |
| TVSu-356 | 37.33b-p | 39.33b-p | 1.59f-u | 16.65i-n | 123.15f-u | 136.38j-v | 545.50f-n | 1.10p-w | 17.14zzo | 12.73u-zh |  |  |
| TVSu-357 | 35.77g-p | 37.77g-p | 1.63c-n | 21.26d-n | 112.79j-zc | 152.22d-v | 608.90c-n | 1.06uvw | 17.37zzo | 13.93f-n |  |  |
| TVSu-359 | 35.33k-p | 37.33k-p | 1.64c-n | 19.64d-n | 59.72zze | 104.71v | 418.80n | 1.14k-w | 17.67zzo | 13.51j-w |  |  |
| TVSu-361 | 39.22a-g | 41.22a-g | 1.49q-za | 18.94f-n | 82.03t-ze | 130.81j-v | 523.20g-n | 1.18g-w | 19.41j-z | 13.83g-p |  |  |
| TVSu-363 | 36.77c-p | 38.77c-p | 1.64b-l | 20.48d-n | 163.53c-i | 169.66b-v | 678.60b-n | 1.28d-o | 19.11l-zb | 12.98p-zg |  |  |
| TVSu-365 | 37.88a-p | 39.88a-p | 1.67a-i | 18.03g-n | 189.12abc | 161.72c-v | 646.90b-n | 1.47b | 17.81x-zm | 11.14zzr |  |  |
| TVSu-366 | 35.44j-p | 37.44j-p | 1.58f-x | 22.19c-n | 107.22k-zd | 190.18a-n | 760.70b-m | 1.12n-w | 19.30k-za | 14.97b-d |  |  |
| TVSu-367 | 35.00m-p | 37.00m-p | 1.60d-s | 19.01f-n | 141.21d-o | 178.54a-t | 714.20b-n | 1.13m-w | 19.55i-w | 14.46c-i |  |  |
| TVSu-368 | 34.77nop | 36.77nop | 1.72a-e | 23.35b-n | 99.93m-ze | 180.70a-r | 722.80b-n | 1.10p-w | 22.00c-f | 15.39ab |  |  |
| TVSu-570 | 38.77a-k | 40.77a-k | 1.59e-t | 22.57c-n | 182.29b-e | 181.10a-q | 724.40b-n | 1.18g-w | 16.67zzo | 12.18zzn |  |  |
| TVSu-572 | 34.66nop | 36.66nop | 1.57h-y | 23.58b-n | 84.69s-ze | 180.93a-q | 723.70b-n | 1.18g-w | 22.11cde | 15.79a |  |  |
| TVSu-576 | 38.44a-m | 40.44a-m | 1.57h-y | 20.38d-n | 126.91f-t | 152.05d-v | 608.20c-n | 1.02w | 18.96m-zc | 13.40j-yz |  |  |
| TVSu-577 | 38.88a-j | 40.88a-j | 1.47u-za | 25.98b-k | 85.69s-ze | 169.97b-v | 679.90b-n | 1.28d-o | 18.23t-zi | 12.17zzn |  |  |
| TVSu-579 | 36.22e-p | 38.22e-p | 1.68a-h | 22.07c-n | 80.92t-ze | 147.99e-v | 592.00c-n | 1.08r-w | 16.24zzq | 12.21zzn |  |  |
| Mean in a column with the same letter(s) are not significantly different according to DMRT (P = 0.05) |   |   |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Legend** NDtoF=Number of days to first flowering, NDto50F=Number of days to 50%flowering, NFpP=Number of flower per peduncle |
|  Y/Plantg=Yield per plant g, NPpP=Number of pods per plot, YpP g=Yield per plot, YkgpHa=Yield per Hectare,  |  |  |
| NSdpd=Number of seed per pod, PdL mm=Pod length, PdW mm= Pod width  |  |  |  |  |  |

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| Table S1 cont’d. Mean performance of selected yield traits of 100 accessions of Bambara groundnut for three years (2017/2018, 2018/2019 and 2019/2020) |  |
| Accession | NDtoF | NDto50F | NFpP | Y/Plantg | NPpP | YpPg | YkgpHa | NSdpd | PdLmm | PdWmm |   |  |
| TVSu-585 | 36.88b-p | 38.88b-p | 1.55i-y | 16.83i-n | 75.97v-ze |  125.28mv | 501.10i-n | 1.26d-q | 20.64e-l | 13.63h-t |  |  |
| TVSu-586 | 37.33b-p | 39.33b-p | 1.50p-za | 18.54f-n | 82.69t-ze | 121.69o-v | 486.80j-n | 1.24d-u | 17.33zzo | 12.14zzn |  |  |
| TVSu-589 | 37.22b-p | 39.22b-p | 1.76ab | 23.96b-m | 138.76e-p | 205.16a-h | 820.70a-i | 1.45bc | 24.22ab | 14.07f-l |  |  |
| TVSu-590 | 38.44a-m | 40.44a-m | 1.57f-x | 28.59b-g | 102.88l-ze | 197.76a-k | 791.10b-j | 1.25d-s | 20.34g-o | 13.02o-zf |  |  |
| TVSu-594 | 39.00a-i | 41.00a-i | 1.46w-za | 32.10bc | 126.18f-t | 155.30d-v | 1091.80a | 1.34b-g | 18.33t-zh | 12.89r-zh |  |  |
| TVSu-602 | 37.11b-p | 39.11b-p | 1.63c-o | 16.52i-n | 117.69h-z | 150.45e-v | 601.80c-n | 1.16h-w | 17.50zzo | 13.25l-zb |  |  |
| TVSu-627 | 37.66a-p | 39.66a-p | 1.54j-z | 21.06d-n | 104.29l-ze | 163.40b-v | 653.60b-n | 1.33b-h | 20.25g-q | 12.60x-zj |  |  |
| TVSu-633 | 34.55op | 36.55op | 1.61d-r | 30.18bcd | 93.78q-ze | 186.30a-o | 745.20b-n | 1.22d-v | 18.59q-zf | 14.49c-g |  |  |
| TVSu-639 | 35.11m-p | 37.11m-p | 1.56h-y | 17.60h-n | 126.67f-t | 161.72c-v | 646.90b-n | 1.15i-w | 16.09zzq | 12.28zzm |  |  |
| TVSu-640 | 39.11a-h | 41.11a-h | 1.75abc | 14.20lmn | 100.43m-ze | 136.59i-v | 546.30f-n | 1.07t-w | 16.06zzq | 13.02o-zf |  |  |
| TVSu-644 | 36.33e-p | 38.33e-p | 1.64b-l | 20.62d-n | 92.69q-ze | 144.83f-v | 579.30d-n | 1.19g-w | 18.57s-zg | 13.61i-u |  |  |
| TVSu-647 | 36.44d-p | 38.44d-p | 1.66a-j | 17.47h-n | 123.70f-t | 179.87a-s | 719.50b-n | 1.20f-v | 17.84x-zm | 11.78zzp |  |  |
| TVSu-650 | 37.66a-p | 39.66a-p | 1.56h-y | 20.29d-n | 118.17g-z | 158.62c-v | 634.50c-n | 1.24d-t | 18.05v-zj | 12.84t-zh |  |  |
| TVSu-651 | 34.66nop | 36.66nop | 1.46v-za | 22.32c-n | 117.35i-z | 179.73a-s | 718.90b-n | 1.11o-w | 17.29zzo | 12.32zzm |  |  |
| TVSu-656 | 37.11b-p | 39.11b-p | 1.40za | 24.29b-l | 124.56f-t | 196.26a-l | 785.00b-k | 1.18g-w | 20.83e-k | 14.71b-f |  |  |
| TVSu-659 | 37.55b-p | 39.55b-p | 1.65b-l | 15.00k-n | 114.15j-zb | 108.02v | 432.10mn | 1.38b-e | 18.31t-zh | 10.43zzr |  |  |
| TVSu-662 | 40.33ab | 42.33ab | 1.55i-y | 12.63n | 163.88c-h | 111.89s-v | 447.60lmn | 1.23d-v | 15.04zzq | 10.91zzr |  |  |
| TVSu-667 | 36.44d-p | 38.44d-p | 1.61d-q | 19.94d-n | 103.78l-ze | 154.14d-v | 616.60c-n | 1.25d-r | 18.72p-zf | 13.73g-s |  |  |
| TVSu-670 | 38.77a-k | 40.77a-k | 1.58f-x | 22.32c-n | 133.50f-r | 166.80b-v | 667.20b-n | 1.12n-w | 18.43t-zg | 13.32k-za |  |  |
| TVSu-675 | 37.44b-p | 39.44b-p | 1.64c-m | 18.79f-n | 122.44f-v | 147.34e-v | 589.30d-n | 1.38b-e | 21.17e-i | 13.29k-za |  |  |
| TVSu-81 | 35.66h-p | 37.66h-p | 1.48t-za | 20.76d-n | 93.24q-ze | 172.39b-v | 689.50b-n | 1.17h-w | 17.79x-zm | 12.83t-zh |  |  |
| TVSu-82 | 36.22e-p | 38.22e-p | 1.52m-za | 23.25b-n | 74.31y-ze | 167.24b-v | 669.00b-n | 1.10p-w | 20.53e-n | 13.77g-q |  |  |
| TVSu-83 | 38.88a-j | 40.88a-j | 1.58f-v | 20.85d-n | 142.00d-n | 166.06b-v | 664.20b-n | 1.17h-w | 19.58h-w | 14.13e-k |  |  |
| TVSu-838 | 35.00m-p | 37.00m-p | 1.70a-g | 21.18d-n | 151.94c-k | 170.58b-v | 682.30b-n | 1.20f-v | 18.03v-zj | 12.68w-zh |  |  |
| TVSu-844 | 35.88g-p | 37.88g-p | 1.48s-za | 23.06c-n | 148.08c-l | 178.83a-t | 715.30b-n | 1.37b-f | 20.21g-s | 13.11n-zd |  |  |
| Mean in a column with the same letter(s) are not significantly different according to DMRT (P = 0.05) |   |   |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Legend** NDtoF=Number of days to first flowering, NDto50F=Number of days to 50%flowering, NFpP=Number of flower per peduncle |
|  Y/Plantg=Yield per plant g, NPpP=Number of pods per plot, YpP g=Yield per plot, YkgpHa=Yield per Hectare,  |  |  |
| NSdpd=Number of seed per pod, PdL mm=Pod length, PdW mm= Pod width  |  |  |  |  |  |

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| Table S2.Classification of Bambara groundnut accessions based on qualitative traits |  |
|   | Frequency | Percentage(%) | Cum. Frequency | Cum. Percentage |
| **Terminal Leaflet Colour (TLC)** |  |  |  |  |
| Green | 300 | 100 | 300 | 100 |
|  |  |  |  |  |
| **Terminal leaflet Shape (TLS)** |  |  |  |  |
| Oval | 132 | 44 | 132 | 44 |
| Lanceolate | 165 | 55 | 297 | 99 |
| Elliptic | 3 | 1 | 300 | 100 |
|  |  |  |  |  |
| **Petiole Colour (Petcol)** |  |  |  |  |
| Whole green | 198 | 66 | 198 | 66 |
| Base purple | 102 | 34 | 300 | 100 |
|  |  |  |  |  |
| **Pod shape** |  |  |  |  |
| Without point | 6 | 2 | 6 | 2 |
| Ending in a point round on the other side | 123 | 41 | 129 | 43 |
| Ending in a point with nook on the other side | 171 | 57 | 300 | 100 |
|  |  |  |  |  |
| **Dry pod colour** |  |  |  |  |
| Yellowish brown | 246 | 82 | 246 | 82 |
| Brown | 39 | 13 | 285 | 95 |
| Reddish brown | 15 | 5 | 300 | 100 |
|  |  |  |  |  |
| **Seed Shape** |  |  |  |  |
| Round | 33 | 11 | 33 | 11 |
| Oval | 267 | 89 | 300 | 100 |
|  |  |  |  |  |
| **Growth habit** |  |  |  |  |
| Bunchy | 300 | 100 | 300 | 100 |
|  |  |  |  |  |
| **Open flower colour** |  |  |  |  |
| Yellow | 300 | 100 | 300 | 100 |
|  |  |  |  |  |
| **Seed hilum colour** |  |  |  |  |
| White | 153 | 51 | 153 | 51 |
| Chalk white | 147 | 49 | 300 | 100 |

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| Table S2 cont’d. Classification of the selected accessions based on qualitative traits (Eye pattern) |  |  |  |
| **Eye pattern** | Frequency | Percentage (%) | Cum. Frequency | Cum. Percentage |
|  cream testa with black butterfly-like eye | 12 | 4 | 12 | 4 |
| cream testa with grey butterfly-like eye | 63 | 21 | 75 | 25 |
| cream testa with black triangular eye | 12 | 4 | 87 | 29 |
| cream testa with brown triangular eye | 15 | 5 | 102 | 34 |
| cream with grey triangular eye | 12 | 4 | 114 | 38 |
| cream testa with black irregular eye | 6 | 2 | 120 | 40 |
| cream testa with grey double thick lines on both sides of the eye | 9 | 3 | 129 | 43 |
| cream testa with brown circular eye | 6 | 2 | 135 | 45 |
| light brown testa with grey butterfly-like eye | 9 | 3 | 144 | 48 |
| light brownish red testa with dark brown circular or triangular eye | 24 | 8 | 168 | 56 |
| cream black with grey irregular eye | 3 | 1 | 171 | 57 |
| cream testa with light purple butterfly-like eye | 6 | 2 | 177 | 59 |
| dark violet testa with grey butterfly-like eye | 3 | 1 | 180 | 60 |
| cream testa with brown butterfly-like eye | 48 | 16 | 228 | 76 |
| cream testa with butterfly eye and double thick line on both side of eye | 3 | 1 | 231 | 77 |
| light brown testa with brown circular eye | 12 | 4 | 243 | 81 |
| light brown testa with dark brown butterfly eye | 6 | 2 | 249 | 83 |
| cream testa with tan brown speckle butterfly eye | 3 | 1 | 252 | 84 |
| black testa with ash or grey circular eye | 9 | 3 | 261 | 87 |
| yellowish brown testa with cream circular like eye | 3 | 1 | 264 | 88 |
| dark testa with tan brown butterfly-like eye | 3 | 1 | 267 | 89 |
| dark testa with cream butterfly-like eye | 6 | 2 | 273 | 91 |
| brown testa with black speckles tan brown eye | 3 | 1 | 276 | 92 |
| brownish red testa with grey circular like eye | 6 | 2 | 282 | 94 |
| brown testa with dark butterfly-like eye | 3 | 1 | 285 | 95 |
| dark brown testa with brown circular like eye | 3 | 1 | 288 | 96 |
| light brown testa with grey circular like eye | 3 | 1 | 291 | 97 |
| irregular black testa with double thick dark lines on both sides of eye | 3 | 1 | 294 | 98 |
| irregular brown testa with brown butterfly like eye | 3 | 1 | 297 | 99 |
| reddish brown testa with brown regular eye | 3 | 1 | 300 | 100 |

Table S2 cont’d. Classification of the selected accessions based on qualitative traits

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|  (Seed Colour) |
| Seed Colour | Frequency | Percentage (%) | Cum. Frequency | Cum. Percentage |
| Brown |  | 6 | 2 | 6 | 2 |
| Brownish Orange | 6 | 2 | 12 | 4 |
| Brownish biege | 3 | 1 | 15 | 5 |
| Brownish orange | 15 | 5 | 30 | 10 |
| Dark Purple | 3 | 1 | 33 | 11 |
| Dark brown | 12 | 4 | 45 | 15 |
| Dark purple | 3 | 1 | 48 | 16 |
| Dark ruby |  | 3 | 1 | 51 | 17 |
| Dark violet |  | 6 | 2 | 57 | 19 |
| Dull yellow | 6 | 2 | 63 | 21 |
| Greyish brown | 9 | 3 | 72 | 24 |
| Greyish orange | 6 | 2 | 78 | 26 |
| Greyish yellow | 33 | 11 | 111 | 37 |
| Light Orange | 3 | 1 | 114 | 38 |
| Light brown | 27 | 9 | 141 | 47 |
| Light orange | 15 | 5 | 156 | 52 |
| Light yellow | 6 | 2 | 162 | 54 |
| Orange white | 6 | 2 | 168 | 56 |
| Pale orange | 6 | 2 | 174 | 58 |
| Pale violet |  | 6 | 2 | 180 | 60 |
| Pale yellow | 78 | 26 | 258 | 86 |
| Reddish brown | 18 | 6 | 276 | 92 |
| Violet brown | 12 | 4 | 288 | 96 |
| Yellowish brown | 9 | 3 | 297 | 99 |
| Yellowish grey | 3 | 1 | 300 | 100 |
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| Table S3. Mean squares of ANOVA for quantitative traits of Bambara groundnut in two locations for three years |
| Sources of Var. |   | df | PH (cm) | TLL (mm) | TLW (mm) | NTLvs |   |   |
| Accession  |  | 99 | 77.77\*\* | 733.46\*\* | 371.51\*\* | 0.07\*\* |  |  |
| Replicate |  |  | 2 | 8.10ns | 238.06ns | 19.46ns | 0.41\*\* |  |  |
| Year |  |  | 2 | 6508.88\*\* | 7587.20\*\* | 3284.90\*\* | 12.20\*\* |  |  |
| Location |  |  | 1 | 618.31\*\* | 514.93ns | 1272.94\*\* | 0.04ns |  |  |
| Accession x Replicate  | 198 | 6.98ns | 36.24ns | 10.60ns | 0.03\*\* |  |  |
| Accession x Year |  | 198 | 10.91\*\* | 88.95\*\* | 38.69\*\* | 0.04\*\* |  |  |
| Accession x Location |  | 99 | 7.61ns | 69.93\*\* | 26.61\*\* | 0.03\*\* |  |  |
| Accession x Location x year | 200 | 25.84\*\* | 94.90\*\* | 19.81\*\* | 0.14\*\* |  |  |
| Mean Square Error  |  |  | 6.48 | 39.61 | 9.41 | 0.01 |  |  |
| Mean |  |  |  | 22.38 | 62.96 | 27.59 | 67.39 |  |  |
| StD |   |   |   | 2.07 | 6.39 | 4.54 | 9.92 |   |   |
| Legend: PHcm=Plant height(cm), TLL(mm)=Terminal leaflet length, TLW(mm)=Terminal leaflet width, NTLvs=Number of Trifoliate Leaves |  |  |
| \*Significant at 5% level of probability; \*\*Significant at 1% level of probability; ns = Not significant |  |

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| Table S3. cont’d Mean squares of ANOVA for quantitative traits of Bambara groundnut  |  |  |
| Sources of Var. |   | df | PlanSpr cm | IntL (mm) | BL (mm) | PdclL (mm) |  |  |
| Accession  |  | 99 | 238.88\*\* | 96.03\*\* | 0.52\*\* | 4.52\*\* |  |  |
| Replicate |  |  | 2 | 40.44ns | 30.85\*\* | 11.78\*\* | 6.53\*\* |  |  |
| Year |  |  | 2 | 30459.72\*\* | 7264.09\*\* | 0.65\*\* | 14.78\*\* |  |  |
| Location |  |  | 1 | 18008.51\*\* | 602.27\*\* | 18.22\*\* | 14.23\*\* |  |  |
| Accession x Replicate  | 198 | 29.73\*\* | 2.15ns | 0.57\*\* | 3.78\*\* |  |  |
| Accession x Year |  | 198 | 153.36\*\* | 7264.09\*\* | 0.02ns | 0.28ns |  |  |
| Accession x Location | 99 | 43.76\*\* | 10.87\*\* | 0.03ns | 0.35ns |  |  |
| Accession x Location x year | 200 | 193.34\*\* | 10.25\*\* | 0.05\*\* | 0.83ns |  |  |
| Mean Square Error  |  |  | 19.37 | 2.9 | 0.02 | 0.69 |  |  |
| Mean |  |  |  | 37.43 | 13.63 | 5.63 | 5.17 |  |  |
| StD |   |   |   | 3.69 | 2.3 | 0.17 | 0.5 |  |  |
| **Legend**: PlanSpr cm=Plant Spread (cm), IntL mm=Internode Length (mm), BL mm=Banner Length, PdclL mm=Peduncle length  |  |  |
| \*Significant at 5% level of probability; \*\*Significant at 1% level of probability; ns = Not significant |  |

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| Table S3. cont’d Mean squares of ANOVA for quantitative traits of Bambara groundnut  |  |  |
| Sources of Var. |   | df | NFpP | Y/Plant g | NPpP | YpP g |  |  |
| Accession  |  | 99 | 0.00\*\* | 367.31\*\* | 0.26\*\* | 15824.06\*\* |  |  |
| Replicate |  |  | 2 | 0.01\*\* | 765.82ns | 0.31ns | 44822.04ns |  |  |
| Year |  |  | 2 | 0.01ns | 288957.06\*\* | 161.91\*\* | 9915396.44\*\* |  |  |
| Location |  |  | 1 | 0.00ns | 29072.27\*\* | 21.21\*\* | 329430.77\*\* |  |  |
| Accession x Replicate  | 198 | 0.00\*\* | 247.50\*\* | 0.09ns | 7962.10ns |  |  |
| Accession x Year |  | 198 | 0.00ns | 375.39\*\* | 0.17\*\* | 13304.21\*\* |  |  |
| Accession x Location | 99 | 0.00ns | 118.26ns | 0.11\*\* | 5812.72ns |  |  |
| Accession x Location x year | 200 | 0.00\*\* | 190.01ns | 0.12\*\* | 37611.56\*\* |  |  |
| Mean Square Error  |  |  | 0 | 152.17 | 0.06 | 5717.8 |  |  |
| Mean |  |  |  | 1.58 | 20.89 | 118.71 | 159.19 |  |  |
| StD |   |   |   | 0.08 | 4.82 | 35.28 | 31.23 |  |  |
| **Legend**: NFpP=Number of flower per peduncle, Y/plant g=Yield per plant in g, NpdspP=Number of pods per plot, YpP g=Yield per Plant in g |  |  |
| \*Significant at 5% level of probability; \*\*Significant at 1% level of probability; ns = Not significant |  |
|  |  |  |  |  |  |  |  |  |  |

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| Table S3. cont’d Mean squares of ANOVA for quantitative traits of Bambara groundnut  |  |
| Sources of Var. |   | df | PdW mm | SdL mm | SdW mm | Shthk mm | Sdwt/P g |  |
| Accession  |  | 99 | 18.23\*\* | 16.70\*\* | 7.86\*\* | 0.39\*\* | 7952.95ns |  |
| Replicate |  |  | 2 | 55.04\*\* | 21.44\*\* | 0.99ns | 0.71ns | 11138.41ns |  |
| Year |  |  | 2 | 1025.28\*\* | 312.76\*\* | 236.08\*\* | 7.27\*\* | 4784555.20\*\* |  |
| Location |  |  | 1 | 69.05\*\* | 103.65\*\* | 80.41\*\* | 2.56\*\* | 285570.16\*\* |  |
| Accession x Replicate  | 198 | 4.02\*\* | 3.17\*\* | 3.97\*\* | 0.25\*\* | 3635.42ns |  |
| Accession x Year |  | 198 | 2.29\*\* | 1.61\*\* | 1.66\*\* | 0.10ns | 6378.42ns |  |
| Accession x Location | 99 | 1.43ns | 0.56ns | 0.76ns | 0.03ns | 7388.02ns |  |
| Accession x Location x year | 200 | 1.47ns | 1.52\*\* | 1.09\*\* | 0.23\*\* | 26992.68\*\* |  |
| Mean Square Error  |  |  | 1.04 | 0.67 | 0.72 | 0.11 | 5111.26 |  |
| Mean |  |  |  | 13.02 | 11.47 | 9.33 | 0.73 | 111.16 |  |
| StD |   |   |   | 1.03 | 1 | 0.71 | 0.15 | 21.53 |  |
| **Legend.** PdW mm=Pod width mm, SdL mm=Seed length mm, SdW mm=Seed width mm, Shthk mm=Shell thickness mm, Sdwt/P g=Seed weight |  |  |
| \*Significant at 5% level of probability; \*\*Significant at 1% level of probability; ns = Not significant |  |

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| Table S3. cont’d Mean squares of ANOVA for quantitative traits of Bambara groundnut |  |
| Sources of Var. |  | df | Pet L (mm) | Hsdwt g |   | NDtoFF | NDto50%F |
| Accession  |  | 99 | 4862.19\*\* | 4182.53\*\* | 0.00\*\* | 0.00\*\* |  |
| Replicate |  |  | 2 | 1565.04ns | 1491.11\*\* | 8.46ns | 0.00ns |  |
| Year |  |  | 2 | 593357.29\*\* | 4286.78\*\* | 1004.42\*\* | 0.74\*\* |  |
| Location |  |  | 1 | 157654.84\*\* | 4339.82\*\* | 0.00ns | 0.00ns |  |
| Accession x Replicate  | 198 | 625.87ns |  | 433.05\*\* | 0.92ns | 0.00ns |  |
| Accession x Year |  | 198 | 999.15\*\* |  | 335.02\*\* | 2.15\*\* | 0.00\*\* |  |
| Accession x Location | 99 | 736.44ns |  | 21.66ns |  | 0.00ns | 0.00ns |  |
| Accession x Location x year | 200 | 3123.26\*\* | 33.14ns |  | 0.00ns | 0.00ns |  |
| Mean Square Error  |  |  | 610.28 |  | 50.55 |  | 0 | 0 |  |
| Mean |  |  |  | 151.27 |  | 67.68 |  | 37.11 | 39.11 |  |
| StD |   |   |   | 16.47 |   | 15.27 |   | 1.49 | 1.49 |   |
| **Legend.** Pet L(mm)= Petiole length (mm), Hsdwt g=100 seed weight g, NDtoFF=Number of Days to first flowering, NDto50%F=Number of days to 50%flowering |  |  |  |  |
| \*Significant at 5% level of probability; \*\*Significant at 1% level of probability; ns = Not significant |  |  |

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| Table S3. cont’d Mean squares of ANOVA for quantitative traits of Bambara groundnut |  |  |
| Sources of Var. |   | df | YkgpHa | Nsdpd | PdL mm | Chfwt/P |   | Shperc | ShdhvP |  |
| Accession  |  | 99 | 275889.50\*\* | 0.01\*\* | 66.23\*\* | 2631.08ns |   | 557.61ns | 551.37ns |
| Replicate |  |  | 2 | 1044455.60ns | 0.00ns | 4.19ns | 1113.10ns |  | 432.73ns | 568.61ns |
| Year |  |  | 2 | 158265005.90\*\* | 0.08\*\* | 962.86\*\* | 680189.26\*\* |  | 6810.96\*\* | 6763.11\*\* |
| Location |  |  | 1 | 4573157.20\*\* | 0.05ns | 807.37\*\* | 64066.80\*\* |  | 6821.84ns | 6598.93ns |
| Accession x Replicate  | 198 | 164021.30ns | 0.00\*\* | 19.05\*\* | 2128.17ns |  | 535.47ns | 535.07ns |
| Accession x Year |  | 198 | 268399.40\*\* | 0.00ns | 16.77\*\* | 2522.11\*\* |  | 704.64\*\* | 708.75\*\* |
| Accession x Location | 99 | 117024.20ns | 0.00\*\* | 13.45\*\* | 1795.12ns |  | 489.26ns | 492.37ns |
| Accession x Location x year | 200 | 667334.80\*\* | 0.00ns | 18.55\*\* | 4923.05\*\* |  | 433.35ns | 432.73ns |
| Mean Square Error  |  |  | 132101 | 0 | 3.76 | 1680.59 |  | 469.05 | 472.3 |  |
| Mean |  |  |  | 641.59 | 1.21 | 18.96 | 43.51 |  | 37.77 | 62.13 |  |
| StD |   |   |   | 132.97 | 0.11 | 1.87 | 13.62 |   | 7.07 | 7.02 |  |
| **Legend.** YkgpHa=Yield in kilogramme per hectare, Nsdpd=Number of seed per pod, PdL mm=Pod length mm per plot g, Chfwt/P=Chaff weight per plot g, Shperc=Shelling percentage, ShdhvP=Shelled harvest per plot % |  |  |  |
| \*Significant at 5% level of probability; \*\*Significant at 1% level of probability; ns = Not significant |  |  |  |

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| Table S4 Combined phenotypic correlation of yield contributing traits evaluated in two locations for three years  |  |  |  |  |  |
| Traits | PHcm | NoDtoF | Yplantg | NPdspar | YpPg | YKgpha | Nsdpd | PdL mm | PdW mm | SdL mm | SdW mm | Sdwtg | Chwtg | Shperc | Shdhvp |
| NoDtoF | 0.08ns |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Yplantg | 0.23\* | -0.15ns |  |  |  |  |  |  |  |  |  |  |  |  |  |
| NPdspar | -0.09ns | -0.00ns | 0.28\*\* |  |  |  |  |  |  |  |  |  |  |  |  |
| YpPg | 0.27\*\* | -0.28\*\* | 0.78\*\* | 0.47\*\* |  |  |  |  |  |  |  |  |  |  |  |
| YKgpha | 0.23\* | -0.22\* | 0.81\*\* | 0.45\*\* | 0.93\*\* |  |  |  |  |  |  |  |  |  |  |
| Nsdpd | 0.07ns | 0.01ns | -0.02ns | 0.24\* | 0.05ns | 0.09ns |  |  |  |  |  |  |  |  |  |
| Pdlthmm | 0.54\*\* | 0.01ns | 0.25\*\* | -0.11ns | 0.30\*\* | 0.27\*\* | 0.42\*\* |  |  |  |  |  |  |  |  |
| PdWidmm | 0.35\*\* | -0.23\* | 0.25\*\* | -0.36\*\* | 0.29\*\* | 0.26\*\* | -0.21\* | 0.54\*\* |  |  |  |  |  |  |  |
| SdLthmm | 0.39\*\* | -0.17ns | 0.36\*\* | -0.18ns | 0.43\*\* | 0.37\*\* | -0.14ns | 0.63\*\* | 0.74\*\* |  |  |  |  |  |  |
| SdWidmm | 0.21\* | -0.27\*\* | 0.21\* | -0.27\*\* | 0.26\*\* | 0.23\* | -0.21\* | 0.34\*\* | 0.74\*\* | 0.67\*\* |  |  |  |  |  |
| Sdwtg | 0.12ns | -0.29\*\* | 0.78\*\* | 0.45\*\* | 0.87\*\* | 0.83\*\* | 0.08ns | 0.17ns | 0.15ns | 0.29\*\* | 0.18ns |  |  |  |  |
| Chwtg | -0.12ns | -0.17ns | 0.18ns | 0.00ns | 0.26\*\* | 0.26\*\* | -0.07ns | -0.08ns | 0.05ns | 0.01ns | 0.06ns | 0.12ns |  |  |  |
| Shperc | 0.14ns | -0.05ns | -0.06ns | -0.45\*\* | -0.18ns | -0.21\* | -0.16ns | 0.15ns | 0.32\*\* | 0.09ns | 0.11ns | -0.32\*\* | 0.22\* |  |  |
| Shdhvp | -0.12ns | 0.03ns | 0.08ns | 0.45\*\* | 0.20\* | 0.23\* | 0.18ns | -0.14ns | -0.31\*\* | -0.09ns | -0.11ns | 0.35\*\* | -0.21\* | -0.98\*\* |  |
| Hdsdwtg | 0.28\*\* | -0.32\*\* | 0.30\*\* | -0.27\*\* | 0.41\*\* | 0.34\*\* | -0.28\*\* | 0.39\*\* | 0.78\*\* | 0.77\*\* | 0.71\*\* | 0.30\*\* | 0.19\* | 0.17ns | -0.16ns |
| \* significant at P≤0.05, \*\* significant at P≤0.01, ns = not significant |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Legend.** PHcm=Plant height, NoDtoF=Number of days to first flowering, Yplant g=Yield per plant, Npdspar=Number of pods per area, YpP g=Yield per plot, |  |  |  |
| YKgpHa=Yield per ha, NSdpd=Number of seed per pod, PdL mm=Pod length, PdW mm=Pod width, SdL mm=Seed length, SdW mm=Seed width, Sdwt g=Seed weight per plot, |  |  |
| Chwt g=Chaff weight per plot, Shperc=Shelling percentage, ShdhvP=Shelled harvest per plot. |  |  |  |  |  |  |  |  |