# Supplementary Tables

**Table S1.** Number of sites covered by the trials and their soil types across sites in East Africa

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Country | Region | District/County | Farms | Soil type | Latitude; Longitude | Elevation(m asl) | Annual rainfall (mm)§ |
| Kenya | Eastern | Embu | 5 | Nitisols | 0.54°S; 37.45°E | 1350 | 450-1400 |
|  | Western | Kakamega | 38 | Acrisols; Lixisols | 0.28°N; 34.75°E | 1535 | 1740 |
|  |  | Busia | 36 | Acrisols | 0.46°N; 34.11°E | 1227 | 2290 |
| Rwanda | Southern | Huye | 34 | Acrisols | 2.60°S; 29.74°E | 2278 | 1200-1600 |
|  |  | Kamonyi | 12 | Acrisols | 2.00°S; 290.90°E | 1661 | 800-1200 |
|  |  | Muhanga | 6 | Acrisols | 1.97°S; 29.74°E | 1862 | 1440 |
|  |  | Nyanza | 12 | Acrisols | 2.34°S; 29.75°E | 1792 | 1400 |
|  | Eastern | Gatsibo | 6 | Acrisols | 1.61°S; 30.39°E | 1550 | 740-1130 |
|  |  | Kayonza | 4 | Acrisols | 1.94°S; 30.52°E | 1428 | 925 |
|  |  | Kirehe | 22 | Acrisols | 2.26°S; 30.64°E | 2500 | 1009 |
| Tanzania | Arusha | Arumeru | 28 | Leptosols; Andosols | 3.29°S; 36.82°E | 1175 | 535 |
|  | Kilimanjaro | Hai | 25 | Nitisols | 3.40°S; 37.16°E | 1500 | 520 |
|  |  | Moshi | 26 | Nitisols | 3.34°S; 37.35°E | 950 | 525 |
|  | Dodoma | Kondoa | 34 | Leptosols; Luvisols | 4.90°S; 35.78°E | 1386 | 680 |
|  | Kagera | Biharamulo | 5 | Cambisols | 2.63°S; 31.31°E | 1296 | 800-1000 |
|  |  | Bukoba | 20 | Cambisols | 1.32°S; 31.80°E | 1500 | 1500-2000 |
|  |  | Misenyi | 18 | Leptosols | 1.10°S; 31.35°E | 1160 | 750-1000 |
|  |  | Muleba | 6 | Cambisols; Leptosols | 1.84°S; 31.65°E | 1350 | 1000-1500 |
| Uganda | Northern | Apac | 4 | Ferralsols | 1.87°S; 32.62°E | 1079 | 1330 |
|  |  | Dokolo | 23 | Vertisols; Leptosols | 1.91°S; 33.17°E | 1080 | 1200 |
|  |  | Busia | 49 | Ferralsols | 0.47°N; 34.09°E | 1198 | 1200-1300 |
|  | Eastern | Iganga | 17 | Plinthosols; Fluvisols | 0.60°N; 33.47°E | 1120 | 1985 |
|  |  | Namutumba | 15 | Plinthosols | 0.83°N; 33.68°E | 1135 | 1573 |
|  |  | Tororo | 19 | Ferralsols; Plinthosols | 0.67°N; 34.18°E | 1278 | 2028 |

§ Total annual rainfall represents long-term average from the literature. Rainfall amount received during the season was not available due to absence of metrological stations near most of the trial sites

**Table S2.** Maize varieties used and their water-limited yield potential (t ha-1) and the percentage of the yield potential achieved in this study (%YP achieved) with NP fertilizer

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Country | Variety | Type | Year of release | Daysto maturity | Yield potential\* | Control yield | Fertilized yield | %YP† potential |
| Kenya | H 513 | Hybrid | 2001 | 150 | 6.0 | 2.3 | 3.2 | 54.1 |
|  | H 614 | Hybrid | 1977 | 190 | 7.0 | 1.3 | 2.9 | 40.7 |
|  | H 624 | Hybrid | 2004 | 180 | 7.0 | 2.6 | 3.6 | 51.7 |
| Rwanda | SC 501 | Hybrid | 2000 | 134 | 6.0 | 2.0 | 2.6 | 43.0 |
|  | M081 | OPV | NA | NA | 5.0 | 1.9 | 2.7 | 53.4 |
|  | Pool 9 | OPV | NA | NA | 5.0 | 1.9 | 2.4 | 47.5 |
|  | Pool 32 | OPV | 2001 | NA | 6.0 | 1.8 | 2.8 | 46.2 |
|  | Situka | OPV | 2001 | 110 | 6.0 | 0.9 | 2.9 | 47.2 |
|  | ZM 607 | OPV | 2001 | NA | 7.0 | 2.1 | 4.5 | 74.7 |
| Tanzania | PAN 691 | Hybrid | 2001 | 210 | 8.0 | 1.7 | 3.3 | 40.8 |
|  | Kilima | OPV | 1983 | 140 | 4.8 | 1.0 | 3.4 | 72.0 |
|  | Situka | OPV | 2001 | 120 | 6.0 | 0.9 | 2.9 | 47.2 |
| Uganda | Longe 5 | OPV | 2000 | 115 | 6.0 | 1.8 | 3.5 | 59.0 |
|  | Longe 7H | Hybrid | 2002 | 125 | 8.0 | 1.5 | 2.1 | 26.6 |

\*Source: PANAR product catalogues; Seed Co product manuals. Improved maize variety list from Kenya, Uganda and Tanzania.

NA = Information not available

†The %YP was calculated as $\%YP=100×\left(\frac{Y\_{e}}{Y\_{p}}\right)$ where Ye is the empirical yield, Yp is the water limited yield potential.