**Supplementary Information**

**TITLE**: Interactive effect of water and nutrient on survival and growth of tree seedlings of four dry tropical tree species under grass competition

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**Table S1.** Effect of water availability, nutrient addition and grass competition on the survival of tree seedlings.

**Table S2.** Summary of Analysis of Variance (ANOVA) for the individual and interactive effect of treatments on the seedling growth traits

**Table S1.** Effect of water availability, nutrient addition and grass competition on the survival of tree seedlings.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Factor | *df* | *F* | *P* | |
| S | 3 | 9.81 | | <0.001 |
| W | 1 | 65.6 | | <0.001 |
| G | 1 | 22.0 | | <0.001 |
| N | 1 | 26.2 | | <0.001 |
| S×W | 3 | 1.27 | | 0.291 |
| S×G | 3 | 0.06 | | 0.980 |
| S×N | 3 | 0.12 | | 0.291 |
| W×G | 1 | 2.91 | | 0.980 |
| W×N | 1 | 1.64 | | 0.947 |
| G×N | 1 | 8.91 | | 0.093 |
| S×W×G | 3 | 1.09 | | 0.205 |
| S×W×N | 3 | 0.55 | | 0.004 |
| S×G×N | 3 | 0.79 | | 0.359 |
| W×G×N | 1 | 0.73 | | 0.653 |
| S×W×G×N | 3 | 0.61 | | 0.505 |
| Error | 64 |  | |  |

S – species, W – water, N – nutrient, and G – grass.

**Table S2.** Summary of Analysis of Variance (ANOVA) for the individual and interactive effect of treatments on the seedling growth traits

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Factor | *df* | Height | Girth | Total dry weight | Leaf area | Leaf number | RGRH | RGRD | RGRW |
| S | 3 | 214\*\*\* | 441.7\*\*\* | 2303\*\*\* | 4252\*\*\* | 2618\*\*\* | 67.66\*\*\* | 23.07\*\*\* | 78.85\*\*\* |
| W | 1 | 1098\*\*\* | 1753\*\*\* | 4268\*\*\* | 18.16\*\*\* | 2116\*\*\* | 431.12\*\*\* | 317.7\*\*\* | 590.9\*\*\* |
| G | 1 | 203.1\*\*\* | 185\*\*\* | 497.6\*\*\* | 4.29\* | 102.8\*\*\* | 7.124\*\*\* | 34.21\*\*\* | 62.73\*\*\* |
| N | 1 | 722.9\*\*\* | 874.9\*\*\* | 1113\*\*\* | 10.96\*\*\* | 148.5\*\*\* | 32.314\*\* | 170\*\*\* | 143.9\*\*\* |
| S×W | 3 | 22.3\*\*\* | 117.2\*\*\* | 266.4\*\*\* | 0.768ns | 78.11\*\*\* | 0.328ns | 12.92\*\*\* | 7.419\*\*\* |
| S×G | 3 | 3.958\*\* | 11.05\*\*\* | 9.367\*\*\* | 0.236ns | 8.972\*\*\* | 0.1834ns | 0.7ns | 1.438ns |
| S×N | 3 | 2.979\* | 10.18\*\*\* | 6.911\*\*\* | 0.529ns | 3.591\* | 0.073ns | 0.741ns | 1.453ns |
| W×G | 1 | 17.62\*\*\* | 13.99\*\*\* | 79.77\*\*\* | 1.333ns | 36.28\*\*\* | 0.005ns | 0.595ns | 0.813ns |
| W×N | 1 | 6.46\*\* | 23.59\*\*\* | 226.7\*\*\* | 1.315ns | 26.95\*\*\* | 4.141\* | 0.004ns | 6.439ns |
| G×N | 1 | 17.86\*\*\* | 11.56\*\*\* | 225.3\*\*\* | 0.428ns | 56.38\*\*\* | 0.591ns | 0.874ns | 31.14\*\*\* |
| S×W×G | 3 | 4.212\*\* | 3.533\* | 41.19\*\*\* | 0.211ns | 9.381\*\*\* | 0.13ns | 0.226ns | 2.546ns |
| S×W×N | 3 | 2.233ns | 3.317\* | 25.14\*\*\* | 0.091ns | 3.992\*\* | 0.088ns | 1.181ns | 0.885ns |
| S×G×N | 3 | 1.785ns | 1.294ns | 11.25\*\*\* | 0.014ns | 3.096\* | 0.098ns | 0.123ns | 2.709\* |
| W×G×N | 1 | 1.932ns | 0.002ns | 2.457ns | 0.258ns | 17.11\*\*\* | 0.277ns | 0.121ns | 1.563ns |
| S×W×G×N | 3 | 9.485\*\*\* | 1.964ns | 7.336\*\*\* | 0.03ns | 6.423\*\*\* | 0.393ns | 0.451ns | 2.169ns |
| Error | 160 |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |

S – species, W – water, N – nutrient, and G – grass.

\*, \*\*, \*\*\* and ns stands for significance level at *P*<0.05, *P*<0.01, *P*<0.001, and non-significant differences, respectively.