**Table SX** Meta-analytic results summarizing the effects of N, P, and N+P on traits related to leaf chemistry

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Trait** | **Nutrient addition** | **k** | **Coefficient (±SE)** | **Z-value** | ***p*-value** | **95% CI range** |
| *M*area | N | 113 | **-0.037±0.016** | **-2.318** | **0.020** | **[-0.068, -0.006]** |
| P | -0.015±0.015 | -1.019 | 0.308 | [-0.044, 0.014] |
| N+P | **-0.052±0.018** | **-2.880** | **0.004** | **[-0.088, -0.0167]** |
| *N*mass | N | 139 | **0.124±0.021** | **5.937** | **<0.001** | **[0.083, 0.165]** |
| P | -0.002±0.012 | -0.127 | 0.899 | [-0.025, 0.022] |
| N+P | **0.118±0.021** | **5.462** | **<0.001** | **[0.075, 0.160]** |
| *N*area | N | 84 | **0.125±0.042** | **2.987** | **0.003** | **[0.043, 0.208]** |
| P | 0.026±0.042 | 0.617 | 0.537 | [-0.056, 0.108] |
| N+P | **0.150±0.036** | **4.138** | **<0.001** | **[0.079, 0.221]** |
| *P*mass | N | 133 | **-0.075±0.032** | **-2.365** | **0.018** | **[-0.136, -0.013]** |
| P | **0.449±0.066** | **6.808** | **<0.001** | **[0.320, 0.578]** |
| N+P | **0.366±0.057** | **6.387** | **<0.001** | **[0.253, 0.478]** |
| *P*area | N | 79 | -0.054±0.075 | -0.720 | 0.472 | [-0.201, 0.093] |
| P | **0.530±0.113** | **4.693** | **<0.001** | **[0.309, 0.751]** |
| N+P | **0.383±0.110** | **3.489** | **<0.001** | **[0.168, 0.598]** |
| Leaf N:P | N | 115 | **0.137±0.048** | **2.881** | **0.004** | **[0.044, 0.230]** |
| P | **-0.337±0.064** | **-5.246** | **<0.001** | **[-0.463, -0.211]** |
| N+P | **-2.010±0.047** | **-4.242** | **<0.001** | **[-0.293, -0.108]** |

**Table SX** Meta-analytic results summarizing the effects of N, P, and N+P on traits related to leaf photosynthesis

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Trait** | **Nutrient addition** | **k** | **Coefficient (±SE)** | **Z-value** | ***p*-value** | **95% CI range** |
| *A*sat | N | 85 | 0.095±0.073 | 1.313 | 0.189 | [-0.047, 0.238] |
| P | 0.083±0.083 | 1.006 | 0.315 | [-0.079, 0.245] |
| N+P | **0.214±0.096** | **2.227** | **0.026** | **[0.026, 0.402]** |
| *V*cmax | N | 42 | 0.007±0.093 | 0.078 | 0.938 | [-0.175, 0.190] |
| P | 0.115±0.072 | 1.607 | 0.108 | [-0.025, 0.256] |
| N+P | *0.164±0.085* | *1.937* | *0.053* | *[-0.002, 0.331]* |
| *J*max | N | 40 | 0.091±0.061 | 1.502 | 0.133 | [-0.028, 0.209] |
| P | **0.177±0.079** | **2.248** | **0.025** | **[0.023, 0.332]** |
| N+P | **0.261±0.027** | **9.601** | **<0.001** | **[0.208, 0.315]** |
| *J*max:*V*cmax | N | 32 | *0.003±0.002* | *1.695* | *0.090* | *[0.000, 0.007]* |
| P | 0.000±0.002 | -0.298 | 0.766 | [-0.004, 0.003] |
| N+P | **0.012±0.002** | **5.291** | **<0.001** | **[0.007, 0.016]** |
| *PNUE* | N | 58 | 0.057±0.118 | 0.483 | 0.629 | [-0.174, 0.287] |
| P | 0.151±0.132 | 1.142 | 0.253 | [-0.108, 0.409] |
| N+P | 0.124±0.189 | 0.656 | 0.512 | [-0.246, 0.494] |
| *PPUE* | N | 59 | 0.194±0.132 | 1.469 | 0.142 | [-0.065, 0.452] |
| P | -0.171±0.182 | 0.939 | 0.348 | [-0.528, 0.186] |
| N+P | -0.053±0.182 | -0.291 | 0.771 | [-0.411, 0.304] |

**Table SX** Meta-analytic results summarizing the effects of N, P, and N+P on whole-plant traits

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Trait** | **Nutrient addition** | **k** | **Coefficient (±SE)** | **Z-value** | ***p*-value** | **95% CI range** |
| *Total biomass* | N | 42 | 0.034±0.053 | 0.643 | 0.520 | [-0.070, 0.139] |
| P | **0.155±0.077** | **2.007** | **0.045** | **[0.004, 0.307]** |
| N+P | **0.379±0.078** | **4.871** | **<0.001** | **[0.226, 0.531]** |
| *Aboveground biomass* | N | 125 | **0.326±0.037** | **8.753** | **<0.001** | **[0.253, 0.399]** |
| P | **0.191±0.033** | **5.741** | **<0.001** | **[0.126, 0.257]** |
| N+P | **0.627±0.480** | **13.106** | **<0.001** | **[0.533, 0.721]** |
| *Belowground biomass* | N | 63 | -0.015±0.070 | -0.218 | 0.828 | [-0.151, 0.121] |
| P | 0.032±0.043 | 0.745 | 0.456 | [0.053, 0.117] |
| N+P | 0.101±0.074 | 1.358 | 0.174 | [-0.045, 0.245] |
| *Root mass fraction* | N | 37 | **-0.158±0.047** | **-3.400** | **<0.001** | **[-0.250, -0.067]** |
| P | *-0.070±0.038* | *-1.828* | *0.068* | *[-0.145, 0.005]* |
| N+P | **-0.148±0.046** | **-3.252** | **0.001** | **[-0.237, -0.059]** |
| *Root:shoot ratio* | N | 40 | **-0.341±0.090** | **-3.802** | **<0.001** | **[-0.516, -0.165]** |
| P | **-0.227±0.102** | **-2.226** | **0.026** | **[-0.426, -0.027]** |
| N+P | **-0.401±0.114** | **-3.517** | **<0.001** | **[-0.625, -0.178]** |