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| **Table S1.** General linear model (GLM) model selection for NO3– leaching. Full model is soil parent material (S) + nitrification (N) + the interaction ([S] × [N]). | |
| Selected factor | AIC |
| 1 | 118.62 |
| Soil parent material (S) | 119.22 |
| Nitrification (N) | 110.28 |
| S + N | 110.95 |
| S + N + S × N | 111.12 |

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| Table S2. N flux of N leaching in five sites in 2020 in unfertilized and fertilized plot. | | | | | |
| **Site** | Runoffa | Amount of N leachingb | | N retention efficiencyc | |
|  | **(mm)** | (Kg N ha–1 year–1) | |  | |
|  |  | Unfertilized | Fertilized | Unfertilized | Fertilized |
| **Shibecha** | 514 | 5.1 | 24 | -0.02d | 0.56 |
| **Ashoro** | 377 | 1.6 4.4 | | 0.60 0.92 | |
| **Nakagawa** | 685 | 1.7 0.6 | | 0.75 0.99 | |
| **Shiiba** | 2453 | 2.3 8.4 | | 0.77 0.86 | |
| **Kasuya** | 894 | 0.1 16 | | 0.99 0.76 | |
| a Runoff was calculated by subtracting the annual evapotranspiration from the annual precipitation. The annual evapotranspiration was estimated using the model for Evapotranspiration as E (mm) = 31.4T (°C) + 376 (Komatsu et al., 2008), where T refers to the mean annual mean air temperature.  b Amount of N leaching was calculated by multiplying runoff (mm) by NO3- concentration in soil solution.  c N retention efficiency was calculated as the following equation: N retention efficiency = 1- amount of N leching/N input. N input includes atmospheric N deposition and N fertilizer (in fertilized plot).  dThe negative value indicates a situation where the output of N exceeds its input. | | | | | |