

LARGE-SCALE FARMING BENEFITS SOIL ACIDIFICATION ALLEVIATION THROUGH IMPROVED FIELD MANAGEMENT IN BANANA PLANTATIONS

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SUPPLEMENTARY MATERIALS

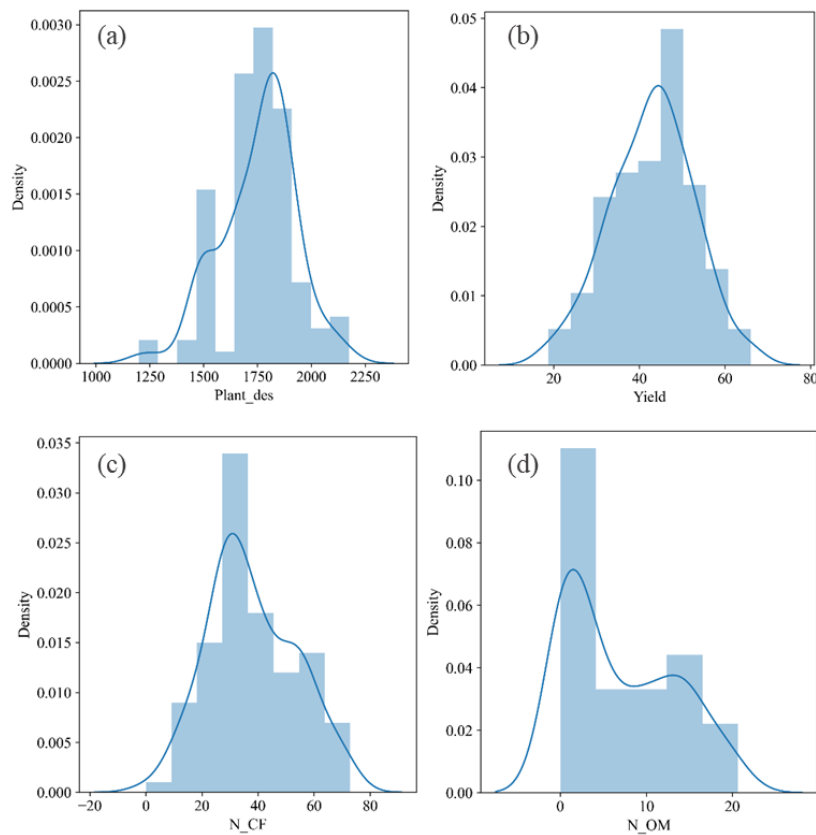


Fig. S1 Density distribution of plant density (a), crop yield (b), N input via mineral fertilizers in $\text{keq}\cdot\text{ha}^{-1}\cdot\text{yr}^{-1}$ (c), and N input via organic fertilizers in $\text{keq}\cdot\text{ha}^{-1}\cdot\text{yr}^{-1}$ (d).

Table S1 Average main nutrient/ion fluxes ($\text{keq}\cdot\text{ha}^{-1}\cdot\text{yr}^{-1}$) in three banana plantations of three different sizes

| Flux | N | H ₂ PO ₄ ⁻ | SO ₄ ²⁻ | Cl | BC |
|------------------------|------|---|-------------------------------|------|-------|
| <i>Small farms</i> | | | | | |
| Atmospheric deposition | 5.2 | 0.1 | 2.2 | 0.3 | 6.3 |
| Mineral Fertilizer | 40.0 | 5.9 | 0.8 | 12.9 | 15.8 |
| Organic fertilizer | 2.1 | 0.6 | 0.4 | 0.0 | 4.5 |
| Soil weathering | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 |
| Crop removal | 8.1 | 0.5 | 0.9 | 4.9 | 11.8 |
| Air emission | 21.8 | 0.0 | 0.0 | 0.0 | 0.0 |
| Leaching and runoff | 17.4 | 0.0 | 2.6 | 8.3 | 28.3 |
| Soil accumulation | 0.0 | 6.1 | 0.0 | 0.0 | -12.5 |
| <i>Medium farms</i> | | | | | |
| Atmospheric deposition | 5.2 | 0.1 | 2.2 | 0.3 | 6.3 |
| Mineral Fertilizer | 40.8 | 5.8 | 0.9 | 16.3 | 21.1 |
| Organic fertilizer | 5.0 | 2.1 | 0.9 | 0.0 | 10.2 |
| Soil weathering | 0.0 | 0.0 | 0.0 | 0.0 | 1.0 |
| Crop removal | 9.4 | 0.6 | 1.0 | 5.8 | 13.8 |
| Air emission | 23.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| Leaching and runoff | 18.5 | 0.0 | 2.9 | 10.8 | 32.3 |
| Soil accumulation | 0.0 | 7.4 | 0.0 | 0.0 | -7.6 |
| <i>Large farms</i> | | | | | |
| Atmospheric deposition | 5.2 | 0.06 | 2.2 | 0.35 | 6.3 |
| Mineral fertilizer | 32.8 | 4.4 | 3.1 | 16.9 | 29.3 |
| Organic fertilizer | 10.2 | 8.7 | 1.0 | 0.00 | 23.3 |
| Soil weathering | 0.00 | 0.00 | 0.00 | 0.00 | 1.0 |
| Crop removal | 10.4 | 0.65 | 1.1 | 6.4 | 15.2 |
| Air emission | 20.7 | 0.00 | 0.00 | 0.00 | 0.00 |
| Leaching and runoff | 17.1 | 0.00 | 5.2 | 10.9 | 33.2 |
| Soil accumulation | 0.0 | 12.5 | 0.0 | 0.0 | 11.5 |

Note: Soil accumulation is the total input (atmospheric deposition, mineral/organic fertilizers and soil weathering)

minus total output (crop removal, air emission, leaching and runoff).