

Publication

Global phosphorus shortage will be aggravated by soil erosion

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Soil phosphorus (P) loss from agricultural systems will limit food and feed production in the future. Here, we combine spatially distributed global soil erosion estimates (only considering sheet and rill erosion by water) with spatially distributed global P content for cropland soils to assess global soil P loss. The world's soils are currently being depleted in P in spite of high chemical fertilizer input. Africa (not being able to afford the high costs of chemical fertilizer) as well as South America (due to non-efficient organic P management) and Eastern Europe (for a combination of the two previous reasons) have the highest P depletion rates. In a future world, with an assumed absolute shortage of mineral P fertilizer, agricultural soils worldwide will be depleted by between 4-19 kg ha⁻¹ yr⁻¹, with average losses of P due to erosion by water contributing over 50% of total P losses.

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