

## Agroforestry boosts soil-mediated ecosystem services in the humid and subhumid tropics: a meta-analysis

Article

Supplemental Material

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Table 1. Research questions, associated hypotheses tested and level of confidence provided

Questions and hypotheses	Evidence (confidence)	Illustration
Q1. Does agroforestry reduce soil erosion?		
<i>H1a</i> Agroforestry contributes to lower soil erosion rates than agriculture without trees.	Supported (high)	Figure 2a & 3a
H1b Simultaneous agroforestry practices contribute to greater soil erosion control than sequential practices.	Supported (high)	Figure 2
<i>H1c</i> Agroforestry practices including <i>N</i> -fixing trees contribute to lower soil erosion rates than non- <i>N</i> -fixers	Supported (high)	Figure 3b
H1d Soil erosion reduction under agroforestry practices is greater in sandy soils	Not enough data	
Q2. Does agroforestry build soil organic C stocks?		
H2a Agroforestry contributes to greater soil carbon build up than agriculture without trees.	Supported (high)	Figure 4b
H2b Simultaneous agroforestry practices contribute to greater soil carbon build up than sequential practices.	Supported (high)	Figure 4b
H2c Agroforestry practices including N-fixing trees contribute to greater SOC build up than non-N-fixers	Supported (high)	Figure 4b
H2d SOC build up under agroforestry practices is greater in sandy soils O3. Does agroforestry build soil organic N stocks?	Supported (high)	Figure 4b
H3a Agroforestry contributes to greater soil N build up than agriculture without	Supported (high)	Figure 5b
<i>Hees. H3b Simultaneous agroforestry practices contribute to greater soil N build up than sequential practices.</i>	Not supported	Figure 5b
H3c Agroforestry practices including N-fixing trees contribute to greater soil N build up than non-N-fixers	Supported (high)	Figure 5b
H3d Soil organic N build up under agroforestry practices is greater in sandy soils O4 Does agroforestry increase soil N availability?	Supported (high)	Figure 5b
H4a Agroforestry contributes to greater soil N availability than agriculture	Supported (High)	Figure 6h
without trees.	Supported (Ingh)	i iguie oo
H4b Simultaneous agroforestry practices contribute to greater soil N availability than sequential practices	Not supported	Figure 6b
H4c Agroforestry practices including N-fixing trees contribute to greater soil N availability than non-N-fixers	Not supported	Figure 6b
H4d Soil N availability under agroforestry practices is greater in sandy soils	Not supported	Figure 6b
Q5. Does agroforestry increase soil P availability?		
H5a Agroforestry contributes to greater soil P availability than agriculture without trees.	Supported (Low)	Figure 7b
H5b Sequential agroforestry practices contribute to greater soil P availability than simultaneous practices	Supported (Low)	Figure 7b
H5d Soil P availability under agroforestry practices is greater in sandy soils	Not supported	Figure 7b
Q5. Does agroforestry alleviate soil acidity?		
H6a Agroforestry contributes to greater reductions in soil acidity than agriculture without trees.	Supported (Low)	Figure 8b
H6b Simultaneous agroforestry practices contribute to greater increases in soil pH than sequential practices.	Supported (Low)	Figure 8b
<i>H6c</i> Agroforestry practices including <i>N</i> -fixing trees contribute to increases in soil <i>pH</i> than non- <i>N</i> -fixers	Not supported	Figure 8b
H6d Soil acidity reduction under agroforestry practices is greater in sandy soils	Not supported	Figure 89b