

Abstract

Soil health is the sustained ability of soil to function as a vital ecosystem that supports plants, animals, and humans. Conventional agricultural practices, such as intensive tillage and monocropping, degrade soils by depleting organic matter, causing erosion, and reducing biodiversity. agroforestry systems, by contrast, mimic natural ecosystems and offer a viable solution to restore and protect this crucial resource. The purpose of this review was to explore agroforestry's effects on soil health in the context of sustainable agriculture. by restoring and building soil health, the review revealed that agroforestry provides a solution to combat soil degradation, enhance biodiversity, and increase agricultural sustainability. Benefits to soil are diverse and include improving its physical, chemical, and biological aspects, which boosts ecosystem services and resilience. despite its clear advantages, agroforestry has not been widely adopted. challenges to adoption include time lag for trees to mature, insecure land tenure and lack of expertise and institutional support. overcoming these barriers through supportive policies, financial incentives and farmer participatory approaches offers clear pathways towards more resilient and profitable farming systems. this will require site-specific studies to optimize species selection and system designs compatible with local conditions. long-term agroforestry success is determined by aligning site-specific conditions (soil, slope, climate) with appropriate species selection, expert management, and farmer knowledge. in conclusion, intentionally combining trees and crops provides a powerful solution for building resilient soil ecosystems and ensuring agricultural sustainability.