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Multilayer agroforestry: the missing link

Torquebiau E. (emmanuel.torquebiau@cirad.fr)

CIRAD - UR AIDA, Univ Montpellier, Montpellier, France

Modern agroforestry emerged in the 70's as an answer to the disappearance of tropical rainforests. To improve land management, it was felt necessary to combine crops, trees and animals and apply management practices compatible with the cultural patterns of the local population. Yet, today's agroforestry relies often on simplified associations of one crop and one tree species. Such associations ignore the "forest dimension" of agroforestry and fail to restore forest-like ecosystems and promote local cultural values. I argue that between the 2 extremes of "forest gardening" and a simplified two-plant association, there is a continuum of multilayer agroforestry options with environmental attributes close to natural ecosystems, management features compatible with existing practices and productive qualities comparable if not better than simplified associations. I provide examples from Indonesia (multistrata agroforests in Sumatra), Egypt (multilayer agriculture in the Nile Delta), Cameroon (cocoa agroforests near Yaoundé) and Bangladesh (agroforestry gardens near Rajsahi). They show that multilayer agroforestry has a range of sustainability attributes and performs well for soil carbon sequestration and climate change mitigation. If agroforestry is to play its role to address environmental and climate change challenges and diversify land-based commodities, it needs to learn from complex agroforestry associations and recommend them as viable alternatives to industrial agriculture.



Multilayer agriculture near Rosetta in the Nile Delta (Egypt): from top to bottom: Date palms, olive trees, citrus trees, tomatoes © E. Torquebiau, 2004

Keywords: complex agroforestry systems, ecosystem services, diversification, resilience, agroecology.

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