Conservation Tillage in Tropical Agroecosystems. (Z03-lal144751-Oral)

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Abstract:

Tropical regions cover approximately 40% of the earth's surface and contain 53% of the potentially cultivable land area. Soils of the tropics are as diverse as those of the northern latitudes. Severe soil-related constraints to agricultural intensification and obtaining high yields are accelerated soil erosion by water and wind, low soil organic matter content and rapid rate of mineralization, low nutrient reserves and available water holding capacity, supra-optimal soil temperature and low effective-rooting depth leading to frequent and severe drought stress. Conservation tillage, with crop residue mulch and incorporation of cover crops in the rotation cycle, is a viable option to reduce soil erosion, conserve water, decrease the maximum soil temperature, improve soil organic matter content, and enhance and sustain crop yield. The acceptability of conservation tillage, however, depends on effective methods of weed control, techniques to manage soil compaction, and availability of appropriate seeding equipment. It is a scale-neutral technology, can be adapted for small-size farms, and is a viable option to sequester C and mitigate the greenhouse effect.

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