

SUSTAINABLE BIOENERGY PRODUCTION IN AGROFORESTRY SYSTEMS

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The objective of this conference is to foster greater exchange between the agricultural and forestry sectors on the science and application of producing crops for biofuels, bioenergy, and bioproducts. However, the real challenge and opportunity lies in how agricultural and forestry efforts can actually be integrated to sustainably meet the future renewable energy targets facing the United States and the world. Agroforestry is just that—the combination of agricultural and forestry technologies to create integrated, diverse, and productive land use systems. The synergy of agroforestry creates enhanced performance, efficiencies, and benefits that cannot be achieved individually in the agricultural or forestry sector. Used extensively in the tropics and with growing use in temperate areas, agroforestry provides many benefits to both landowner and society including crop/livestock/building/road protection, soil and water resource protection, greenhouse gas mitigation, wildlife habitat, recreational opportunities, and alternative income generation, including biofuel production. Serving from its earliest times as a source of fuelwood, agroforestry today offers a variety of options to create diverse, multi-purpose plantings that support energy objectives, as well as other services critical for sustainability of the lands and people. These options range from providing additional conservation services for mitigating adverse impacts from other biofuel production systems to serving as feedstock sources. Short-rotation crops, both woody and herbaceous, are ideally suited for agroforestry. Work in both North America and Europe focuses on the use of agroforestry as a means to create combined energy/food/natural resource systems. Ongoing research at Ontario and Minnesota is exploring the use of new species, species combinations, and performance in different landscape positions as a means to develop more diverse, innovative systems that can provide income generation through the sale of biomass for energy, improved water quality through targeted plantings, and payments for environmental services.

KEY WORDS: alley cropping, conservation, riparian forest buffers, short-rotation crops, windbreaks, working trees

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