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"Bridging the gap between increasing knowledge and decreasing resources"

Assessment of Social, Economic and Environmental Implication of Short Rotation Coppice

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Abstract

Short rotation coppice (SRC) is the system of biomass production in a short period of time by using the bio-energy plant species that resprout from base after harvest. Globally, there is a demand of developing an environmental friendly and cost effective system of power generation. In view of current climate scenario, there is an increasing concern on environmental impact of SRC plantation. Poplar and willow (*Salix* and *Populus* spp.) are more common short rotation plant species that are planted as a renewable source of energy in many European countries. The woodchips obtained from SRC can be used as a substitute for fossil fuel and can be used as a potential source for power generation. Plantation of SRC on arable agriculture land plays an important role as a carbon sink because of minimum tillage, low fertiliser requirements, annual leaf litter store in the soil and more biomass production as compared to arable crop land. The most mysterious aspect of SRC is the availability of litter that has prominent impacts on soil quality and microbial activities. If properly managed SRC system has a potential to increase the biodiversity of farmland ecosystem as a provisional habitat for many species. SRC system is only profitable under the certain political and economic scenarios, for instance availability of incentives, costs and prices of wood chip. There are assumptions that SRCs are an economically sound and environmental friendly choice that have potential to play a significant role in climate change mitigation. In spite of social, ecological and environmental benefits of short rotation coppice, there is a big challenge to convince the conventional farmers to cultivate the SRC on agricultural field because of low economic return compared to agricultural crops. Thus, it is essential to analysise the potential of SRC under different social, economic and environmental perspectives.

Keywords: Bio-energy crops, climate, economic, soil quality

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