

Environmental Aspects of Fast Growing Trees

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Abstract

Short rotation coppice (SRC) of fast growing trees are plantations of tree species, such as in Europe poplar (*Populus* spp.) and willow (*Salix* spp.), which, due to rapid increases in wood are established on agricultural land and harvested in rotations of 3 – 10 years, depending on tree species, environment and management conditions and grown to coppice system. Coppicing involves cutting the tree back down to near ground level.

The wood, which is harvested, can then be used as a fuel and the tree grows back until it is ready for harvesting again. Traditionally, hazel and chestnut trees have been grown on this system. Major advantage is that production technology is known since long and the energy may be stored a long time after harvesting. Wood chips from SRC have better fuel properties than other renewable raw materials such as miscanthus or straw. When used for electricity generation wood chips from SRC create lower CO₂ emissions than straw but slightly higher CO₂ emissions than forest residues. Furthermore, SRC is more productive per area unit than natural forest in Europe and is also ecologically advantageous in comparison to more input-intensive agricultural energy crops such as corn and rape. In the home wood can be burned to provide both space and water heating. It can also be used to provide the water and space heating needs of larger buildings.

In contrast to other renewable energy sources (RES), socio-economic and policy aspects rather than technological aspects are fundamental to increasing the supply of energy from biomass. The few technological aspects which need to be improved with regard to SRC cultivation are harvesting techniques and optimization of use-specific logistic chains. SRC plantations of hybrid poplars are attractive for some farmers or owners of agricultural land due to the potential for energy production. The establishing plantations and energy use of wood from SRC plantations could environmental affect. On the territory of the Slovakia are monitored by some Italian poplar clones with broad ecological amplitude. The results of observations lead to the conclusion not too encouraging for some growers of fast growing trees. The influence of SRC on the environment is not entirely positive, as is commonly known in the literature.

Keywords

Fast growing trees, SRC, RES, Populus, Environment, Landscape

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