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SHORT ROTATION COPPICE WITH *ROBINIA PSEUDOACACIA* L. – A LAND USE OPTION FOR CARBON SEQUESTRATION ON RECLAIMED MINE SITES

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ABSTRACT In North-East Germany a promising land use option to improve farmer's income on marginal soils may be the establishment of short rotation coppices (SRC) of *Robinia pseudoacacia* L. The purpose of these wood plantations is the fast production of woody biomass for energy utilisation. Within the plants carbon is not only accumulated in the harvestable biomass, but also in the stump and the roots. These plant compartments survive a harvest, stay vital at the site and grow steadily with increasing plant age. In result, these compartments form a long-time carbon storage pool in the agricultural landscape. Besides the living biomass, additional carbon is sequestered under SRC as soil organic carbon due to decomposition of organic litter material. Several field studies conducted on reclaimed mine sites in the post-mining landscape of Lower Lusatia (NE-Germany) resulted in an average above ground dry matter productivity of *R. pseudoacacia* of 3 to 10 Mg ha⁻¹ yr⁻¹ depending on the plantation age and rotation period. Estimates of the carbon storage within the soil account to a carbon sequestration of up to 6 Mg ha⁻¹ yr⁻¹ for a soil depth of 60 cm. This paper aims to provide an overview of the results of selected field studies covering carbon sequestration in SRC of *R. pseudoacacia* on mining sites within the Lusatian region. The outcomes are complemented with findings of current field studies. In summary, the results show that SRC of *R. pseudoacacia* may be a beneficial land use system for marginal post-mining landscapes for both carbon sequestration within the biomass and the soil.

Keywords: Short rotation coppice, *Robinia pseudoacacia* L., Carbon sequestration, Land reclamation, Soil quality, Open cast lignite mining, Bioenergy