Geophysical Research Abstracts
Vol. 14, EGU2012-10518, 2012
EGU General Assembly 2012

Short Rotation Coppice in Austria – Management and Producticivity

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In Austria energy wood production in short rotation coppice systems (SRC) becomes increasingly important to meet the demands of the growing bio-energy sector. In order to successfully develop the SRC market, the achievement of high and constant yields in SRC management is just as important as a reliable harvesting technology, which facilitates the production of high quality wood chips. Yield models and site-specific knowledge about productivity are needed with respect to clones, site factors and management alternatives. Therefore in the years 2007 and 2008 experimental plots (Marchfeld; 16 poplar clones and 19 willow clones) and a network of demonstration plots (different regions in Lower Austria; 7 poplar clones, 4 willow clones) were established. Single shoot surveys and biomass functions in combination with stand inventories form the general basis for estimating yield and productivity. They also help to optimize yield and rotation length by taking the maximum harvestable tree diameter into account, which is determined by harvesting techniques.
For optimizing the yield estimation of SRC stands, preliminary clone specific yield functions for poplar and willow clones were developed. These specific yield functions were based on common yield estimation functions with respect to the newly used clones (e.g. faster growth, lower wood density), using a regression analytical approach. Standard stand surveys were carried out in autumn 2007, 2008, 2009 and 2010. We were able to show a high variety in biomass production of poplar and willow clones on the specific site. For the first and second rotation cycle the mean productivity of poplar clones was within a range of 4 – 12 t/y/ha and for willow clones within a range of 3 – 17 t/y/ha. These results were compared with the productivity of older experimental plots in Austria. Based on the preliminary results of productivity of poplar and willow clones for various site factors and management alternatives (planting design, rotation period) it became possible to support decisions for optimizing SRC-management.