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Eucalyptus trees for bioenergy

Fast growing trees such as eucalypts have a number of potential bioenergy applications. Eucalyptus species are native to Australia but grown extensively worldwide as short rotation hardwoods for a variety of timber products and ornamentals. They are the most valuable and widely planted hardwood in the world (18 million ha in 90 countries). Eucalypts are grown extensively as exotic plantation species in tropical and subtropical regions throughout Africa, South America, Asia, and Australia, and, in more temperate regions of Europe, South America, North America, and Australia. India has over 8.0 million mostly low productivity ha followed by Brazil with over 3.0 million mostly intensively cultivated ha reaching average productivities of 45–60 m³/ha/year. We describe their general importance with specific emphasis on existing and emerging markets as energy products and the potential to maximize their productivity as short rotation woody crops. Many conversion technologies are well understood, and several are being developed. Biomass characteristics, difficulty in securing adequate and cost effective supplies early in project development, and planning constraints currently prevent Eucalyptus bioenergy from reaching its full potential. Using experience in Florida, USA and similar locations, we document their current energy applications and assess their productivity as short-term and likely long-term energy and related products. However, increased biomass productivity and quality, prospects for carbon trading, distributed energy systems and hydrogen, multiple products from bio refining, and government incentives should foster the use of fast growing trees for bioenergy.

Biography

Dr. Donald L. Rockwood, President of Florida FGT LLC, has over 30 years of experience on the development and use of Eucalyptus amplifolia, E. grandis, Corymbia torelliana, Populus deltoides, cypress, and slash pine hybrids in Florida and elsewhere. Also Professor Emeritus at the School of Forest Resources and Conservation, University of Florida, he is actively involved with the genetic improvement of several Short Rotation Woody Crop (SRWC) species, including the commercial release of E. grandis cultivars, and with research on and the development of SRWC systems using these species.

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