

The Potential of Sown Pastures as Feedstock for Biofuels in Brazil

Authors : Danilo G. De Quadros

Abstract : Biofuels are a priority in the renewable energy agenda. The utilization of tropical grasses to ethanol production is a real opportunity to Brazil reaches the world's leadership in biofuels production because there are 100 million hectares of sown pastures, which represent 20% of all land and 80% of agricultural areas. Basically, nowadays tropical grasses are used to raise livestock. The results obtained in this research could bring tremendous advance not only to national technology and economy but also to improve social and environmental aspects. Thus, the objective of this work was to estimate, through well-established international models, the potential of biofuels production using sown tropical pastures as feedstocks and to compare the results with sugarcane ethanol, considering state-of-art of conversion technology, advantages and limitations factors. There were used data from national and international literature about forage yield and biochemical conversion yield. Some scenarios were studied to evaluate potential advantages and limitations for cellulosic ethanol production, since non-food feedstock appeal to conversion strategies, passing through harvest, densification, logistics, environmental impacts (carbon and water cycles, nutrient recycling and biodiversity), and social aspects. If Brazil used only 1% of sown pastures to ethanol production by biochemical pathway, with average dry matter yield of 15 metric tons per hectare per year (there are results of 40 tons), resulted annually in 721 billion liters, that represents 10 times more than sugarcane ethanol projected by the Government in 2030. However, more research is necessary to take the results to commercial scale with competitive costs, considering many strategies and methods applied in ethanol production using cellulosic feedstock.

Keywords : biofuels, biochemical pathway, cellulosic ethanol, sustainability

Conference Title : ICBB 2016 : International Conference on Biofuels and Bioenergy

Conference Location : Paris, France

Conference Dates : December 29-30, 2016