

Perennial Rhizomatous Grasses as a source of biomass for bioenergy - the ideal energy crops?

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Projected global requirements for biomass feedstock and estimates of biomass production suggest that by the middle of this century there will be significant shortfalls in utilisable supply. Perennial rhizomatous grasses (PRGs) have physiological and morphological characteristics that mean they produce large amounts of biomass, which can be harvested on an annual basis for several years. Once established they require limited management from farmers, with the result that they have high energy output to input ratios. Life cycle assessments have shown that the use of PRGs for heat and power has the potential to be close to carbon neutral, and if used in conjunction with carbon capture and storage (CCS) in BECCS (bioenergy with carbon capture and storage) they can be carbon negative. These characteristics have led to the view that PRGs are the 'ideal' bioenergy crops. This being so, we ask why PRGs are yet to make a significant contribution to global bioenergy production. We review some of the constraints on scaling bioenergy production using PRGs, including impacts on biodiversity, effects of land use change and the potential for use of marginal land. We show that PRGs should have the greatest potential of all biomass resources to release these constraints.