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Impacts of miscanthus growth on soil carbon and water deficit

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Miscanthus x giganteus thrives on poor soils, requiring little or no farm operations except annual harvest, efficiently recycles nutrients into the rhizome at senescence to be reused the following season and has a high water efficiency compared to other arable crops. As such it is a popular choice for bioenergy crop growers, it can thrive on waste land, or poor agricultural soils that cannot give sufficient economic returns for food crops in many areas of the world.

We present work to better understand the global potential for *M x giganteus* yields and impacts as a bioenergy crop grown in the 21st century under IPCC climate RCP 8.5 and using the MiscanFor bioenergy model, showing how bioenergy crops compare across different countries for dry matter yield, water use, and soil carbon. We also show the uncertainty of projections inherent in choosing input data and the sensitivity of the model.