EGU22-170
https://doi.org/10.5194/egusphere-egu22-170
EGU General Assembly 2022

Comparing miscanthus hybrids – growth and environmental impacts

Anita Shepherd[1], Danny Awty-Carroll[2], Jason Kam[3], Chris Ashman[2], Elena Magenau[4], Enrico Martani[5], Mislav Kontek[6], Andrea Ferrarini[5], Stefano Amaducci[5], Chris Davey[2], Mohamad Al Hassan[7], Vanja Jurišić[6], Isabelle Lamy[8], Iris Lewandowski[4], Emmanuel de Maupeou[9], Jon McCalmont[1], Luisa Trindade[7], Andreas Kiesel[4], John Clifton-Brown[2,10], Astley Hastings[1], and the Anita Shepherd1[*]

[1]University of Aberdeen, Institute of Biological and Environmental Sciences, School of Biological Sciences, Aberdeen, United Kingdom of Great Britain – England, Scotland, Wales
[2]Aberystwyth University, Institute of Biological, Environmental and Rural Sciences, Aberystwyth, SY23 3EE, UK
[3]Terravesta, Unit 4 Riverside Court, Skellingthorpe Road, Saxilby, Lincoln LN1 5AB
[4]University of Hohenheim, Institute of Plant Breeding, Seed Science and Population Genetics Department of Seed Science and Technology, Stuttgart 70593, Germany
[5]Università Cattolica del Sacro Cuore, Department of Sustainable Crop Production, Via Emilia Parmense 84, Piacenza, 29122 Italy
[6]University of Zagreb Faculty of Agriculture, Department of Ag Technology, Zagreb, Croatia
[7]Wageningen University & Research, Plant Breeding, 6700 AJ Wageningen, The Netherlands
[8]French National Institute for Agriculture, Food, and Environment, Paris, France
[9]Novabiom, Ferme de Vauventriers, Champhol, France
[10]University of Giessen, Goethestrasse 58, 35390 Giessen
[*]A full list of authors appears at the end of the abstract

Our research is aligned to the expansion of energy crops with a view to future developments in greenhouse gas removal and we need to ensure that does not have a detrimental effect on the surrounding environment.

Miscanthus is a sustainable bioenergy crop which is wildlife-friendly and will grow on otherwise unproductive land. Mature crops do not require fertilizer thereby ensuring low nitrous oxide emissions. Miscanthus x giganteus (M x g) as a sterile clone, has been propagated vegetatively, with relatively high establishment costs and low multiplication rates. New seed-propagated hybrids, with the potential of upscaling the crop for greater provision, are being readied for market and in crop trials over Europe.

Projections are presented from research involving the international GRACE project and the Supergen SUMMER project. We determine the potential for miscanthus growth and environmental impact, using the hybrids under 21st century climate conditions. We show yield projections which have been modelled using crop trial data across different European countries together with simulations from the MiscanFor model for agricultural soil carbon sequestration and water deficit.

Anita Shepherd1: Danny Awty-Carroll2, Jason Kam3, Chris Ashman2, Elena Magenau4, Enrico Martani5, Mislav Kontek6, Andrea Ferrarini5, Stefano Amaducci5, Chris Davey2, Mohamad Al Hassan7, Vanja Jurišić6, Isabelle Lamy8, Iris Lewandowski5, Emmanuel de Maupeou9, Jon McCalmont1, Luisa Trindade7, Kasper van der Cruijsen7, Philip van der Pluijm9, Andreas Kiesel4, John Clifton-Brown2,10 Astley Hastings1