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## Life cycle assessment of horticultural production on UK lowland peat soils.

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Global peatlands store >600 Gt of Carbon (C) but are highly vulnerable to degradation following drainage for agriculture. The extensively drained East Anglian Fens include half of England's most productive agricultural land, produce ~33% of England's vegetables and support a food production industry worth approximately £3 billion GBP. However under arable management, these fen peat soils produce ~37.5 t CO<sub>2</sub> eq ha<sup>-1</sup> of total greenhouse gas (GHG) emissions annually. This is likely to be the largest source of land use GHG emissions in the UK per unit area and there is interest in developing responsible management approaches to reduce emissions whilst maintaining economically productive systems. Lettuce (*Lactuca sativa*) is amongst the UK's most valuable crops and a substantial proportion of UK production occurs in the Fens. We undertook a life cycle assessment to compare the carbon footprint of UK Fen lettuce with alternative sources of lettuce for the UK market. We also examined the potential for responsible peat management strategies and more efficient production to reduce the carbon footprint of Fen lettuce. It is hoped this study will help to inform land use decision making and encourage responsible management of UK lowland peat resources.