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## Introduction

Biofertiliser (also known as digestate) is produced from the anaerobic digestion of biodegradable materials (e.g. food waste, livestock manures or purpose-grown crops) in the absence of oxygen, releasing biogas that can be used to provide heat and power. Biofertiliser is potentially a valuable source of crop available nitrogen (N), with typically 80% of its total N content present in a readily available (*i.e.* ammonium-N) form.



## Materials & Methods

Crop available N supply to potatoes (variety Harmony) from food and manure-based biofertilisers was quantified at a sandy soil site in Nottinghamshire during the 2011 harvest year. The biofertilisers were applied using high precision bandspreading equipment to a cereal crop stubble in late February and March 2011, prior to cultivations for potato planting.

## Results

The food-based biofertiliser had a mean N use efficiency of 64% and the manure-based biofertiliser 63%, providing yield increases of 11-15 t/ha above the untreated control (Figure 1a/b).

The fertiliser N replacement value of a 30 m<sup>3</sup>/ha food and manure-based biofertiliser application was worth £83 and £40/ha, respectively (based on a manufactured fertiliser N price of £1/kg).

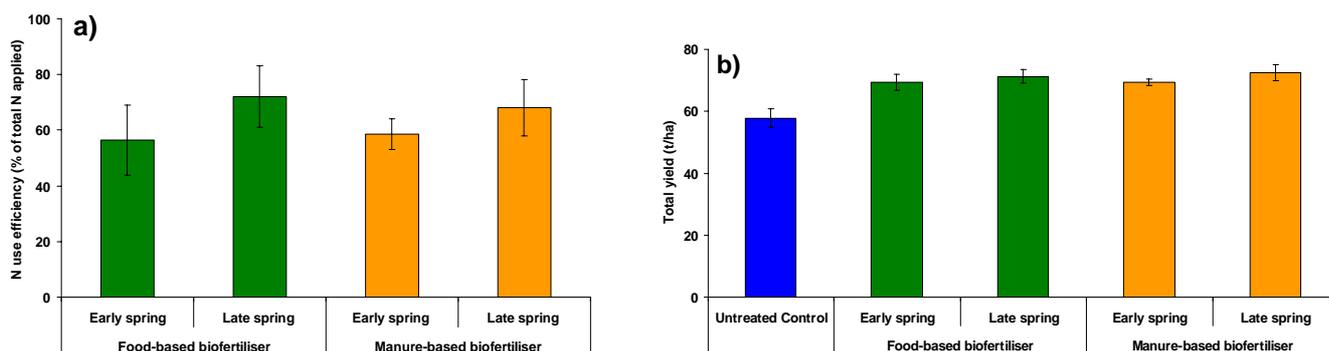


Figure. 1. a) N use efficiency of biofertilisers applied to potato crop (% of total N applied) and b) potato yield (t/ha)

## Conclusions

Biofertiliser was shown to be a valuable source of readily available N. Careful recycling to land will allow the nutrient value of biofertilisers to be realised, benefitting crop yields and soil fertility, and reducing the 'carbon footprint' of farming through savings in manufactured fertiliser N use.

## Acknowledgements

Funding of this work by the Waste & Resources Action Programme is gratefully acknowledged.