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# TRANSFORMING WASTE INTO OPPORTUNITY

With a family farming partnership of twenty years, the Aura Innovation Centre were approached by a fifth-generation grower to provide a sustainable solution to reduce waste whilst enhancing their business returns. The horticultural company specialised in arable farming, particularly winter wheat, oilseed rape, spring barley, winter and vining peas.

CASE STUDY: M Meadley & Sons

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## THE CHALLENGE

With 13-14,000 tonnes of peas grown annually across 8,000 acres of Yorkshire fields, M Meadley & Sons saw a low carbon opportunity to enhance their business returns and provide sustainable solutions for the region.

The peas are harvested and transported to the processing plant to be frozen within 150 minutes. The stems, pods and leaves, historically, been left on the field to decompose and add nutrients to the soil. Decomposing vegetation is a surprising source of greenhouse gases. Composting releases both carbon dioxide and methane, both greenhouse gasses.

Currently there are no alternative use for the pea pods, leaves or stems. There is therefore a need to explore high-value uses for the pea waste and commercialisation opportunities.

Our challenge was to explore high value uses for the pea waste, finding viable commercialisation opportunities and reduce greenhouse gases created by waste organic matter.

## THE SOLUTION

By working together with M. Meadley & Sons, our Innovation Managers secured funded support to explore the chemical composition of vine garden pea waste and its suitability to produce bioethanol and carbonaceous materials. Through our links with the University of Hull, we teamed up with Hull's Chemical Engineering Expert, Sharif Zein to deliver and test this innovative idea.

Sharif firstly extracted the compounds found in the raw waste and analysed the chemical structures to understand the breakdown of ingredients and the percentage values.

Additional testing and experiments were undertaken to further explore how these ingredients would be suited to a range of commercial uses, giving what would be a waste product a new purpose.

## THE RESULT

Our work has been a vital step in providing M Meadley & Sons with specialist knowledge to contribute towards their ambition of exploring suitable bi-products and commercial opportunities for pea waste.

Scientific research provided evidence that pea waste could be suitable for a variety of uses, including water filtration or even as a renewable energy source which could play a valuable role in reducing carbon dioxide emissions.

Whichever option M Meadley & Sons choose to pursue, the Aura Innovation Centre and the University of Hull's expertise will help them to enhance business returns, reduce greenhouse gasses and provide sustainable, organic ingredients to be used in a range of products.

By using the connections and relationships of the Aura Innovation Centre M Meadley & Sons have now secured almost £1 million of funding through the THYME project to further explore the viability of using crop waste in the treatment of waste water.



### LEAD ACADEMIC/ RESEARCHER

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### FIND OUT HOW WE CAN HELP YOUR BUSINESS

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