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Food Waste Applications

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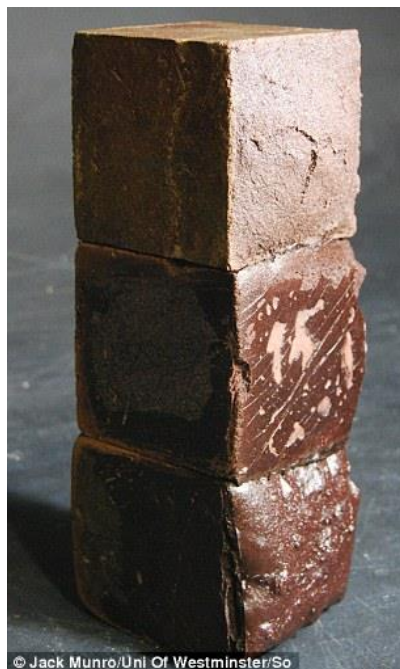
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Using Food Waste



Construction Materials



Animal blood as a
binder for bricks



CRUSH

Paper from:
Fruits, olives,
corn, coffee, nuts

FAVINI



Packaging

Sugar cane, Wheat straw,
potato, corn, spent grains



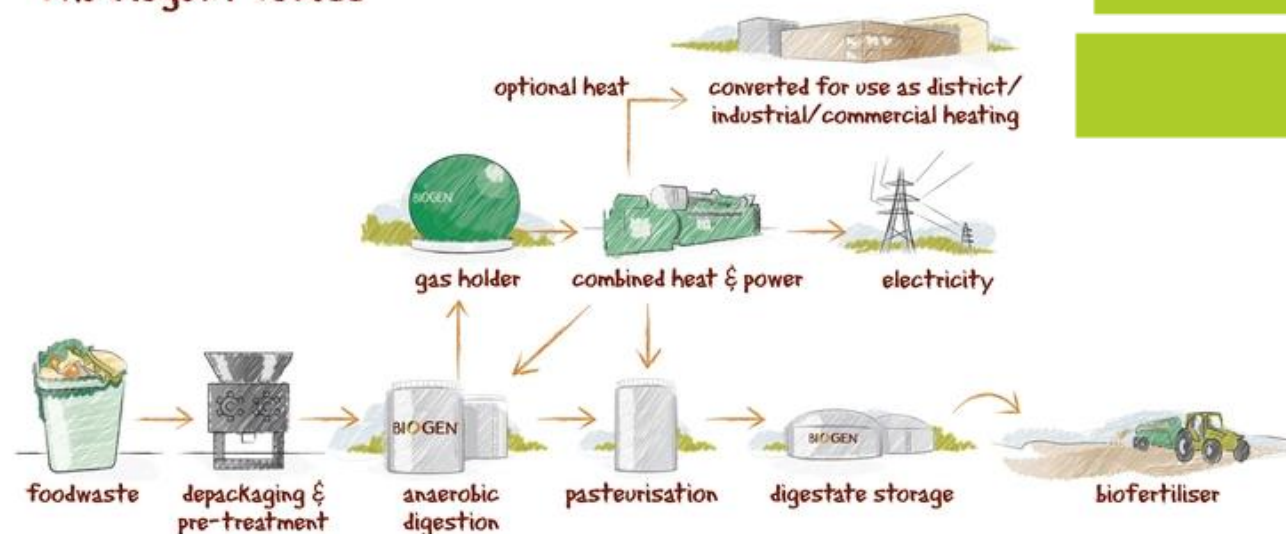


Biodiesel / Anaerobic Digestion

Cellulosic materials, Bakery waste, brewery grain/waste water, potatoes, corn, coffee, whey



The Biogen Process





Fertiliser

Composting, digestate from AD



Animal Feed

e.g. straw, surplus bread, wheat-bran/germ, spent grain, whey, pomace, orange peels, potatoes



Food Ingredients



Dietary Fibre
Oil-seed cakes,
veg waste

Emulsifiers
Milk



Bioactives (including pigments, antioxidants and volatile fatty acids)
Oil-seed cakes, fruit and veg waste, bakery waste, potato, seed kernels, brewing waste (grains and wastewater), fish wastes, olive mill wastewater

Biopolymers films/collagen
Oilseeds and pulse waste, Fish waste





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Companies with Food Waste at the centre



Redirecting Surplus Food





Surplus, below-spec,
“wonky” fruit and veg

45% of the fruit and
vegetables produced
are wasted





Redirecting



wonky
veg
boxes
.co.uk

TINY
LEAF





Products containing





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Companies with Food Waste at the centre



Waste Coffee Grounds

UK produces 500kt/year



Products containing



**KAFFEE
FORM.**



 **bio-bean**
powered by coffee





Companies with Food Waste at the centre



**20% bread and
bakery wasted**

Bread and Brewer's Spent Grains



30mt/year worldwide





Products containing





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Research Interests



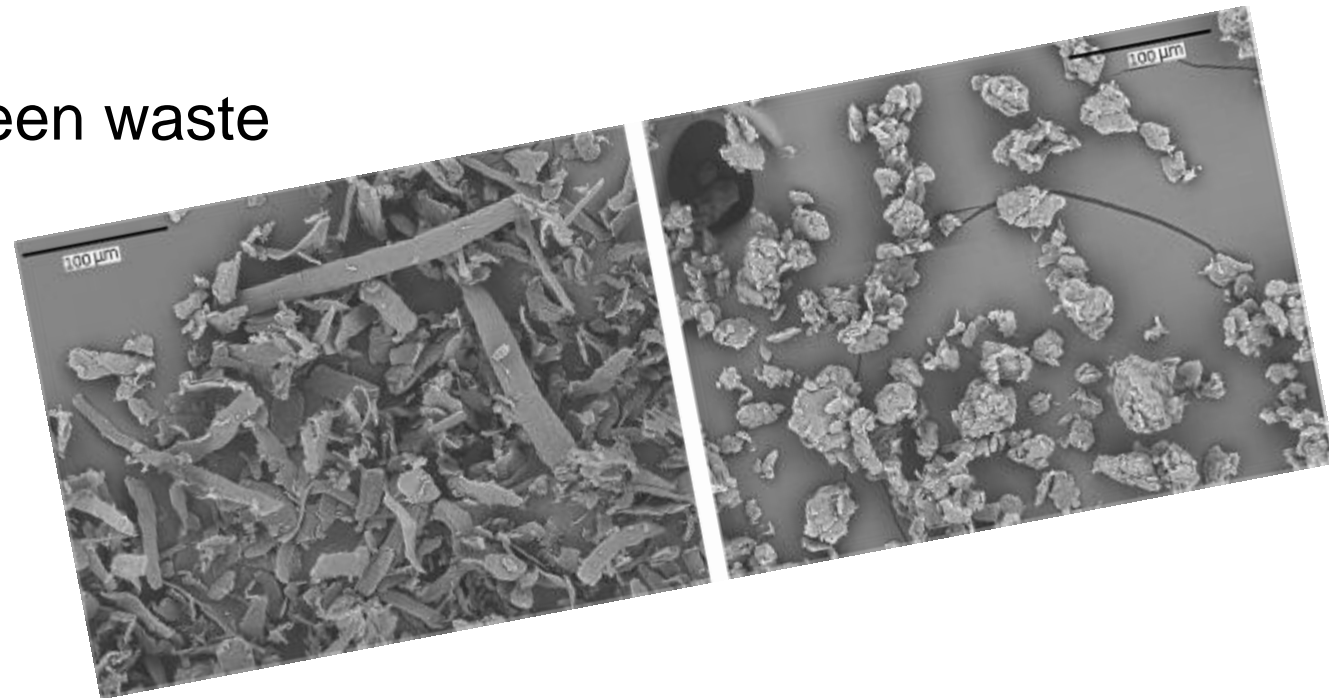
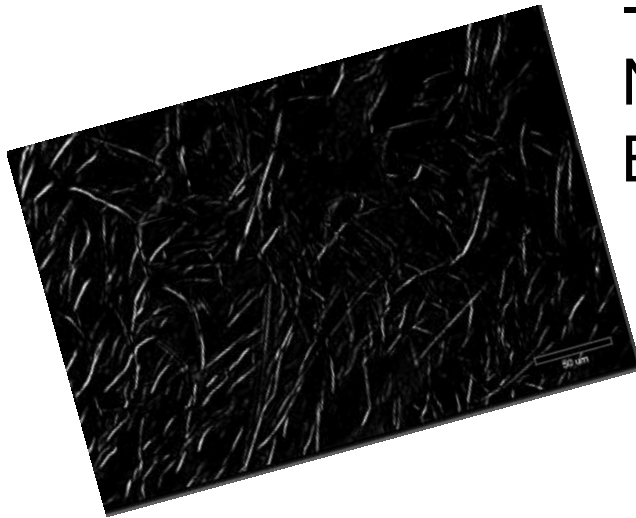
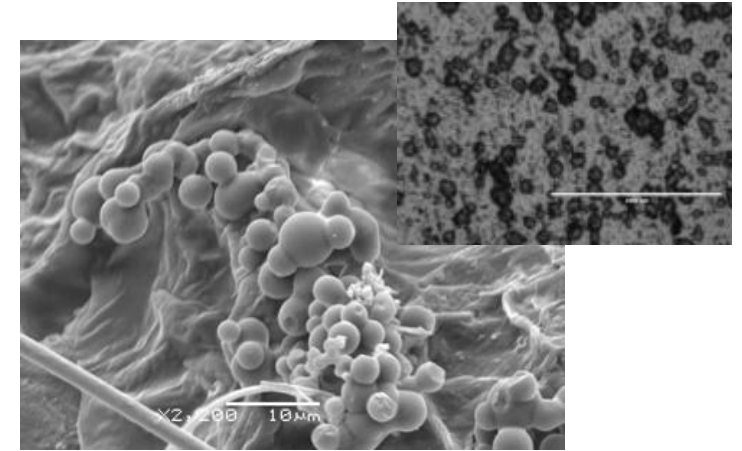
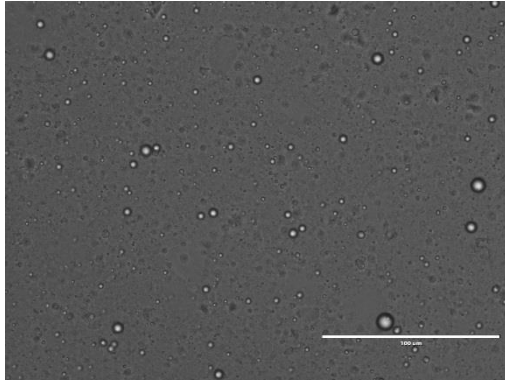
Food Sciences

Food Structuring

- Fibre, celluloses and gums
- Lignin, hydrophobic particles (emulsion stabilising)
- Natural emulsions from oilseeds
- Proteins

Nutrients from green waste

Brewing waste





Specific Projects

Re-SAUCE



Dietary fibre,
polyphenols,
fatty acids



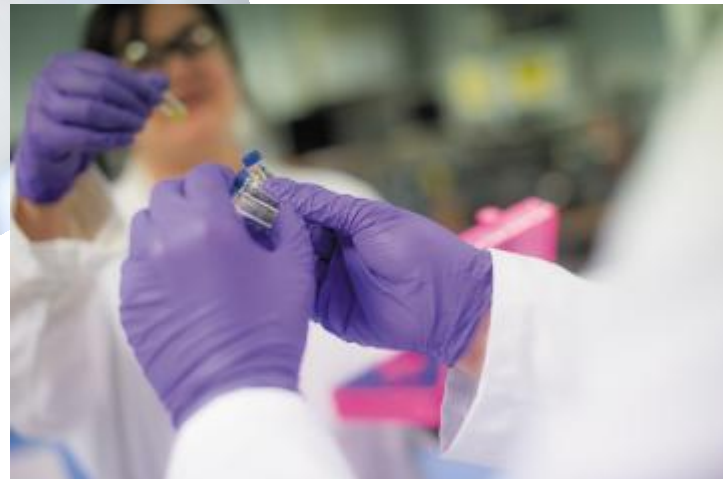
Bananas into
Biscuits



Health and Life Sciences

Constituents for health

- Medical Polysaccharides
- Phytochemicals



Engineering (Food, Water, Waste group)

Advanced processing techniques

- Drying
- Microwave
- Supercritical
- Ultrasound
- Cold Plasma

Biopolymers, functional materials

Wastewater treatment and remediation

Anaerobic Digestion





Systems Change Thinking – Creating Value from Unavoidable Food Supply Chain Wastes



Tuesday 16th January 2018
University of Nottingham,
Sutton Bonington Campus

EPSRC

Engineering and Physical Sciences
Research Council



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Loughborough
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<https://foodwaste-systemschange.eventbrite.com>