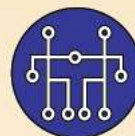


Valorisation of Animal By-products

# The Anaerobic Digestion Network

Shaping the future of AD  
Industrial Biotechnology

Longleat, 7 March 2017



**AD NETWORK**  
Harnessing Anaerobic Digestion

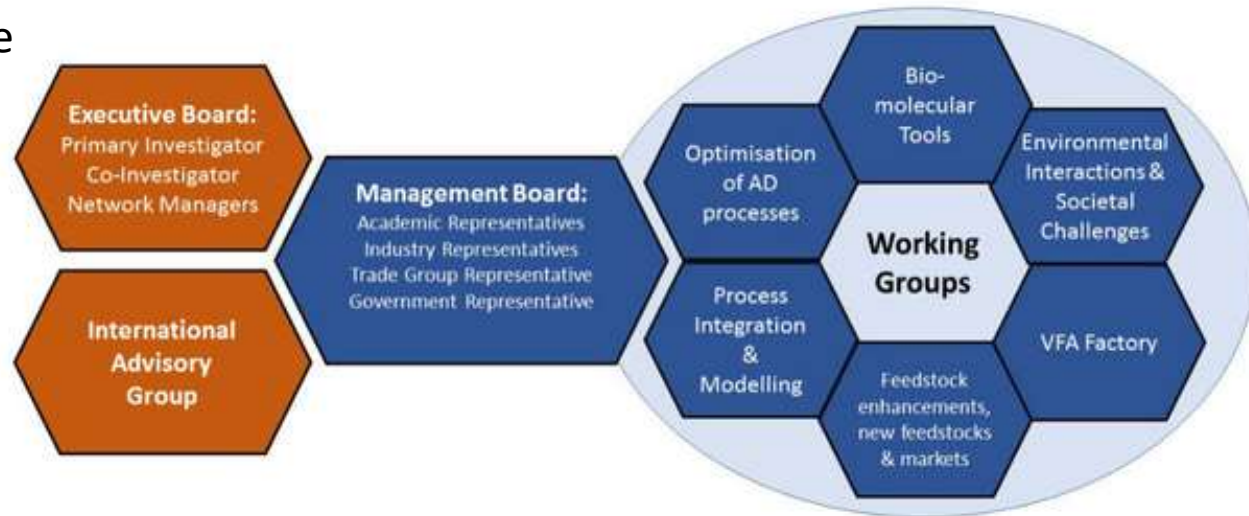
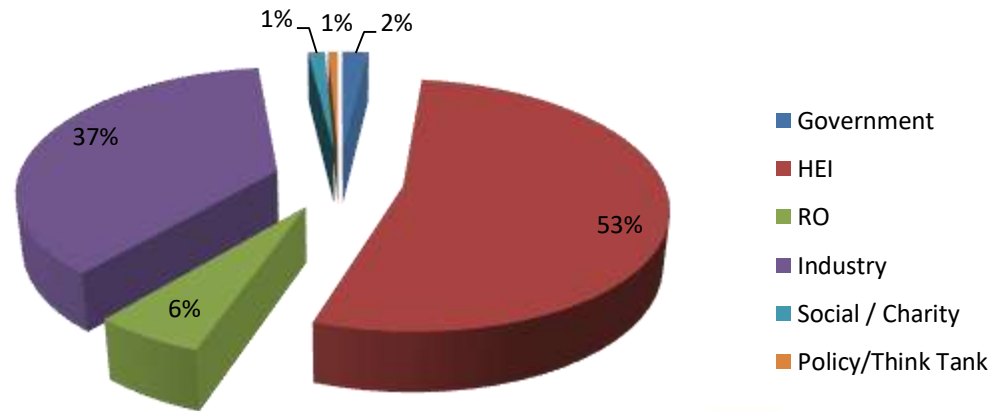


# Anaerobic Digestion Network 2014-2019

[www.anaerobicdigestionnet.com](http://www.anaerobicdigestionnet.com)

- **£18M BBSRC funded project:** 1 of 13 Networks in Industrial Biotechnology & Bioenergy (NIBB)
- **Total membership:** 608, including overseas members, from more than 50 research institutions
- **Networking events** on a wide range of topics in the field of anaerobic biotechnologies
- **£720,000 to fund 14 revolutionary Proof of Concept**
- **£200,000 Business Interaction Voucher** funding solving problems through connecting >22 industries with academia

## AD Network Membership Affiliation



# Research in Action

- Science meets Industry (Synthetic Biology), Warwick
- AnMBR: in situ membrane cleaning, Southampton
- Bioeconomy Value Chain Joint NIBB event, Manchester
- Bio-Electrochemical Systems Workshop , Newcastle
- Farm-scale AD Workshop, Agri-food Biosciences Institute, NI
- Global Challenges Workshops, Kenya, Johannesburg, Stellenbosch
- Bubbles and Biofilms, University of Southampton
- Food by-product valorisation, IBIOIC/FWN, Glasgow
- Integration of Chemical, Biochemical and Thermal processes, Supergen Joint event, Birmingham
- Annual Early Career Research event, 16-17 Jul, York
- Annual AD Bioresources R&I, 11 Apr, Sheffield
- AD Network Research Colloquium, December, London
- Using IB to improve soils, REA (TBC)

## CIRCULAR BIOECONOMY OUTREACH

- BBC Countryfile Roadshow, Blenheim, Oxford
- Cheltenham Science Festival, Cheltenham



**FoodWasteNet** - a community of industrial practitioners and academic scientists dedicated to creating economic value from pre-consumer food processing waste and by-products

- 569 members (29% from industry and 33% academic PIs)
- FoodWasteNet has funded 18 PoC and 19 BIV awards supporting 31 individual PIs
- 35 industrial partners have benefited from PoC and BIV projects
- We have organised 10 events and supported 17 cross-sector events with more events planned for 2018
- We'll be active until March 2019 – join us using the online form at <http://www.foodwastenet.org/register/>

## Planned Events 2018

- Valorising unavoidable waste from convenience foods & ready meals – Late June 2018 (tbc)
- Beyond the lab: Developing your Industrial Biotechnology Career, York, 18-19 July 2018 (tbc)
- IB approaches to deriving better value from field waste – Late September 2018 (tbc)
- Impact of policy and regulation on food waste valorisation – November 2018 (tbc)

More information from [www.foodwastenet.org](http://www.foodwastenet.org) or [foodwastenet@reading.ac.uk](mailto:foodwastenet@reading.ac.uk)

# Proof of Concept Awards – 'Blue Sky and Business'

Shotgun metabolomics in anaerobic digestion  
(Dr James Chong, York)

Effective mass transfer of hydrogen into digester mixed liquor for biomethanisation of biogas CO<sub>2</sub>  
(Prof Charles Banks)

Development of anaerobic biomass support particles for effective membrane cleaning  
(Dr Sonia Heaven, Southampton)

Production and extraction of C<sub>3</sub> and C<sub>4</sub> aliphatic carboxylic acids from the anaerobic digestion of waste blood as a model substrate  
(Dr Yue Zhang, Southampton)

Recovery and purification fatty acids and nutrients from anaerobic digester fluids using integrated membrane freeze-thaw (MFT) processes  
(Dr Robert W Lovitt, Swansea)

Microbial Enhancement of Phyto Active Compounds in Digestate  
(Prof Richard Dinsdale, South Wales)

# How has our Network helped business - BIVs?

A tank business wanted to test anaerobic digester components found in **thermophilic digestion of food wastes** and additionally looked at ammonia stripping

An AD supplier needed a scientific evidence base for public subsidy support of biomethane for transport for **food waste AD** with **biomethane upgrading**

A large **food group** wished to understand the feasibility and options of including a particular **co-product** in an **AD system**

A **supermarket chain** wanted to see whether the **addition of food waste** could add value to a potential farm AD system and what further innovative technologies could be economically implemented

# How has our Network helped business - BIVs?

A company developing utility-scale sustainable energy solutions in Africa commissioned its first AD plant running on vegetable wastes and baby corn stover and, wishing to use further **novel indigenous organic materials**, asked for expertise in establishing a **testing and monitoring lab** and evaluating the facilities to determine what analyses could be carried out local and externally

A large producer of **vegetables and mushrooms** with an **AD plant** wished to explore the use of digestate fibre as a substrate for mushroom cultivation

Farmers using **food/crop materials in AD** wished to investigate the use of **AD fibre to reduce peat usage** in the horticultural industry → **follow-on**

AD plant operators in Stornoway wished to understand the feasibility of **fish waste co-digestion** with MSW → **follow-on**



# Industry / Academic Networking and Collaboration

## For the industrial partner:

- Access to knowledge, academic innovation, 'blue sky' thinking, personnel outside the business
- Potential for improvement in some aspect of the bottom line

## For the academic:

- An understanding of business challenges, drivers and further potential research avenues
- Opportunity to provide industrially-relevant research

## For both:

- Opportunities to do further work together to explore other research opportunities
- Valuable contacts 'on the other side of the fence'
- Knowledge pooling

# Thank you

## Join

Membership is FREE and open to everyone who has an interest in Anaerobic Digestion.

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Follow us: @AD\_NIBB

[www.anaerobicdigestionnet.com](http://www.anaerobicdigestionnet.com)

Lego Academics @LegoAcademics - 17 Oct 2016  
Interim report to funder: ...project progressing as expected.

