



# Challenges for BioBased Materials in Construction

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# Background on Centre

INNOVATION IN BIO-MATERIALS FOR INDUSTRY

- Established for 25 years
- Focussed on applied research related to biomass
- Funding from competitive bids and commercial
- 38 full time members of staff





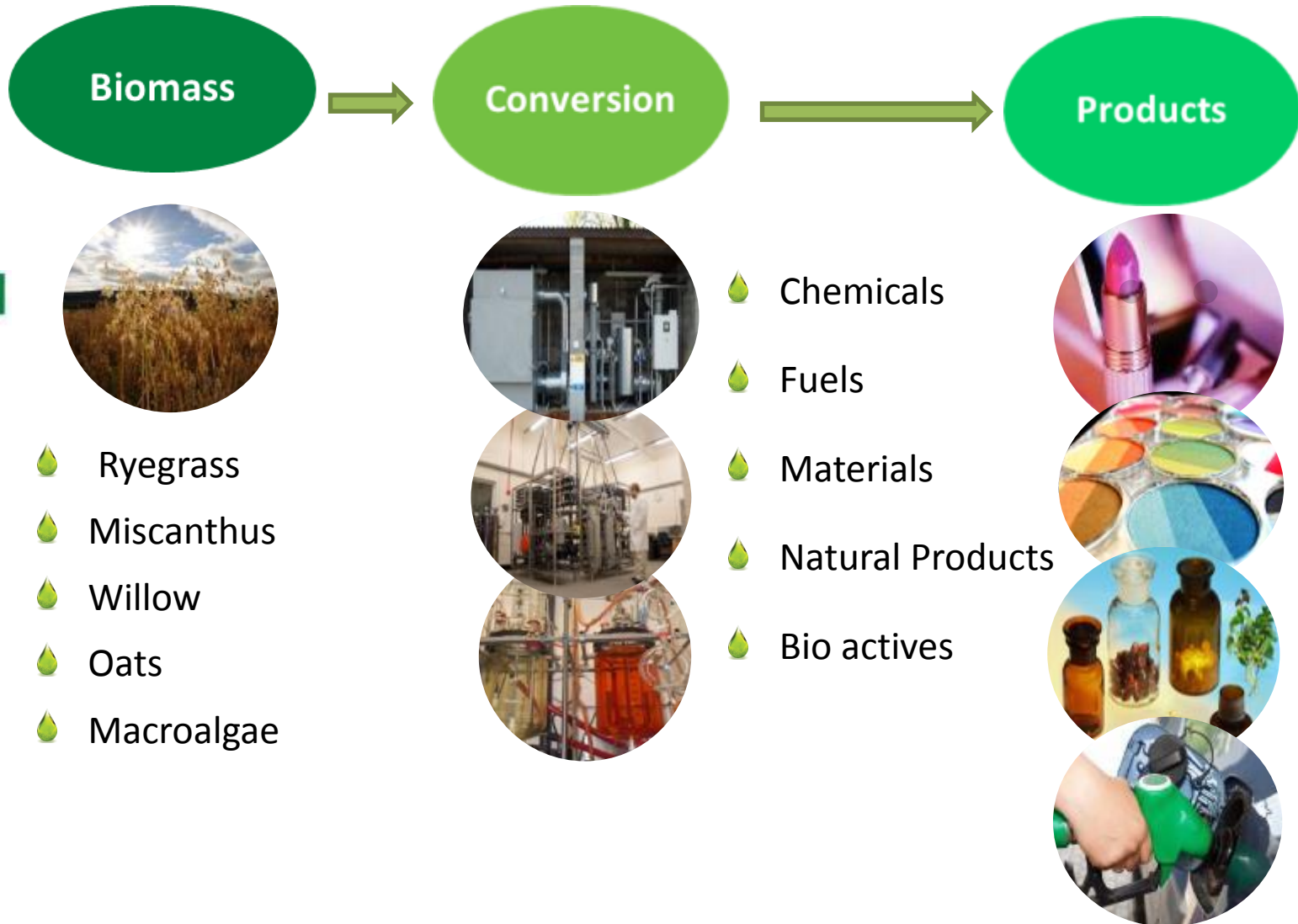
# Research Themes

INNOVATION IN BIO-MATERIALS FOR INDUSTRY

- BioRefining
- Chemistry of Natural Products
- Low Impact Materials
- Supercritical Fluids



# Biorefining: From Plants to Multiple Products



## BEACON Impact

- Assisted over 80 companies
- Developed 25 collaborative projects
- Induced investment of £3.2M into Wales
- Regio Stars award for best project
- Planning next phase of project , backbone project



## BioRefining Technology Transfer Centre

- BC has invested £2M through Welsh Assembly funding to set up a pilot scale facility

New for 2013

- Extruded film line
- Wet fractionation
- Pulp moulding





# Wood based composites

INNOVATION IN BIO-MATERIALS FOR INDUSTRY





# Wood based composites

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International Panel Products  
Symposium  
7-8 October 2015  
Llandudno, Wales

COST FP1303

[www.bc.bangor.ac.uk/ipps](http://www.bc.bangor.ac.uk/ipps)





# Natural fibre insulation

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- Established in 2007, at the time “the only UK facility dedicated to producing natural fibre insulation.”
- Number of joint projects looking at technical and marketing issues
- Company bought out in 2013 and moved to Yorkshire

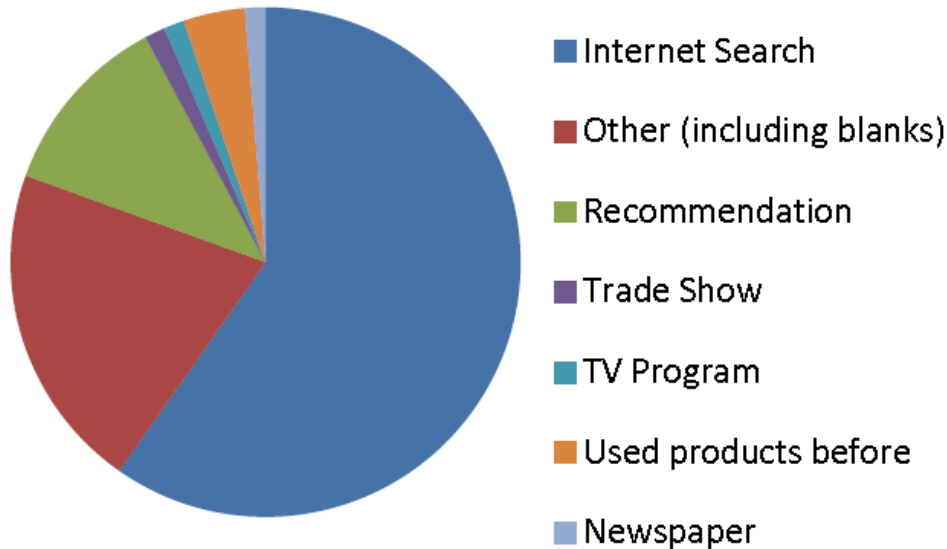




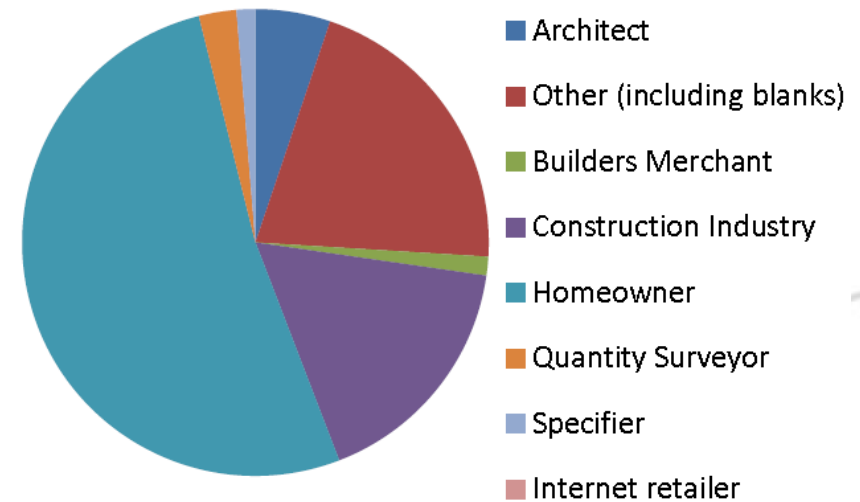
# Insulation market

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## Product enquiries



## Product enquiries



- Data from 2011 for Black Mountain





# Insulation market - UK

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- Performance

General perception of inferiority (then not now)

Need for FR (hemp) or pesticide (wool)

- Economics

Market size, customers are mainly the 'green home buyer'

Subsidies for synthetics available, not for naturals

- Social

Fixtures and general structure overshadowing thermal comfort at planning and construction stages





# Insulation - technical performance

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- Joint project including UEL and CAT to improve availability of technical performance data available
- Static and dynamic thermal performance
- Moisture buffering capability
- Formaldehyde absorption



# Insulation - interstitial condensation

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# Insulation – current market

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- Natural insulation marketing growing
- Unrealistic expectations of growth
- Over capacity for cellulose
- Product knowledge very low
- Need to develop:
  - Standard supply lines
  - Better business skills
  - CPDs and installation training

*80% of people  
buying our products  
are coming across them  
for the first time*



# EcoBond Cymru

INNOVATION IN BIO-MATERIALS FOR INDUSTRY

- Developing a slate saw dust as a material
- Characterisation of materials/resins
- Development of production process
- Testing and validation of product





## INNOVATION IN BIO-MATERIALS FOR INDUSTRY







# MDF Recovery Ltd

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# GOING FORWARD





# Going forward - other challenges

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- Supply chain and the circular economy
- Scale up
- Awareness raising
- Investment Funding
- Acceptance by a “conservative” sector
- Regulatory / policy drivers – need for good data
  - COST FP1303
  - ASBP



# ASBP



*“To accelerate the transformation to a sustainable built environment and society, by championing the understanding and use of demonstrably sustainable building products”.*





# Adaptavate

INNOVATION IN BIO-MATERIALS FOR INDUSTRY





[www.bc.bangor.ac.uk](http://www.bc.bangor.ac.uk)

Thank you

