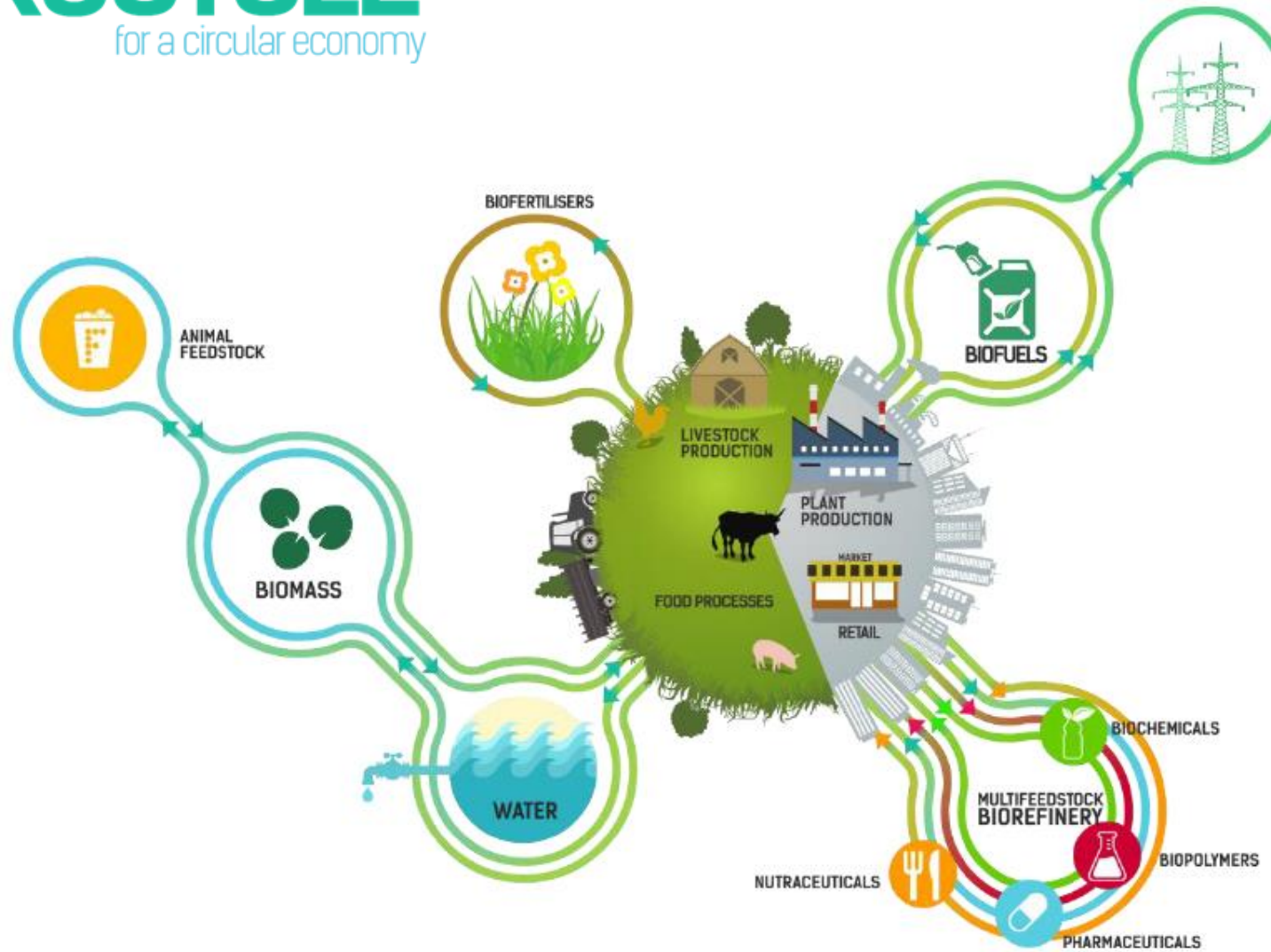




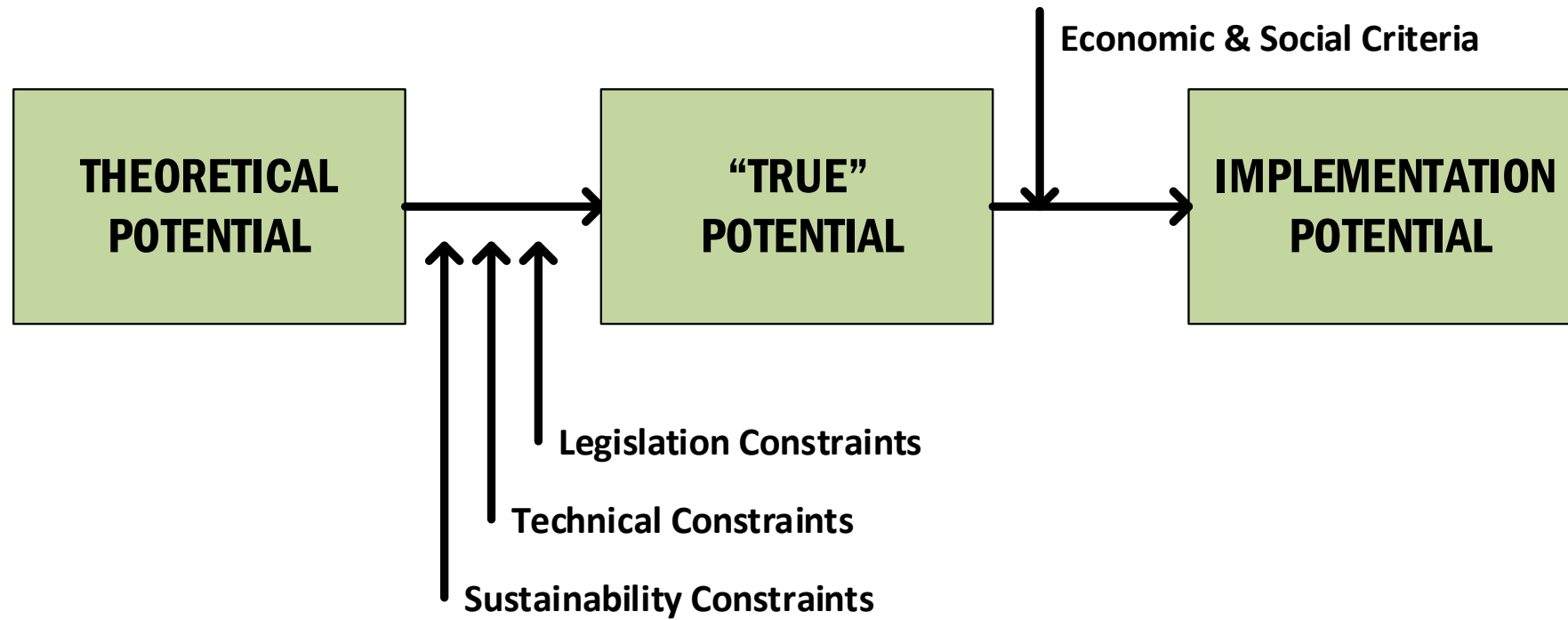
# **Recycling and valorisation of waste from the agri-food sector**

Dr Fionnuala Murphy  
School of Biosystems and Food Engineering  
University College Dublin

- 
- The map illustrates the distribution of agricultural products across Europe. Countries shown include Ireland, United Kingdom, Belgium, Germany, Spain, Italy, Croatia, Greece, and Other Countries (China). Each country is marked with icons representing different agricultural products. The legend identifies the following products:
- Fertilizers (green plant icon)
  - Animal feedstock (green pig icon)
  - Biogas (green plant icon)
  - Bio-fuels (green plant icon)
  - Substrates (green plant icon)
  - Pharmaceuticals (green plant icon)
  - Purified water (green plant icon)
  - Grass (orange plant icon)
  - Grapes (orange plant icon)
  - Rice (orange plant icon)
  - Poultry (orange chicken icon)
  - Fruits, vegetables & juice (orange fruit icon)
  - Dairy (orange cow icon)

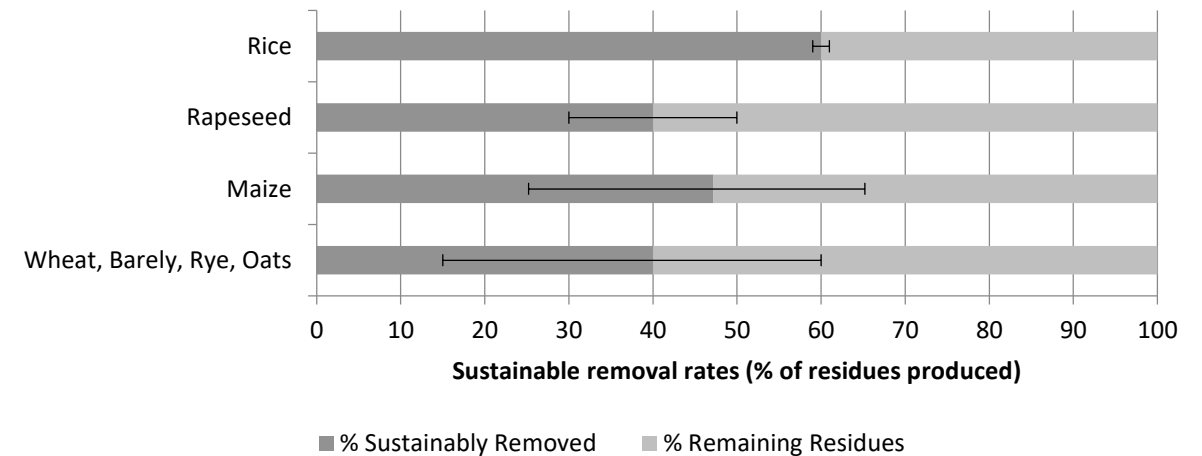


## Agri-Food Waste Availability



## Agri-Food Waste Availability

**Quantification of sustainable removal rates** - the level of agricultural residues removal that can be achieved without causing adverse effects on the performance of agricultural systems.



Source: AgroCycle D1.3 - Report on the holistic analysis of AWCB chains and logistics of AWCB valorisation systems

## Avoidable and Unavoidable Waste

- There is an inherent wastage in the form of unavoidable waste (by-products, co-products, residues) built into agri-food systems that cannot be prevented.
  - E.g. on average  $\frac{1}{4}$  of a vegetable crop is not edible (peels, leaves, stems, roots, etc.).
- While there are unavoidable agri-food wastes, significant amounts of food waste is avoidable.

Waste Type	Description
<b>Avoidable</b>	Avoidable wastes are material streams that have been mismanaged and disposed of, and are typically a mixture of different components (heterogeneous). These include wasted foods generated in processing, retail, catering and households. Avoidable agri-food waste occurs when foods are discarded because they are regarded as 'suboptimal', or when they pass their 'best-before' date, or due to product flaws
<b>Unavoidable</b>	Unavoidable agri-food wastes, on the other hand, are materials arising from food production systems that are not consumable, typically described as by-products, co-products, or residues (eg manures, crop residues, leaves and peels). Unavoidable agri-food wastes cannot be prevented and are typically homogeneous streams.

Source: AgroCycle D1.3 - Report on the holistic analysis of AWCB chains and logistics of AWCB valorisation systems





Source: AgroCycle D1.3 - Report on the holistic analysis of AWCB chains and logistics of AWCB valorisation systems

- Pilot scale production of demonstrators made of polymeric biocomposites containing potato pulp fibres as filler
- Potato pulp fibres up to 20 wt% were added to Poly(lactic acid) (PLA) and Polyhydroxyalkanoate (PHA) based matrices
- PLA and PHA based biocomposites with potato pulp fibres can be used for industrial production of pots or rigid containers for applications in packaging and agriculture





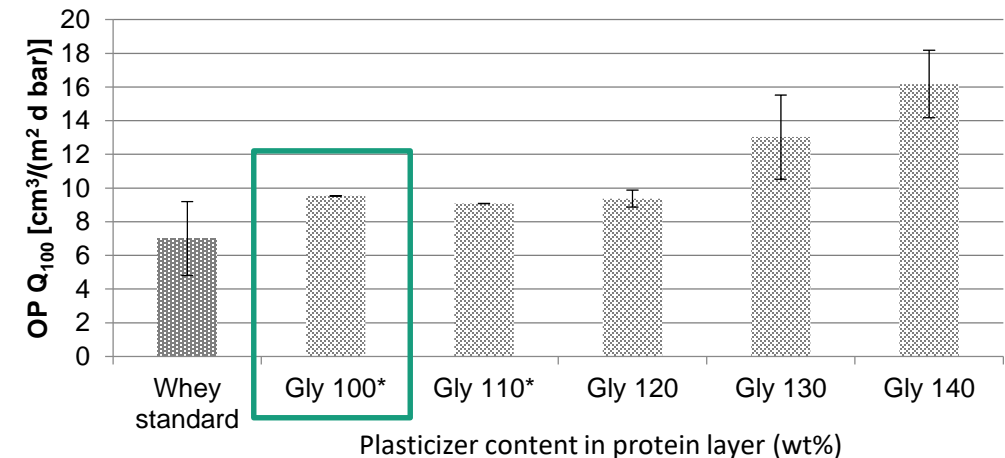
Potato protein based food packaging films produced on industrial scale pilot plant:

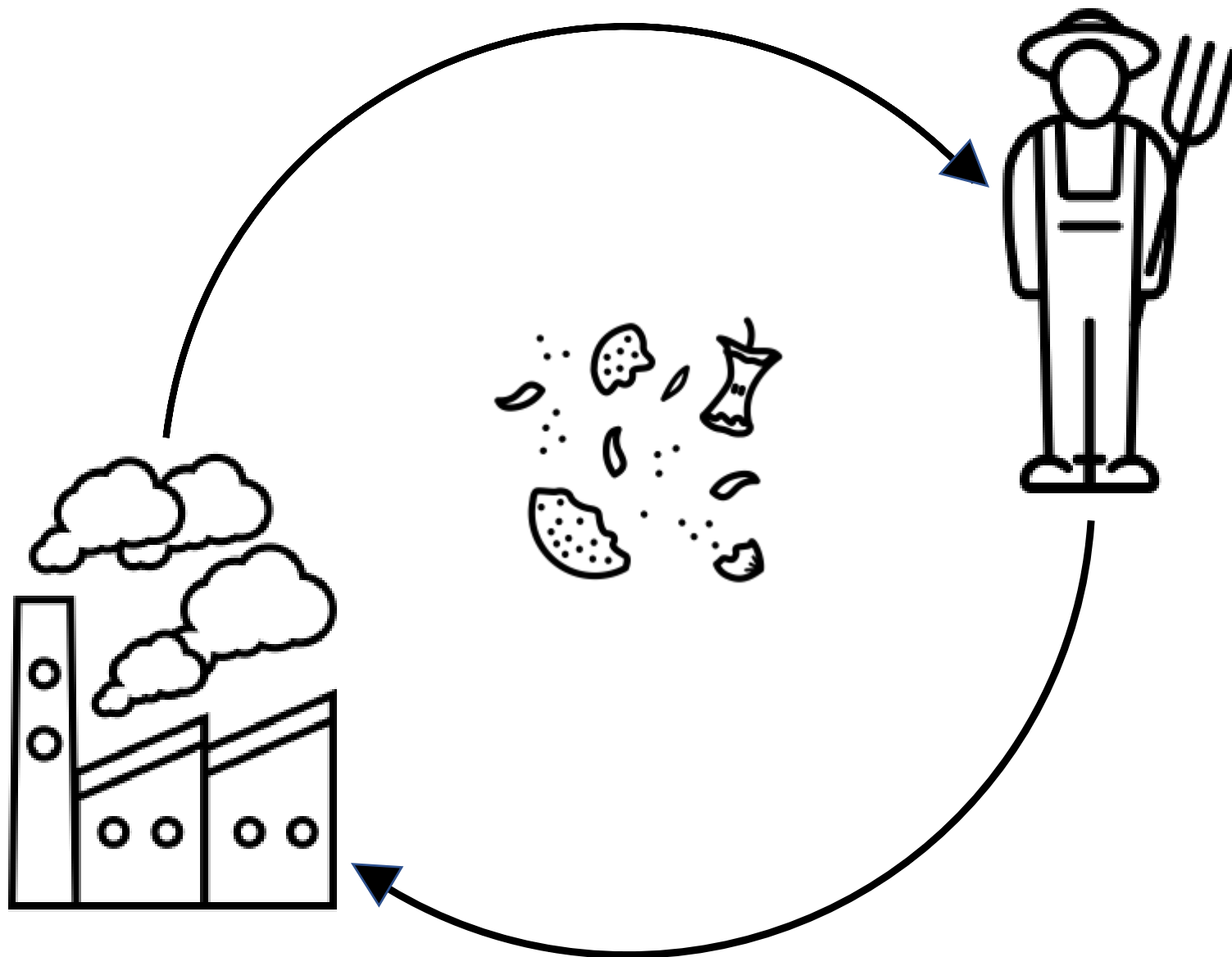
- PET 12µm Hostaphan RNK 12 / **Potato protein** / Novacote ASL 120 / PE 10µm defa  
*Conventional multi layer film*
- Paper B5B TDM / **Potato protein** / Novacote ASL 120 / PLA 30µm Nativa  
*Fully biobased renewable film*

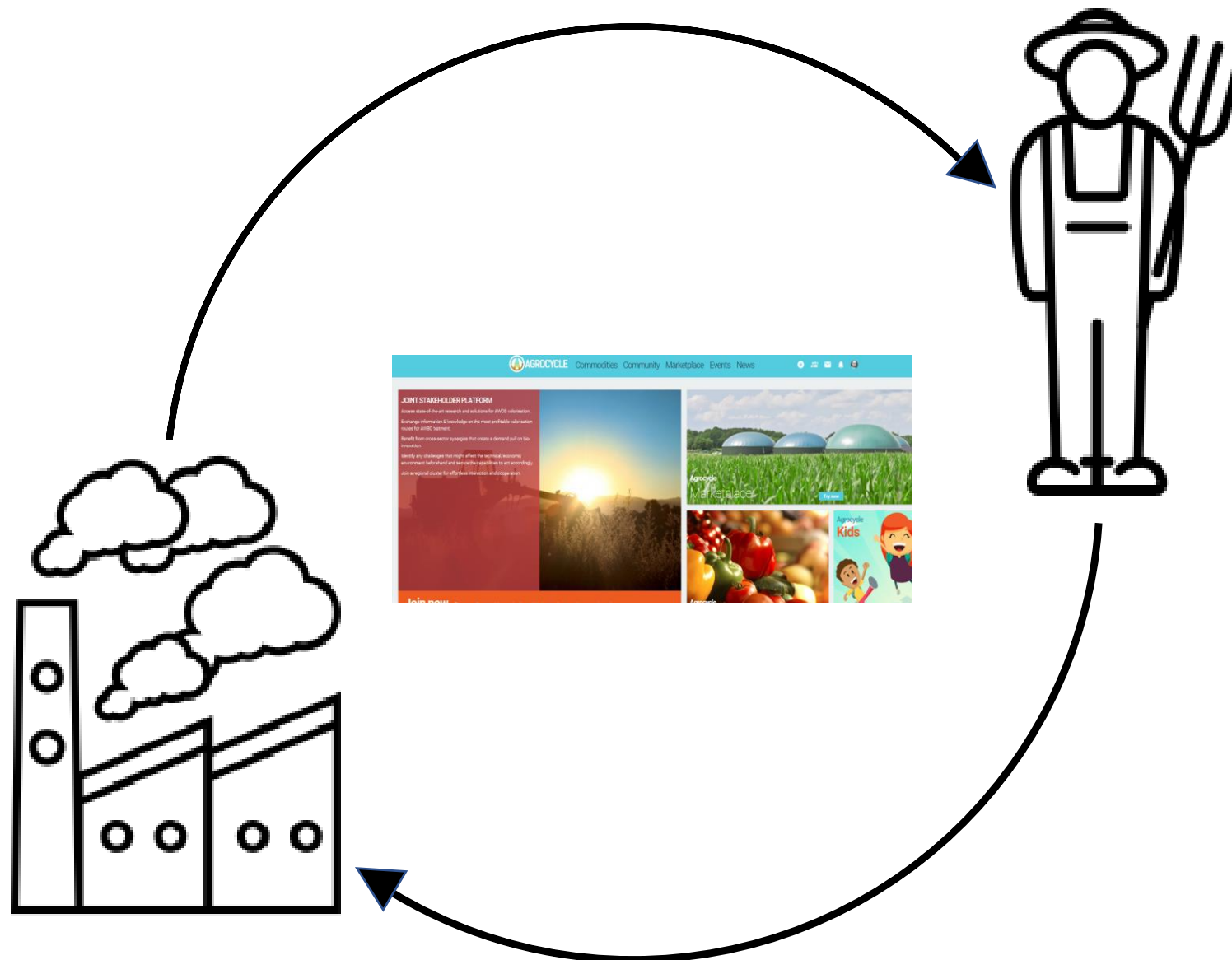


- Whey protein:  $Q_{100}=1-2 \text{ [cm}^3 \text{ (STP)/(m}^2 \text{ d bar)]}$
- EVOH :  $Q_{100}<1.0 \text{ [cm}^3 \text{ (STP)/(m}^2 \text{ d bar)]}$

**Barrier performance of potato protein close to whey protein and EVOH!**









## JOINT STAKEHOLDER PLATFORM

Access state-of-the-art research and solutions for AWCB valorisation .

Exchange information & knowledge on the most profitable valorisation routes for AWBC treatment.

Benefit from cross-sector synergies that create a demand pull on bio-innovation.

Identify any challenges that might affect the technical/economic environment beforehand and secure the capabilities to act accordingly.

Join a regional cluster for effortless interaction and cooperation.



**Join now**

Discover the latest in products and technologies to reduce waste and make



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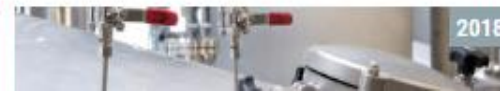
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## News



2018



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# Marketplace

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📅 04 Oct 2018 📍 IRIS 📍 Castelfidefe

**Peanut waste**

I am looking for peanut waste.

Arable Crops DEMAND

📅 15 Sep 2018 📍 IRIS 📍 Alba

**Hazelnut shells**

1 Ton of hazelnut shells, resulting from hazelnut processing, is available for shipping. They can be used ...

Vegetable Crops OFFER

📅 15 Sep 2018 📍 IRIS 📍 Bordeaux

**Grape residues**

Looking for grape residues resulting from vinification suitable to extract natural compounds.

Map Satellite






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Peanut waste

04 Oct

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Posted by José Antonio Ibarra

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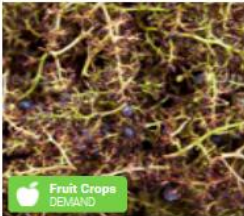







**AGROCYCLE** Commodities Community Marketplace Events News

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**Grape residues**  
15 Sep 2018  
Looking for grape residues resulting from vinification suitable to extract natural compounds.  
grape extraction  
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Map Satellite



# ABC Economy

- Co-funded under the Sustainable Energy Authority of Ireland Research Development & Demonstration Funding Programme 2018 with the Department of Agriculture, Food and the Marine.
- Develop new sustainable value chains for the circular bioeconomy in Ireland by maximising value and minimising environmental impacts through cascading of biomass for production of biobased products and energy.
- ABC Economy will engage with key stakeholders through project partner, Cré, and project collaborators, Tipperary County Council and Monaghan County Council, to develop sustainable value chains based on the bioresources available in each region.
- Key stakeholders (primary producer, processors, waste management companies etc.) will be engaged throughout the project to identify important resources, constraints to valorisation, and potential opportunities.

# ABC Economy

Next Steps (within 6 months):

1. Identification of key stakeholders
2. Stakeholder workshops