OBJECTIVES

To enable a zero-waste biorefinery and provide a detailed plan for a sustainable circular low carbon economy.

BioWILL will:

1. Improve value to SMF by >40% pa and double SMFs cultivating willow.

2. Advance the TRL level of processes for willow based biorefinery.

3. Demonstration of prototype sustainable products from bio-sourced material and route to market.

Photo taken by Ken Stott - Long Ashton Research Station

PROJECT PARTNERS

University of Limerick / Ollscoil Luimnigh

afbi Agri-Food & Biosciences Institute

cellulac

AGRILAND

Gas Networks Ireland

Epitheal

MATERIA NOVA

Prifysgol Bangor University

ELO European Landowners' Organization

UCC

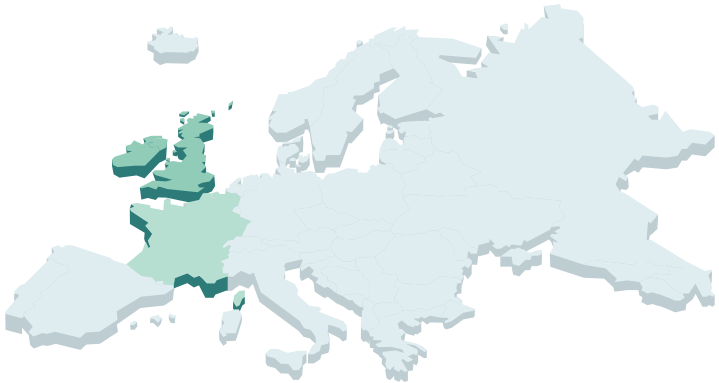
PROJECT SUB PARTNERS

HELICON Process Development Services

Crops for Energy

TRALEE

Renewable Gas Forum Irish Green Gas Ltd



www.nweurope.eu/projects/biowill

jjleahy@ul.ie

BioWILL NWE

@BioWILL_NWE

biowill_nwe

BioWILL

BioWILLNWE

NWE 964

Images courtesy of Kevin Lindegaard, Crops for Energy Ltd www.crops4energy.co.uk

Interreg North-West Europe BIOWILL

European Regional Development Fund

Integrated "Zero Waste" Biorefinery utilising all fractions of Willow feedstock for the production of high to medium based Bio-Chemicals/Materials, Renewable Energy in the form of Bio Methane production and Natural Fertilisers

Why BioWILL?

The outputs from BioWILL will address the problem of poor vertical integration of value for biomass by developing a zero-waste willow biorefinery utilising all fractions of the feedstock for the production of bioactive phytopharmaceutical chemicals, energy and materials ensuring sustainable economic development.

BioWILL will have significant societal impact through supporting the emergence of a competitive bio economy in the region, benefiting SMEs in north-western Europe by bringing together all stakeholders in the value chain to systematically address the lack of reference plants and perceived risks and promote market replication in the north-western European area.

Coordinated by:
UNIVERSITY OF LIMERICK
OLLSCOIL LUIMNIGH
National Technological Park,
Plassey, Limerick, Ireland

PROJECT METHODS

Optimise salicin recovery:

1. Field trials in Ireland, UK and France to identify the most suitable willow varieties.
2. Harvest yearly to analyse salicin concentration and determine the optimum harvest cycle.
3. Examine plants for disease resistance and response to stress.

Develop and optimise the processing of willow into product components and materials:

1. Upstream harvesting and separation of willow into bark and woody fractions.
2. Downstream pre-treatment using technologies which will develop a zero-waste approach.
3. Develop and validate a scalable process for extraction.
4. Salicin concentration to meet EMA requirements.
5. Residual bark post extraction processed to form bio-fibre materials.
6. Pre-treatment testing to facilitate optimum production of biogas derived from packaging.

Optimise product development of willow residues:

1. Test salicin extracts for anti-inflammatory activity.
2. Develop formulations for topical applications and test using human skin cells.
3. Validate a process for extraction and formulation into a medicated product.
4. Establish the nutrient value of the digestate inclusion as Component Category Materials.
5. Experimental measurement and validation of carbon sequestration potential of the digestate when applied to soil.