



Farm



Process



Customers

Sustainability Approach at Carbery

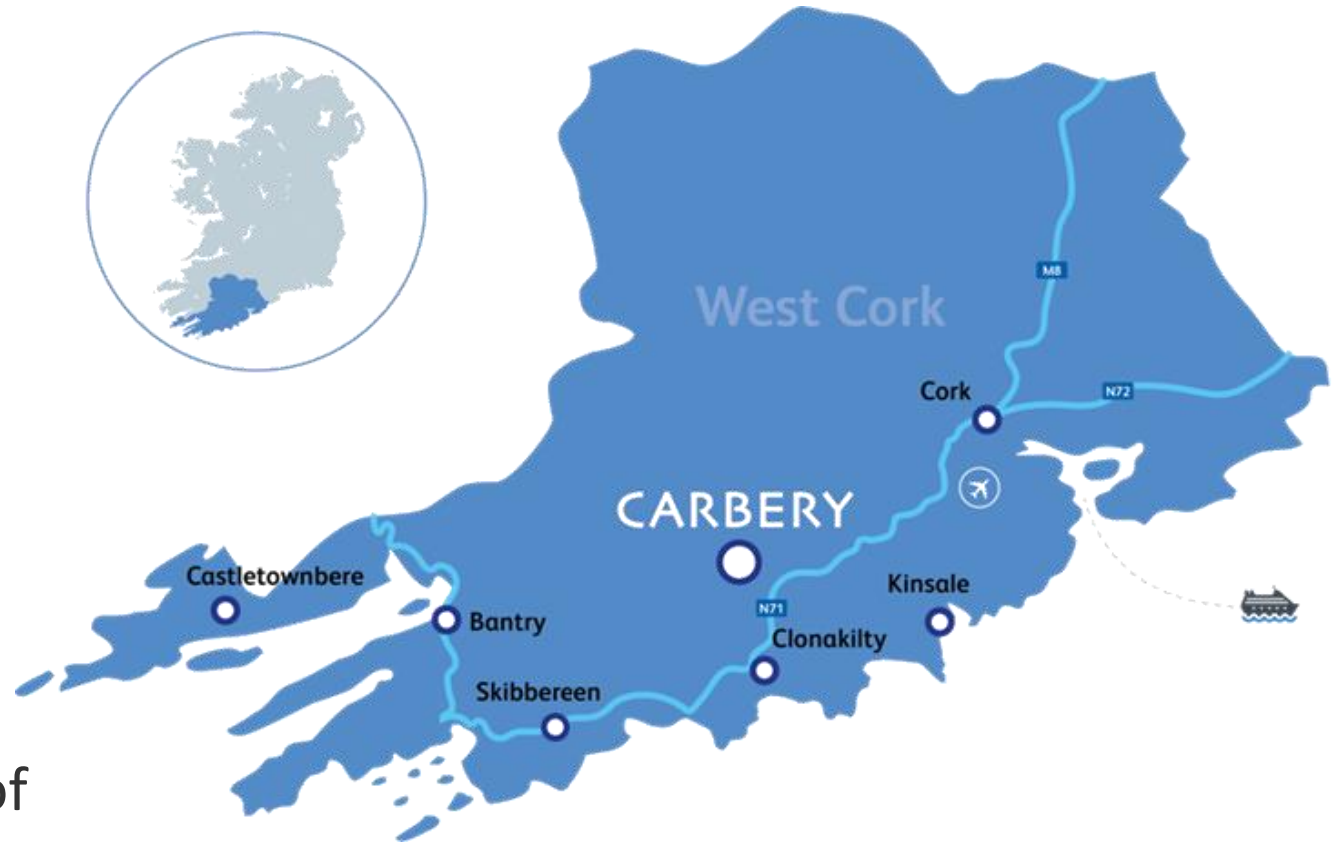
Teagasc Signpost Series

5th March 2021

Ownership



- 1,207 suppliers
- Milk is primarily sourced from grass
- 99% of farmers within 40 mile radius of Ballineen



Group Locations



Origin and history of sustainability at Carbery

- Sustainability innate within Carbery, cooperative structure really helps
- ‘Do the right thing’ culture
- Geography has helped – ‘Added value and Futureproofing’ part of our make-up
- Very innovative company –
 - ‘Carbery Process’ generating bioethanol for 40+ years,
 - One of the world’s first processors to install ultra-filtration technology to produce whey protein concentrates
 - Dubliner Cheese
 - Move into the flavours space in the 1990’s



Our Sustainability Goal

Carbery to be recognised as a world-class sustainable business leader

Carbery's Sustainability Ambition

- Sustainability team, Green Teams and steering committee established for Carbery Group
- Sustainability is core element of new group strategy, with stand alone 'sustainability' strategy
- Inaugural CSR report for the group published in the Autumn 2018
- Developing Zero carbon roadmap & Science based Targets for the group
- Ballineen site procuring 100% renewable electricity as of June 2018
- Developing Climate Neutral Dairy farm nearby in Shinagh

Sustainability – Key focus areas



ENVIRONMENT

Improving efficiencies and reducing our footprint:

- Carbon
- Water
- Waste

Major emphasis on:

- Renewable energy
- Biodiversity
- Bioeconomy



MARKETPLACE

- Quality
- Nutrition
- Responsible Sourcing
- Leading Irish Milk Price



WORKPLACE

- Developing Employees
- Early Career Development
- Respect & Dignity in the workplace
- Health & Safety



COMMUNITY

- Community Development
- Collaborations with schools and 3rd level
- Support local charities
- H&S initiatives with farmers

Dairy Sustainability Ireland



Companies

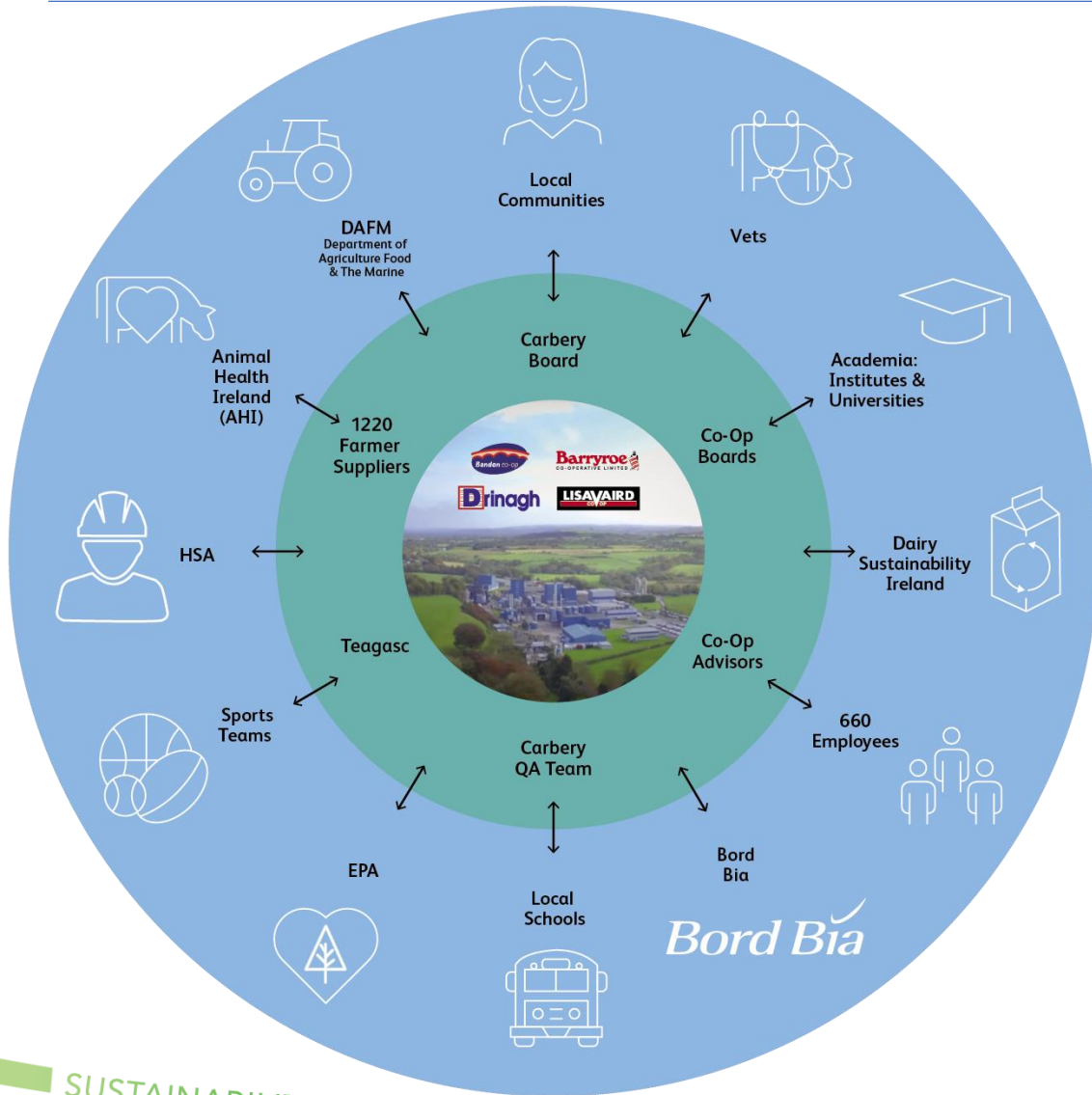


Associations



Governmental Agencies

Sustainable Farm Development



Agricultural Sustainability Support and Advisory Programme

ASSAP is a National Programme to Improve Water Quality Open to all farmers on a voluntary basis

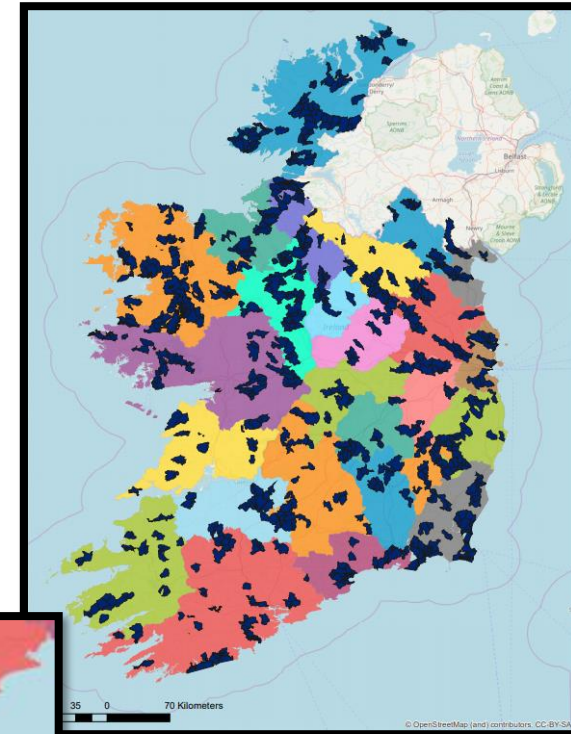


- Collaborative approach
- 30 Advisors work one-to-one with farmers
 - Nutrient Management
 - Land Management
 - River Bank Management
 - Farm Yard & Infrastructure Management
- Support growth and profitability
- Improve green credentials
- Encourage community harmony

ASSAP aims to break the pathway from pollution source to affected water course

ASSAP

- 190 Priority Areas for Action (PAA's)
- 5 PAA's in Carbery's region - Majority light free draining soils but some heavier soils too
 - N mitigation measures
 - P mitigation measures
 - Sedimentation
- Positive Farmer Engagement
 - Public Meetings
 - Stream Side Meetings
 - Letters
 - Discussion Groups



Carbery Greener Dairy Farms™

- In 2012 Carbery launched **Carbery Greener Dairy Farms™** an innovative, dairy efficiency programme designed to measure, monitor and optimise resource allocation and best practice on farm. This allowed us to measure at an individual farm level

1. Carbon Footprint
2. Water Footprint
3. Energy Footprint

- **Ireland's first for best practice**



Carbery Greener Dairy Farms 2012-2018

WHAT DID WE ACHIEVE?

2012 – Base Year

- Took soil samples and identified soil nutrient levels
- Completed energy & water audits (meters installed)
- Measured inputs monthly
- Completed profit monitors
- Measured carbon footprint - LCA
- Biodiversity Mapping
- Provided Expert Advice via Farm Walks & Meetings
- Communicated results & improvements to all suppliers

2013-2017

- Reduced Carbon emissions by 15%
- Raised awareness on water use
- Increased profitability – Up to 40%
- Increased EBI – 20%
- Reduced energy use
- Educated farmers on the importance of sustainable dairy production

WHAT'S NEXT?

2018 onwards

Further 36 farmers joined the programme – bringing total to 62

Emphasis going forward on animal welfare, farm safety, biodiversity grassland and soil management

CGDF Digital Stories & Environmental Diploma

- In 2017 launched a digital storytelling project around environmental sustainability with farmers in West Cork.
- www.carbery.com/digitalstorytelling
- CGDF programme recognised by UCC through RPL mechanism. The first group of farmers were conferred with Dip in Env. Science in Nov 2018 and the second in Nov 2019.





Carbery Tree Project

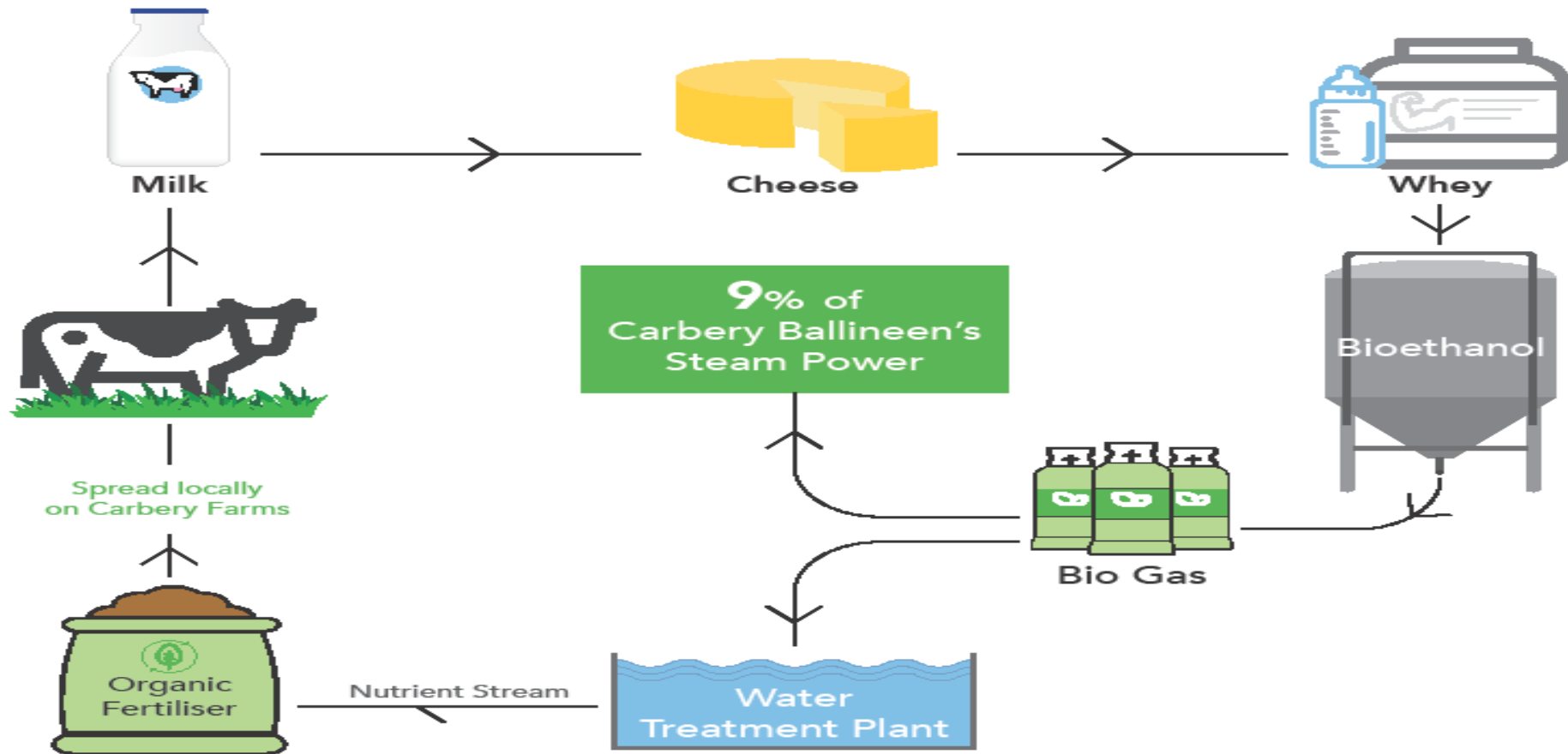
- The Carbery Tree Project was the first scheme of its kind in Ireland
- Every Farmer Member planted 20 x Native Irish Trees (Oak, Birch, Rowan and whitethorn) as a carbon offsetting measure, and also to increase biodiversity on farms.
- 2018 initiative also saw staff getting involved

1220
suppliers

45000
trees

850MT
of Carbon
saved p.a.

Circular Economy at Carbery



Sustainable Innovation at Ballineen over past decade

- Developed an energy monitoring system
- Installed a Reversis Osmosis (RO) plant to initiate water savings
- Generated significant heat utilisation from the distillation plant and improved efficiencies of the CHP plant
- Carbery attained ISO 50001 for energy management and installed TEMPO
- Water condensate recovery plant was installed

Carbery 'Every Drop Counts' Programme

- Carbery have installed series of Reverse Osmosis (RO) plants to concentrate permeate plus recover water from this process as well as various condensate streams on site.
- Installed tank storage to capture final rinse of the CIP processes in the cheese & ingredients plants for reuse as the first rinse of the next CIP cycle.
- *Investment €3m*
- *Payback 7.2 years*
- *€365,853 saved/annum on pumping/electrical costs*
- ***1.4 million Litres of water saved per day***



Bord Bia Accreditations

- All suppliers are Sustainable Dairy Assurance Scheme (SDAS) certified
- Origin Green Gold Membership
- Recent certification for Grass Fed Standard



Working
with nature

Sustainability Recognition





Group Materiality Assessment

- Recently conducted a group-wide materiality assessment to provide strategic input to guide our sustainability activities
- We used the SDGs and the SASB framework to identify the issues most relevant to our sector
- Conducted desk research and interviews to understand the views of regulators, global peers, customers, and relevant NGOs – as well as the views of our own people
- Process helped to identify the environmental, social, and governance risks and opportunities that matter most
- Highlighted the growing importance of environmental issues to both our business and stakeholders, as well as social issues such as animal welfare and sustainable supply chain management.

Sustainability Strategy

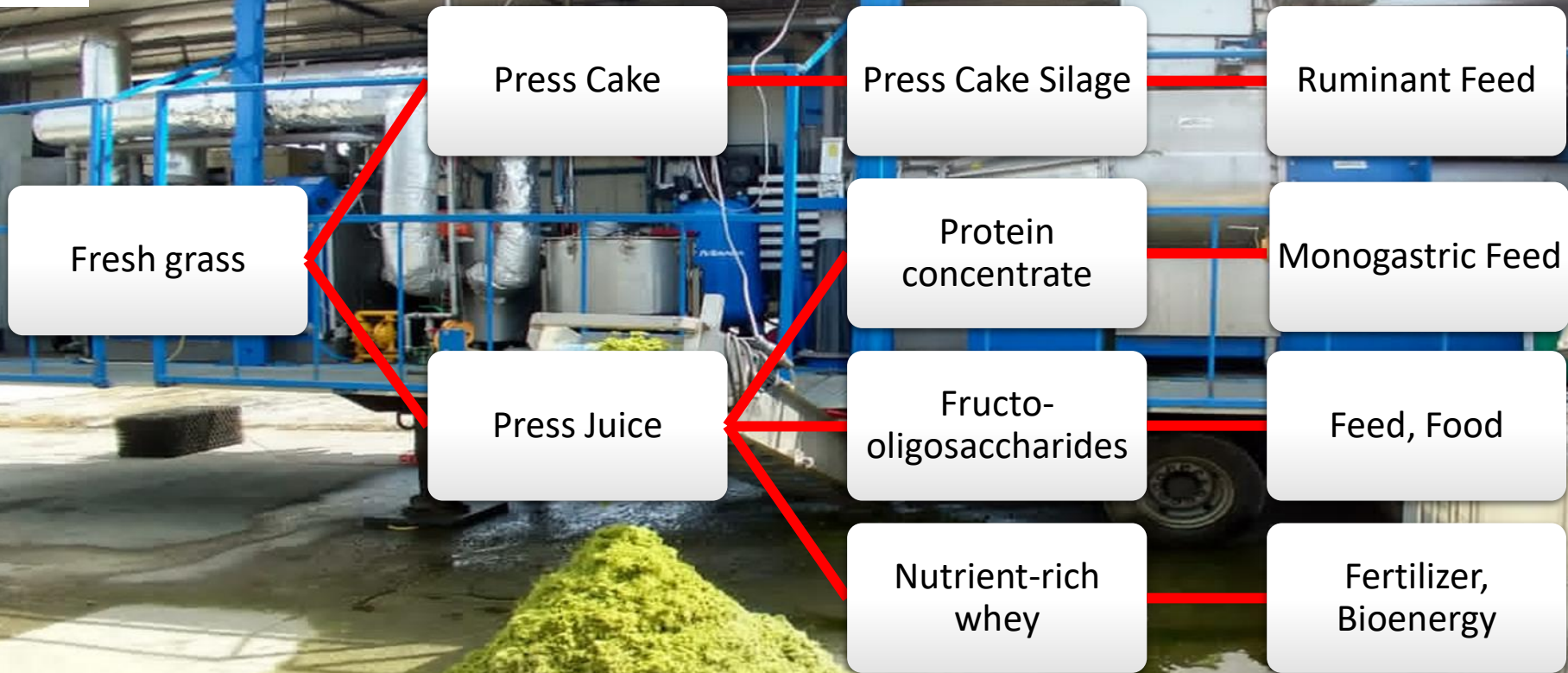
1. Continue to develop on-farm initiatives, emphasising low carbon milk, health & welfare and farm safety.
2. Achieve carbon neutral status across all sites by 2035.
3. Attain major water conservation across the group.
4. Zero waste to landfill ambition across all sites



Bioeconomy at Carbery

- Carbery pioneered the operation of an industrial-scale whey-to-ethanol plant in 1978.
- 'Carbery Process later adopted in NZ and by Muller in Germany
- In Irish context it equates to avoided CO2 emissions of 16,321 tonnes of CO2 compared to standard petrol - very beneficial impact on Ireland meeting its 2020 transport targets
- Plant currently produces about 12 million litres of bioethanol/annum
- Significant GHG emissions saving – 86% less carbon intensive than petrol





What are the main findings?

- Biorefining adds value to Irish grass providing diversification opportunities and feed independence
- All 4 co-product streams compared comparably well with incumbent products and offer key opportunities for emission displacement
- Biorefining of grass can increase animal protein production per ha by up to 50%
- Integration between biorefining and bioenergy can be a win-win
- Bioeconomy can be delivered economically at small scale with 3 products
- Farmers and primary producers can and should play a more central role in bioeconomy value chains



- Website is <https://biorefineryglas.eu/>

Farm Zero C

- Developing a climate neutral dairy farm at Shinagh Farm owned by West Cork Coops
- Made application under SFI Zero Emissions Challenge



Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin



MTU
Ollscoil Teicneolaíochta na Mumhan
Munster Technological University



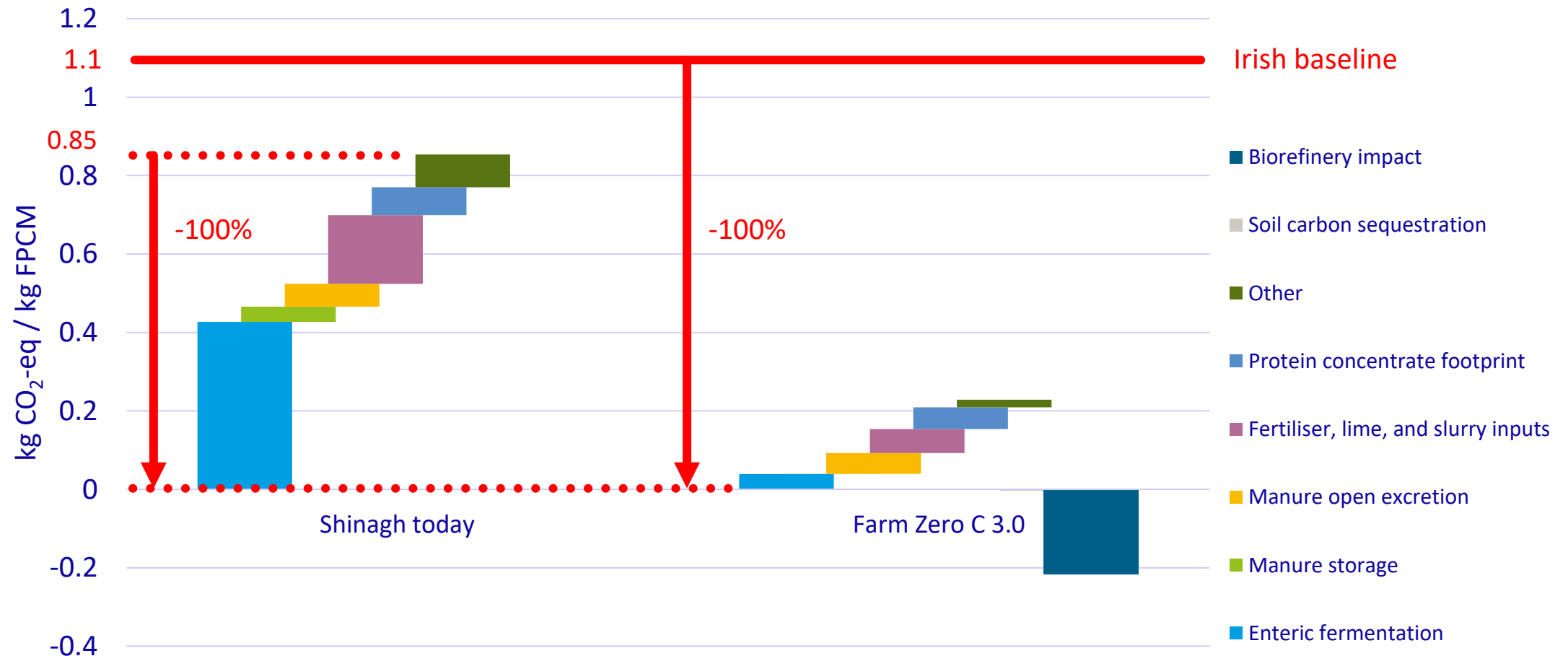
SUSTAINABILITY



Farm Zero C Video



Net-zero emissions goals will be achieved by 2026/27 during Farm Zero C 3.0



H2020 EU Farm to Fork Proposal



- Made submission to EU under Farm to Fork proposal
- €12 million funding available
- Throughout Sept to Jan developed Carbery led consortium
- 23 partners covering 9 EU countries, including Valio, CAPSA, Carbon Harvesters, Zelp and Wageningen
- Some very exciting and innovative tech being proposed



Farm Zero C – What's Next

- 3 phases to obtain Net Zero emissions
- Plan is for Net Zero emissions to be achieved in 2027
- Converting the problem into the solution
- Need to provide farmers the toolkit to decarbonise
- Beacon for sustainable agriculture in Ireland and globally