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**Deloitte.**

 agrifirm

**KERRY**

# Future of Food.

**Webinar Decarbonization of the food system**

**Realizing a net zero, or carbon negative food system**

**EVENT WILL START AT 4PM CET AND WILL BE RECORDED**



F



# Future of Food.

**Webinar Decarbonization of the food system**

**Realizing a net zero, or carbon negative food system**



4:00PM - 4:20PM

4:20PM - 4:40PM

4:40PM - 5:00PM

5:00PM - 5:30PM

**Decarbonization journey:  
From commitment to  
successful execution**



**Fred Nijland**

Food Decarbonization Lead

**A responsible food chain  
for future generations**



**Johan De Schepper**

Head of Innovation

**Creating a world of  
sustainable nutrition**



**Juan Aguiriano**

Group Head of Sustainability

**Panel discussion  
facilitated by**



**Birthe van der Voort**

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A close-up photograph of a pair of hands gently holding a small, vibrant green seedling with several leaves, planted in dark, rich soil. The background is softly blurred, showing more soil and another seedling in the distance. The overall tone is natural and hopeful, symbolizing growth and care.

**Deloitte.**

**Decarbonization journey:**

**From commitment to successful execution**



# Corporates are making bold commitments to reduce their carbon footprint



## Ahold Delhaize brings net-zero target forward to 2040 for direct carbon emissions

November 12, 2021 03:00 ET  
| Source: Ahold Delhaize

Zaandam, the Netherlands, November 12, 2021 – Ahold Delhaize believes it is imperative that it achieves decarbonization of its business and partners to enable a 1.5°C future. Ahold Delhaize and its brands commit to reach net-zero carbon emissions across their operations by no later than 2040 (scope 1 and 2) and to becoming net-zero

## World's largest brewer promises carbon neutral breweries by 2028

Friday, 10 December 2021



AB InBev brewery at Jupille. © Wikimedia

Brewing giant AB InBev has pledged that its five largest European breweries – including those in Jupille and Leuven – will be carbon neutral by 2028, it announced Friday.

"The term 'net zero' refers to the balance between the amount of emissions produced and the amount removed from the atmosphere," the group explained in a statement, adding that its ambition is to achieve net-zero emissions in its entire value chain by 2040, Belga News Agency reports.

## Nestlé targets regenerative agriculture in €3bn climate plan



Image: Nestlé aims to ramp up regenerative agriculture in its supply chain, such as on this coffee plantation in Brazil

Food and drink giant's roadmap includes major focus on scaling up regenerative agriculture across supply chains worldwide as it sets sights on net zero emissions by 2050

Nestlé has today unveiled a multi-billion pound plan to deliver on its science-aligned climate goals over the next decade, with a major focus on scaling up regenerative agriculture techniques, rolling out renewable electricity for its operations, and expanding its plant-based food and drink offerings.

## Starbucks Lays Out Sweeping Goals to Combat Climate Change

By 2030, the coffee chain wants to cut carbon emissions in half and reduce half of its waste.

## McDonald's opens "UK's first net-zero restaurant"



Nat Barker | 20 December 2021

36 comments

Fast-food chain **McDonald's** has opened what it claims is the UK's first net-zero carbon restaurant building.

## EasyJet to offset carbon emissions from all its flights

Airline will also relaunch its package holiday business in wake of Thomas Cook collapse



An easyJet plane takes off at Lille-Lesquin airport. Photograph: Philippe Huguen/AFP/Getty Images

## Microsoft pledges to be 'carbon negative' by 2030

Company seeks to remove more carbon from the atmosphere than it emits within a decade



HEINEKEN aims to be carbon neutral in production by 2030 and full value chain by 2040

April 15, 2021 02:00 ET  
| Source: HEINEKEN NV

Kraft Heinz sets goal of net zero GHG emissions by 2050



Photo: ©DUNCAN ANDISON - STOCKADORE.COM

12.18.2021 by Jeff Gresh

## Heineken wants to link executive pay to climate change goals

BY THOMAS BUCKLEY, DANI BURGER, AND BLOOMBERG

June 16, 2021 5:00 PM GMT+2

In order to limit global warming to below 1.5 degrees Celsius we need to cut carbon emissions with 55% before 2030 and be carbon neutral by 2050



# Poll question

**Has your company made commitments  
to reduce carbon footprint?**



# Poll question

**Are you confident that these  
commitments will be reached on time in full?**












# Climate change poses significant business risks, both financially and operationally...

- **Disruptions throughout the value chain** can lead to increased costs and lost revenue opportunities
- **Technology changes can undermine the viability** of existing products or services, increase business costs, or affect asset values
- **Extreme weather events can damage physical assets**, giving rise to financial damage and increased insurance costs, as well as leading to delayed logistics and downstream supply shortages
- **Consumer preferences for purpose-driven companies** can lead to increased consumer switching & financial risk to those unwilling to act

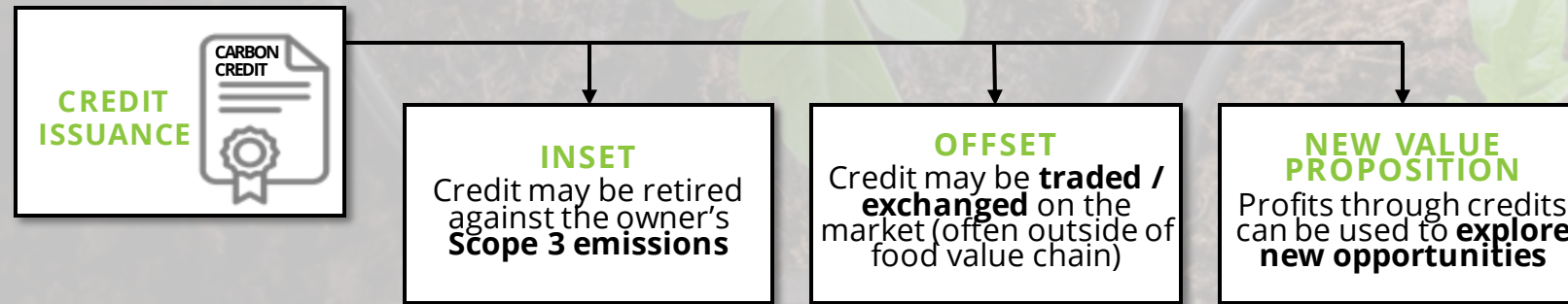
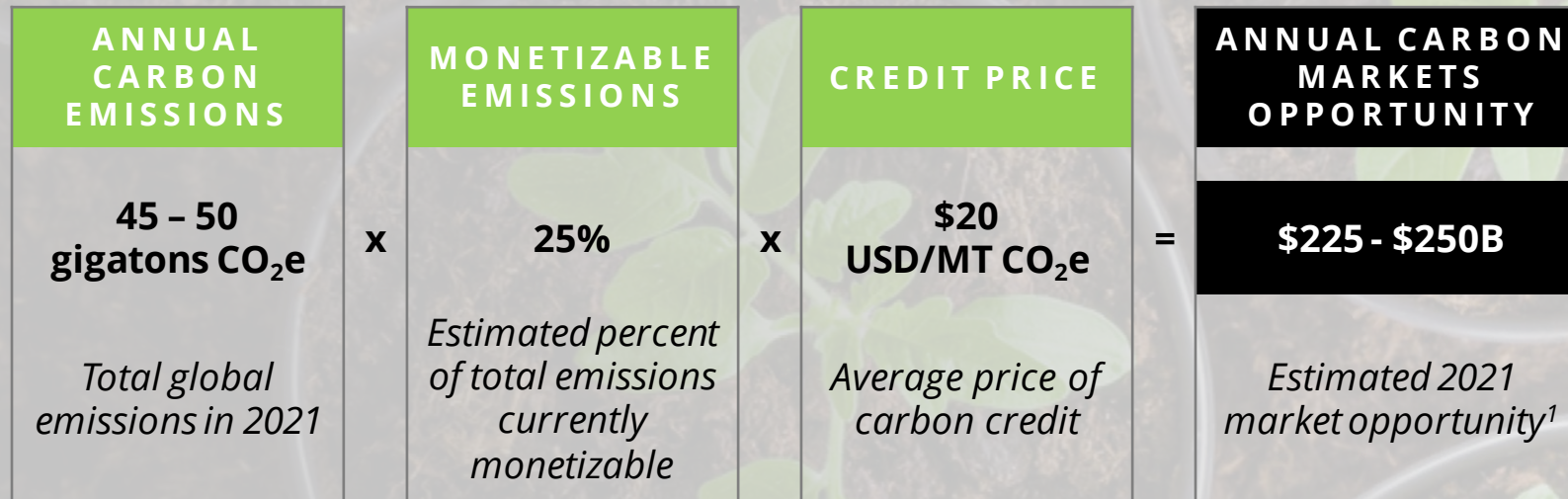


# Driven by various trends, decarbonization represents an opportunity to address those risks and drive value

TRENDS	OBSERVATIONS	EXAMPLES
<b>Regulatory pressure</b>	Policy changes can alter industry dynamics and require substantial funding to upgrade businesses to comply with regulations	 
<b>Investor demand</b>	Increase future shareholder value by appealing to players who prioritize purpose-driven companies and environmental sustainability; Investors are putting pressure on the food sector to decarbonize	
<b>Emission reduction targets</b>	Net Zero by 2050 commitments are becoming the new gold standard. Nearly 20% of global Fortune 500 companies have committed to be Carbon Neutral, Net Zero, or Carbon Negative by 2050 or earlier	   
<b>Commercial opportunities</b>	Strengthen brand reputation by improving supplier and consumer trust. Direct commercial opportunity includes cost reduction, increased win rate in the market and the targeting of new market segments	 



# More and more opportunities are arising to tap into the potential value of the carbon market



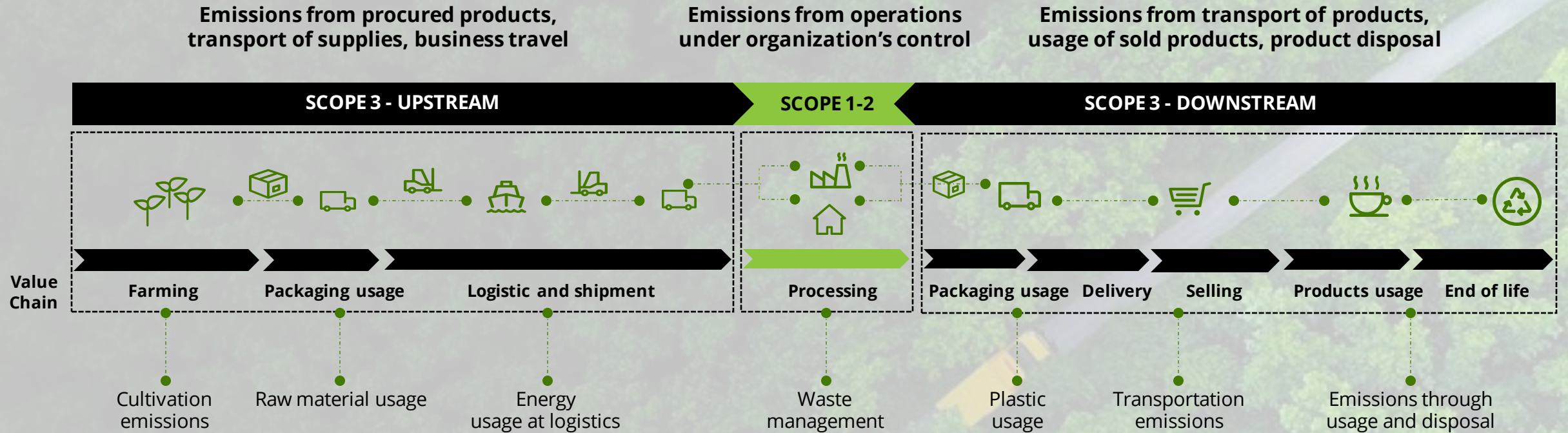
**CARBON CREDIT VALUE**  
 The average **price** for carbon credits is expected to **rise 20% annually** over the next five years<sup>2</sup>

**INCREASING DEMAND**  
 By 2030, the **demand** for carbon credits is expected to **increase >15x** and up to **100x by 2050**<sup>3</sup>

**GROWTH IN MARKETS**  
 As credit value & demand rise, global carbon offset markets are projected to grow to **\$200B by 2050**<sup>4</sup>



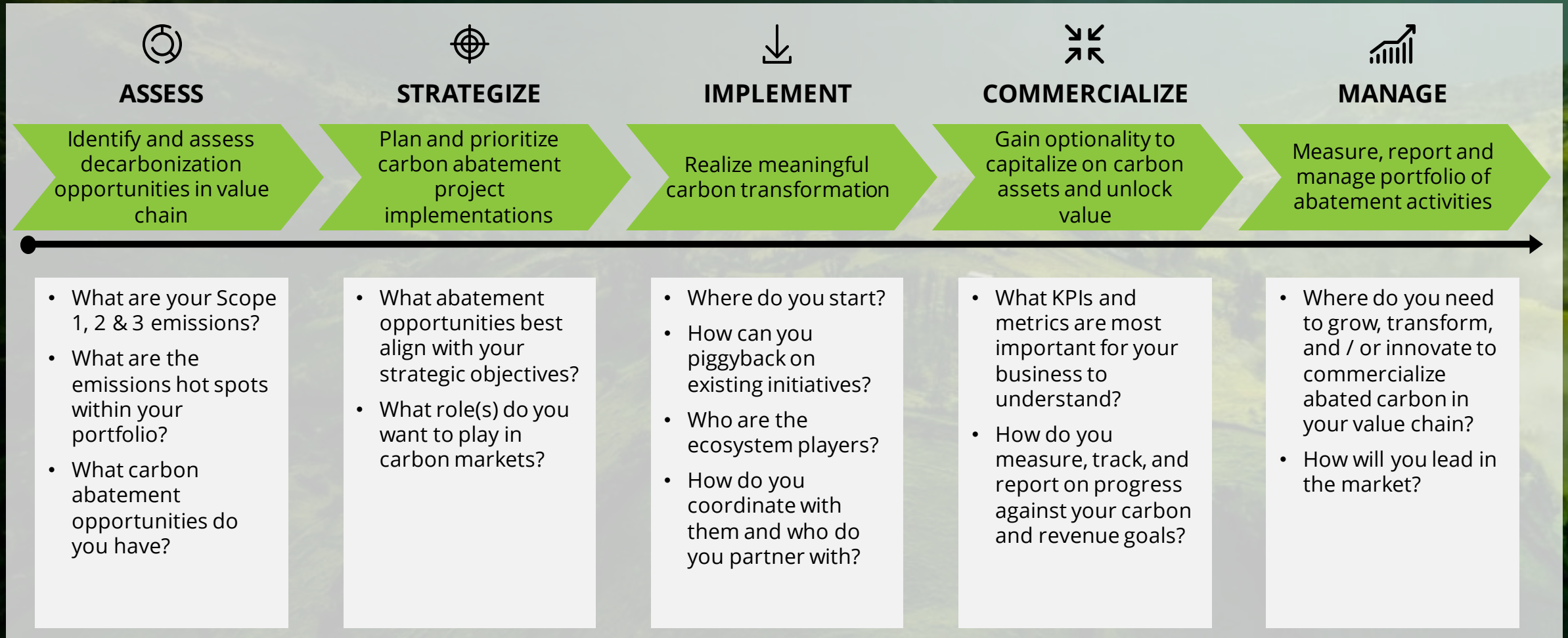
# Your challenge: there are numerous opportunities to reduce your carbon emissions, but which ones to implement?



Initiatives are generally **focused more on business' own operations (52%<sup>1</sup>) or close to organizational boundaries (33%<sup>1</sup>); addressing scope 3 emissions is a growing focus**



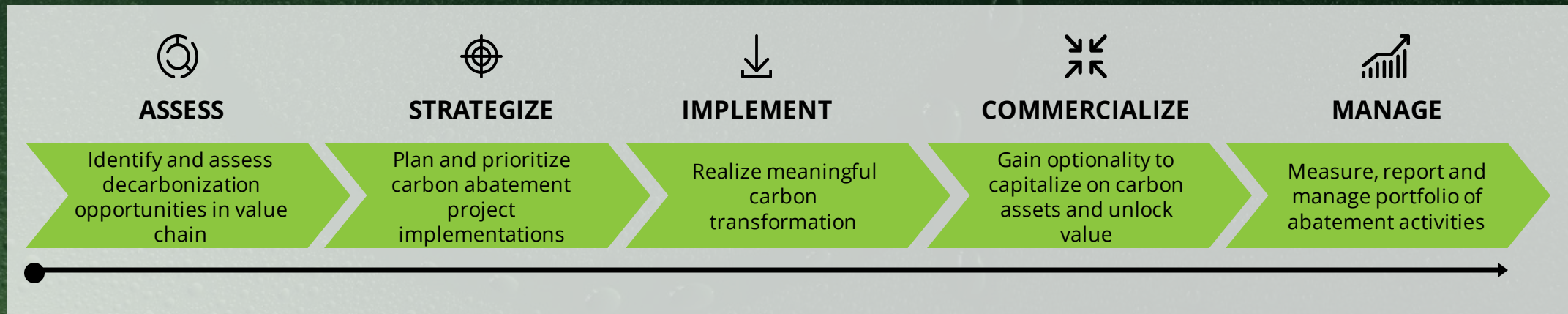
# From (public) commitment to a successful execution of decarbonization initiatives. How to do it?





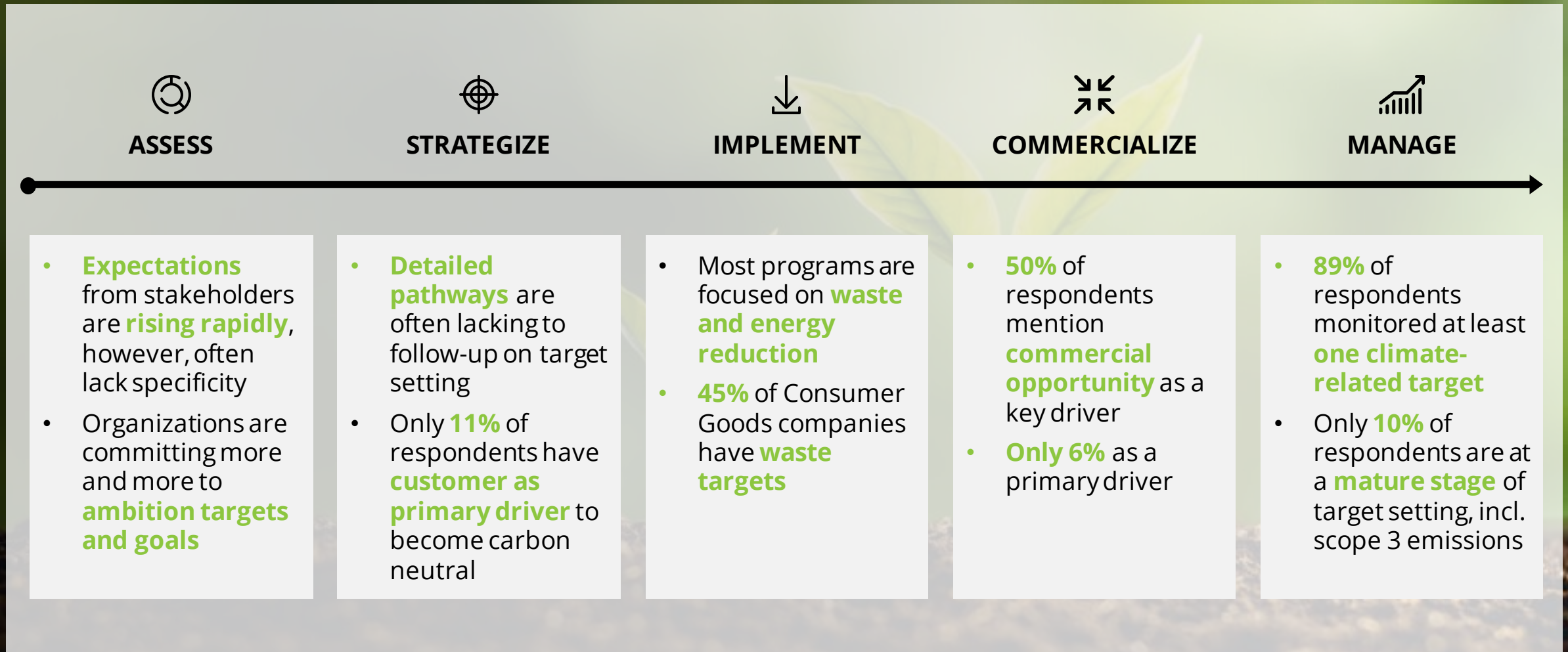
# Poll question

Where is your company in the decarbonization journey?



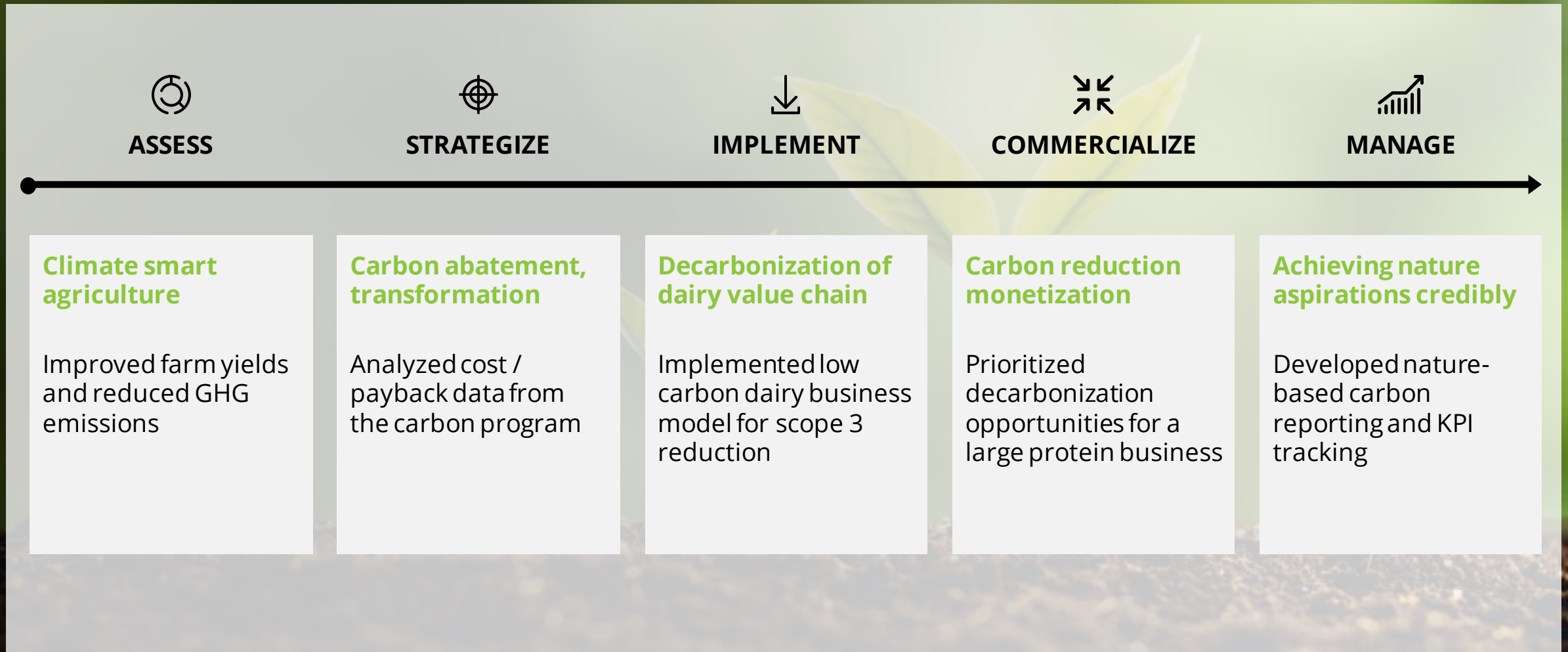


# We have spoken to over 400 companies on how they are transitioning to a zero-carbon future...





... and we are working with clients on their decarbonization journey





# Poll question

**What is the biggest challenge that your company is facing to reduce carbon footprint?**



A close-up photograph of a pair of hands gently holding a small, vibrant green seedling with several leaves, planted in dark, rich soil. The background is softly blurred, showing more soil and another plant in the distance. The overall tone is natural and hopeful.

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**AGRIFIRM TOMORROW, TODAY.**



# Royal Agrifirm Group, The Cooperative



## FINANCE

- > € 2.2 billion turnover
- > € 486.5 million Group equity
- > 58.4% Solvency

## EMPLOYEES

c. 3,000 fte worldwide

## INTERNATIONAL

Locations in Europe,  
America and Asia  
Global export and distribution



## SOLUTIONS

Outdoor Crop & Soil,  
nutritional and industrial  
solutions in the agricultural  
sector worldwide

## COOPERATIVE

Since 1892  
Equity 100% farmer owned

## MEMBERS

Collective ownership of  
over 10,000 Dutch  
farmers and growers



# Purpose ...

*A Responsible Food Chain for Future Generations*

=



= Sustainable + Profitable + Transparent

= People + Planet + Profit + *Perspective*



# WHY INNOVATE @ THE COOPERATIVE?

**CHANGES**

**SOLUTIONS**

**NEW SUSTAINABLE BUSINESS MODELS**







## CHANGES

*Compelling drive towards the climate neutral world & **agriculture***





# Increase of conventional protein consumption with rising income, mainly expected in consumer (WUR, BCG)

## CHANGES

### Conventional animal protein consumption per capita by income

Kg / Capita, US\$ PPP, 1992-2017



1. PPP with constant value 2005;  
 2. Share of pop in 2018 by GNI per capita (2016, current US\$, Atlas method), classification from World E  
 Source: World Bank; WHO: OECD FAO; BCG Analysis

### Country clusters<sup>2</sup>

- A** Developed countries (15% of pop.)
- Countries with a gross national income (GNI, PPP) per capita above \$12,000, e.g., United States, Japan, Germany, and France
  - Slow growth as saturation point is reach, total consumption does not decline however
- B** In development (35% of pop.)
- Countries with a GNI per capita above \$4,000. e.g., Russia, China, Mexico, and Turkey

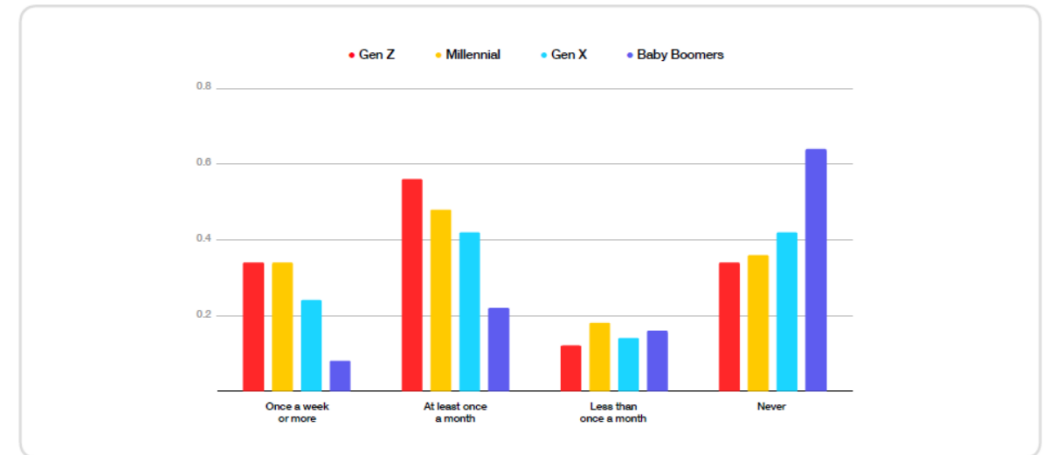


Figure 10. Millennials and Gen Zers are much more likely than previous generations to consume plant-based meat.  
 Source: Data from Impossible Foods.





# CHANGES

Corporate



protein producers Enough invests (Oct 7th 2021)

ABUNDA = zero-waste fermentation process to grow a high-quality protein (AA & fibre)

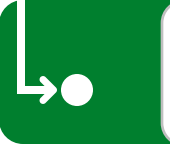


ENOUGH's technology uses a unique zero-waste fermentation process to grow a high-quality protein. Natural fungi are fed with renewable feedstock. This produces a mycoprotein, a complete food ingredient containing all essential amino acids as well as being high in dietary fibre. Recent estimates suggest the global meat-free sector will hit US\$290 billion in 2035.



Unilever





# CHANGES

*Technology*

Perfect Day  
Animal-free Milk  
2%  
Brewed with love in San Francisco, CA  
PERFECT DAY ANIMAL-FREE MILK

EVERY  
ALL PROTEIN. NO ANIMAL.

THE PROTEIN BREWERY  
to love good proteins  
2021

plantible®

AIR PROTEIN™



# In **CHANGES** *Funding* are waking up to the agrifood tech opportunity

The first generation of agrifood tech companies have made major waves.

- Impossible Foods Valuation  
\$ 147 M (2013) → \$ 10 B (2021)
- Beyond Meat Valuation  
\$ 5 M (2011) → \$ 9.2 B (2021)
- Oatly Valuation  
\$ 1 M (2011) → \$ 1.5 B (2021)



- 3093 agrifood tech investments
  - 9x since 2012
  - \$ 51 B invested in agrifood tech
  - 11x since 2012
- No animal protein investments  
— Increased on sustainable proteins  
— GHG focus of investments

...without the construction of infrastructure.



## Journey outside in and future back ...

pur·pose

*/ˈpʊrpəs/*

Noun

The reason for which something is done or created or for which something exists.

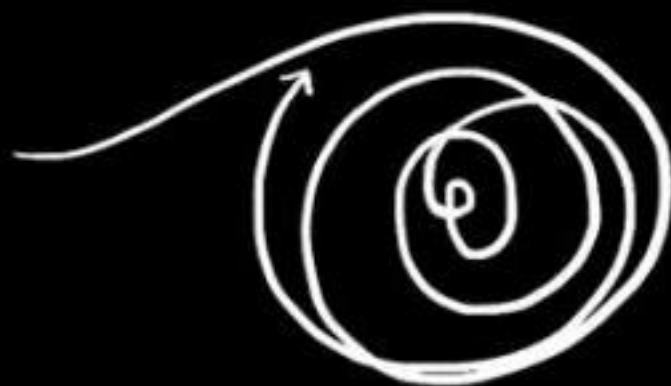
LINEAR ECONOMY



RECYCLING ECONOMY



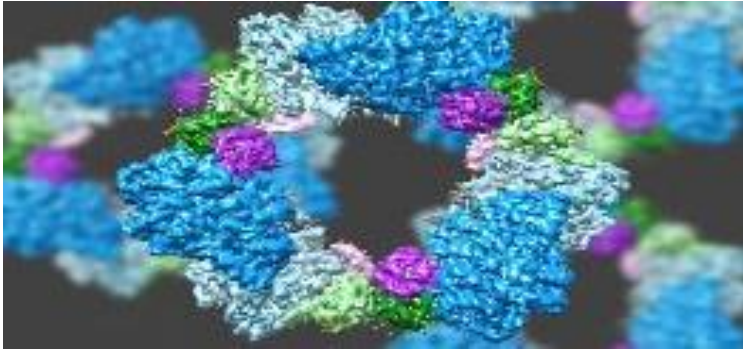
CIRCULAR ECONOMY





# OUTSIDE IN & FUTURE BACK → CORRIDORS (Innovation Spaces)

## ADVANCED INGREDIENTS



## SMART DIGITAL



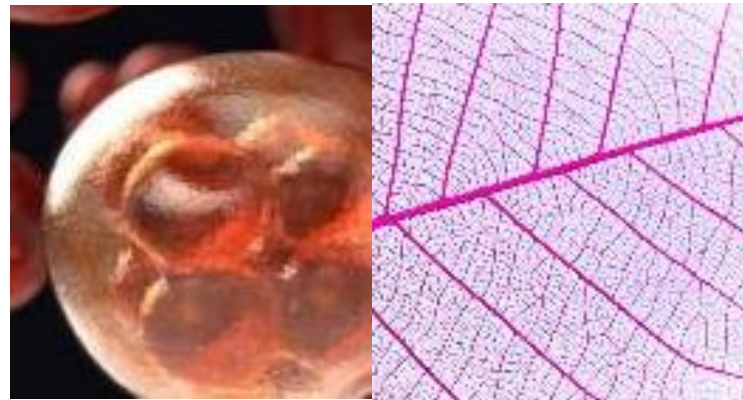
## CONNECTED CHAIN VALUE



## SHORT CONSUMER TRACKS

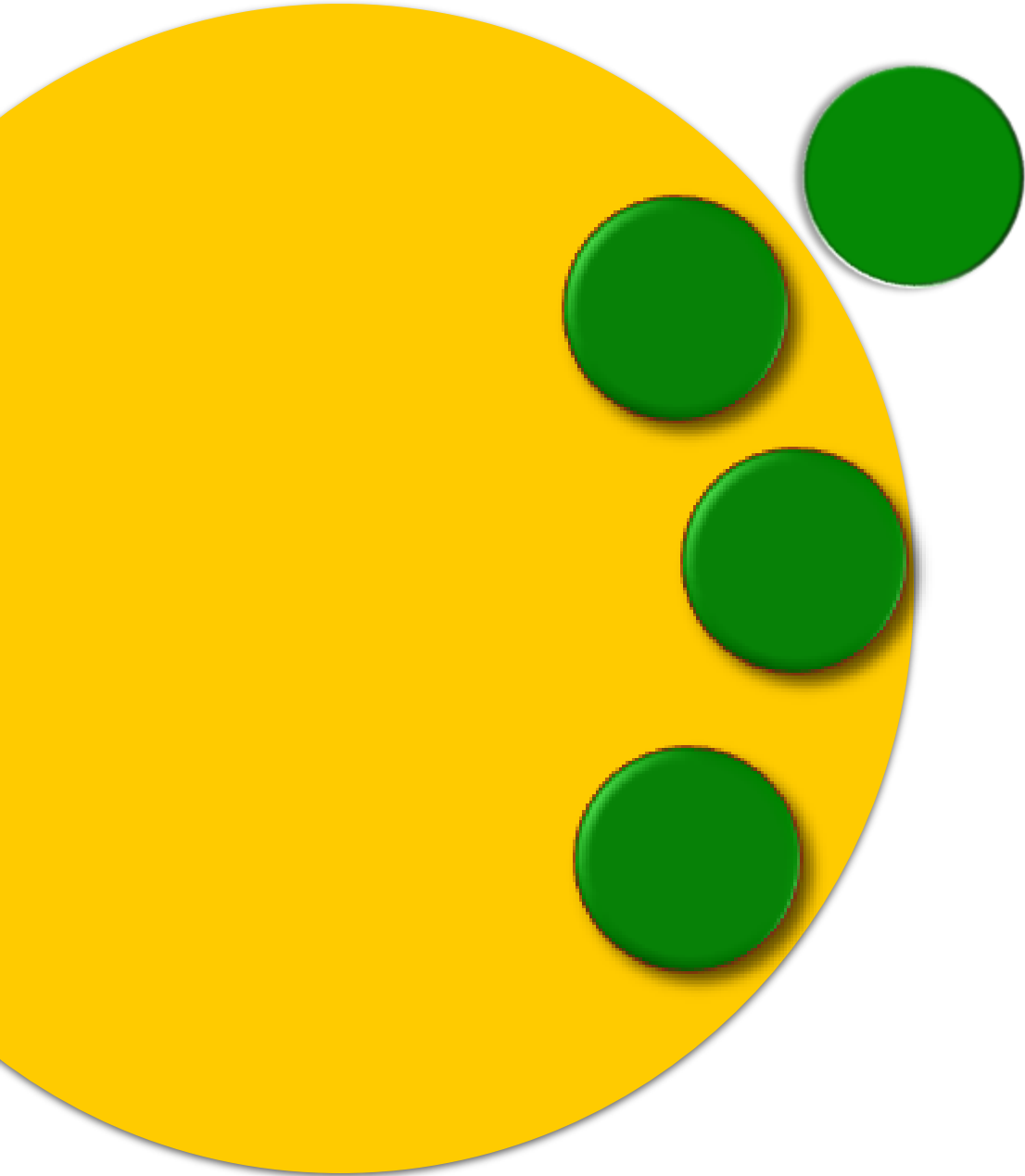


## ALT PROTEINS +/-



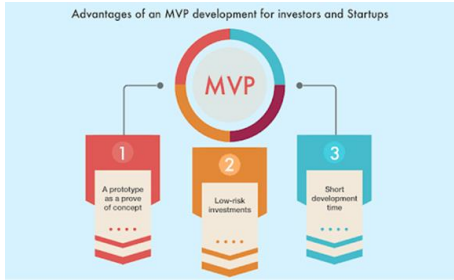
## CIRCULARITY





R&D = Perspective for the **core** – “sustainalize” (EXPLOIT),

**Corridors** = preparing **new business** (EXPLORE)  
*on the edge or outside of the business today*





# So Why Innovate?





Purpose ...

*A Responsible Food Chain for Future Generations*

*Overall Outlook*

→ *Circular Agri-economy*

→ *Redesign Regional Food Production Systems*





# Themes For Local circular Food Production systems

1. Lower **landuse**

2. Produce **animal circular feed**

3. Treat and process **manure**

4. **Soil care and (circular) fertilizers**

5. Take care of crops with a **regenerative** cultivation system


6. Lower the amount of drinking and irrigation **water** meanwhile improve the quality.

7. Reduce and transform towards renewable **energy**

8. **Diversification** of the revenue model of farmers







CORRIDORS  
for a  
CIRCULAR  
AGRO-ECONOMY  
*cases*

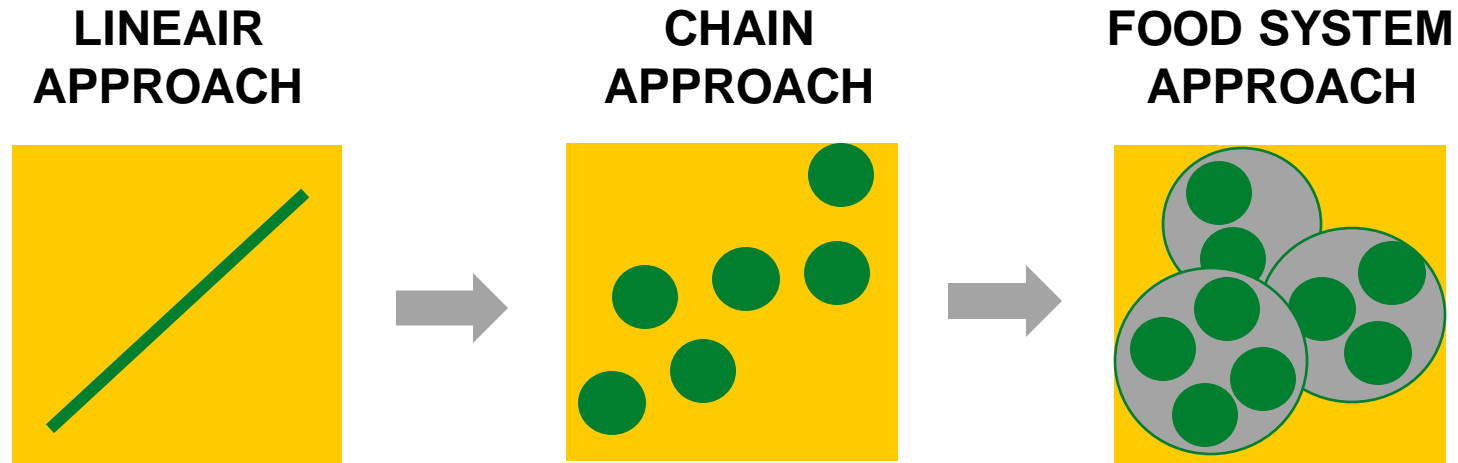
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# Regenerative Farming

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# Sense of Urgency → Shift from linear system to circular system

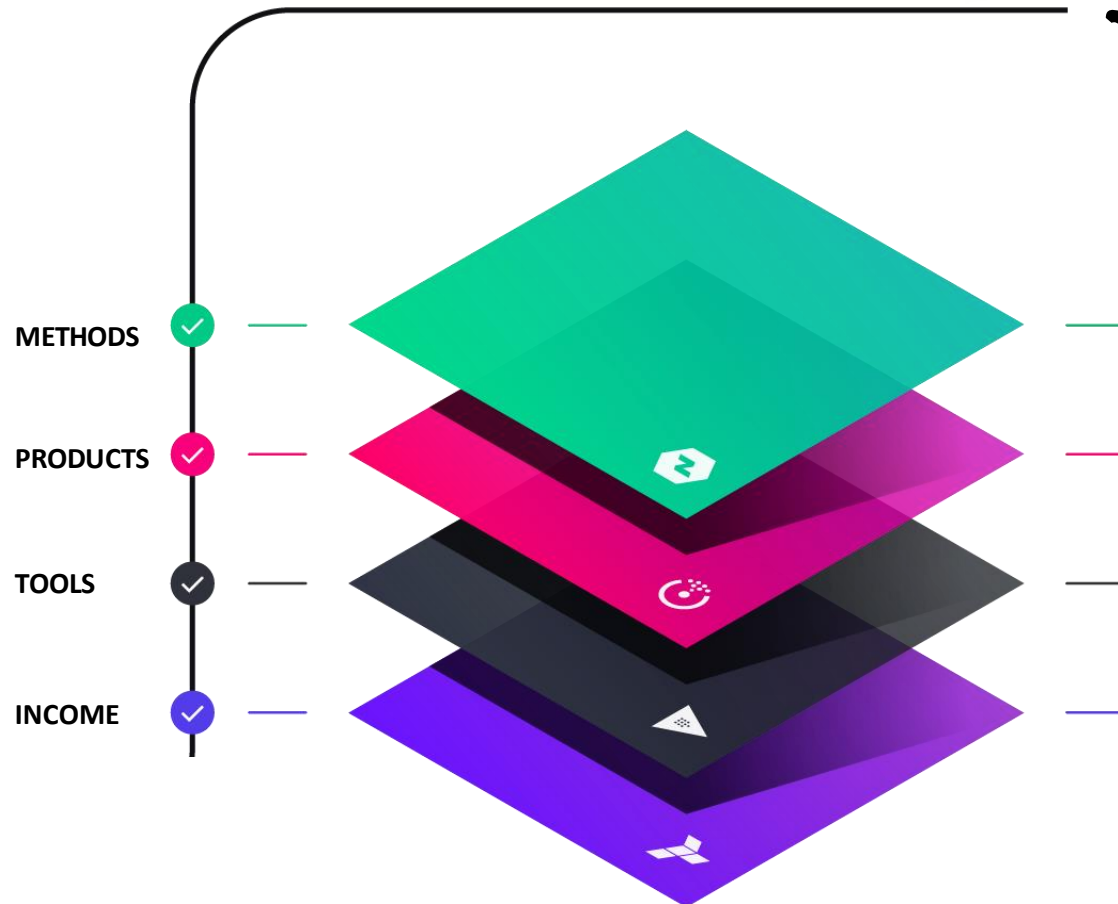


## REGENERATIVE AGRICULTURE

An approach to farming that uses **soil conservation** as the entry point to regenerate and contribute to **multiple ecosystem services**, with the objective that this will enhance not only the **environment**, but also the **social and economic** dimensions of **sustainable food production** (Schreefel et al)

# Regenerative Agriculture Program

What do we offer?



## Regenerative Agriculture Program

We deliver a suite of products/services:

- 1** Tailored advice on sustainable crop cultivation methods to implement innovative best practices and methods to secure a regenerative system
- 2** Complete portfolio of bio solutions; recommending suitable fertilizers and stimulants based on soil status, crop demand and farm characteristics
- 3** Data-driven support application combined with sensors to enable healthy crop cultivation for a regenerative system by measuring and monitoring crop growth / performance during the season
- 4** Carbon credit plan to improve, measure and verify carbon sequestration on the farm, to generate additional income by selling the carbon credits





# Agrifirm's Regenerative Agriculture Program

**HOW** We offer a suite of services and products to support our farmers;

## 01

### Regenerative cultivation advice

Offering tailored advice on sustainable crop cultivation methods and regenerative management practices and enabling on farm support during the season

## 02

### Portfolio of alternative bioproducts

Offering a portfolio of bio solutions; recommending suitable fertilizers and stimulants based on soil status, nutrient demand and farm characteristics

## 03

### Precision farming solutions

Offering data-driven support applications combined with sensors to enable healthy crop cultivation by measuring, monitoring (real-time) crop performance during the season

## 04

### Carbon credit solutions

Offering different carbon solutions that measures, monitors, verifies and monetizes the sequestered carbon on your farm, to cover part of the costs of transitioning

**MODULE 1**  
**Regeneratief gewasvitaliteitsplan**

De toepassing van regeneratieve praktijken is gunstig voor het hele regeneratieve landbouwsysteem. Agrifirm kan een rol spelen door telers te helpen met de implementatie van deze praktijken door hen advies te geven, vooral gericht op het optimaliseren van opbrengsten en koolstofvastleging. Deze module zal een regeneratief handboek bevatten met alle informatie en voorbeelden van regeneratieve landbouw. Voor nauwkeurige informatie zullen minimaal drie soorten proefvelden (Bleu, Zand- en Veengrond) onze bevindingen en gegevens voor regeneratieve praktijken verifiëren.

**Welke behoeften pakken we aan?**

- Advies van een adviseur over het soort praktijken dat geschikt is op het landbouwbedrijf
- Een gezonde en koolstofrijke bodem met een grote diversiteit aan bodemleven
- Zekerheid over de dekking van de kosten op korte termijn, en rentabiliteit op lange termijn
- Behoeftes aan kennis en vaardigheden i.v.m. regeneratieve landbouwproducten en -praktijken

**Wat zijn de voordelen?**

- Verhoging van de bodemvruchtbaarheid
- Weging van pesticidetechnieken
- Verhoogd watermanagement
- Geen gebruik van chemicaliën
- Voordelen voor organische meststoffen
- Beperkte of geen gasontwikkeling
- Optimalisatie van de opbrengst

**Welk advies geeft Agrifirm?**

Beveelplan voor de boer/teelt met advies van specialisten

Adviesrapport van de specialist over welke aanvullende jaarlijkse maatregelen en (DST-)diensten aan de teler worden geleverd om de 'regeneratieve' prestaties over gespecialiseerde bodem te verbeteren op basis van kennis van best practices.

**Gewasvitaliteitsplan**  
Advies over de geschikte gewassen voor een teler met het oog op een optimale opbrengst en winst. Bovendien moet de organische stof in de bodem worden geoptimaliseerd en duurzaam met permanente bodembedekking. Hiervoor is een nauwkeurige planning van doorsneegevoerd belang.

**GSM plan en Fertilisatieplan**  
Een adviesrapport per gewas met een praktisch schema met biostimulanten, vermindering van moment, dosering, groenbemesting, meststoffen op basis van een grondmonster, een gewasopbrengst, timing. Aanvullend rapport met lijst van aan te schaffen producten, wettelijke nutriëntenruimte, mineralisatie, CO<sub>2</sub>-balans, A/B-overzicht (biologisch).

**Groebemestingsplan en teeltvrije zone plan**  
Een bevolop advies over groenbemesters of biodiversiteitsgebieden die na de oogst van dit jaar zijn opgevoerd op basis van de beste praktijken. Aanvullend rapport met lijst van zaden die nodig zijn. Aanvullend rapport over wegriving of subsideerbaarheid.

**Seizoen teeltbegeleiding**

- Basisevaluatie van een bodem
- Totering tot het dashboard
- Optionele uitbreidingsdiensten: bv. tripmonitoring, dynamisch N-advies, onkruid wieden, enz.

**MODULE 2**  
**Alternatieve producten**

Het begrijpen van gewascondities, gewasproductie en op peil houden van de gewasgezondheid is essentieel en kost meer tijd in een duurzaam, regeneratief systeem, aangezien het complex is om te vinden en te bepalen de kaders van het regeneratief meet opbrengst (d.w.z. geen chemische middelen gebruikt). Regeneratief betekent o.a. dat chemische middelen en producten zoveel mogelijk worden ingevuld voor biologische producten. Om risico's te beperken is een regeneratief systeem. Het Agrifirm met de juiste keuze van biologische mest- en gewasbeschermingsmiddelen om onvoorziene problemen bij de teelt van gewassen te beperken.

**Welke behoeften pakken we aan?**

- Landbouw op een meer duurzame of regeneratieve manier die goed is voor de gezondheid van de bodem en de groei van de planten
- Een breed scala aan biologische oplossingen voor uitdagingen bij het teken in een regeneratief systeem
- De teler helpen met specifieke kennis over biostimulanten en biogewasbeschermingsmiddelen
- Advies over het vinden van de juiste biologische meststoffen en gewasbeschermingsmiddelen die de teler helpen de bodem en gewassen efficiënt te onderhouden
- De juiste alternatieve biologische bio-meststoffen en gewasbeschermingsmiddelen selecteren

**Wat bieden we aan?**

Breed assortiment aan alternatieve bio-producten, zoals stimulantia en gewasbeschermingsmiddelen voor specifieke uitdagingen op de akker

Advies op maat en aanbeveling van geschikte kunstmest en gewasbeschermingsmiddelen o.b.v. de bodemgesteldheid, nutriënten behoeftes van gewassen en kenmerken van het bedrijf

Samen met de adviseur wordt er gekeken naar de condities en doelstelling van het bedrijf.

- Nutriënten beheer - specifiek voor alle gewassen
- Water bodem vochtbeheer - specifiek voor gewassen met hoge opbrengsten waarbij kwaliteit onderdak kan staan door vocht, stikstof, fosfor, kalium, zand, zout, etc.
- Plagen en ziekte bestrijding - specifiek voor gewassen met hoge opbrengsten waarbij kwaliteit onderdak kan staan door insecten, pre-, uit-, bloem-, etc.
- Onkruid beheer - specifiek voor gewassen met hoge dichtheid, waarbij kwaliteit onderdak kan staan door onkruid zoals bij: chironix, v, oren, sukkelbieten

**Wat zijn de voordelen?**

- Verminderde chemische meststoffen en gewasbescherming en vervang ze door biologische producten
- Vind de juiste biologische meststoffen en gewasbeschermingsmiddelen voor de meest voorkomende plantenziekten
- Het overnemen van biologische landbouwuitdagingen, zoals plagen en ziekten, met producten die de bodem of het milieu niet schaden
- Telers niet belasten met het moeten beslissen van zaden

**MODULE 3**  
**Precisie gewasgroei**

Het monitoren van de groei en de opbrengsten van gewassen tijdens het seizoen is essentieel. Dit zorgt ervoor dat je op tijd kunt irrigeren om risico's te beperken waardoor je een optimale opbrengst kunt genereren aan het einde van het seizoen. Geautomatiseerd van de gewassen is belangrijk en hangt af van vele factoren zoals bemesting en irrigatie. Boerenteknik helpt je in de meeste situaties maar om weloverwogen besluiten te nemen is real-time data uit het veld cruciaal. Agrifirm biedt hier een oplossing voor.

**Welke behoeften pakken we aan?**

- Behoeftes aan tools om de groei en prestaties van gewassen te meten en te verbeteren
- N-efficiënte berekenen voor gewassen en verminderen van onnodige bemesting en irrigatie
- Zekerheid over wanneer bemesting en irrigatie van gewassen moeten worden aangepast
- Risico's beperken en een optimale opbrengst aan het einde van het seizoen garanderen
- Noodzaak om gewassen te verbouwen waarbij de gezondheid afhankelijk is van vele dynamische factoren

**Wat bieden we aan?**

Meten van de condities van de gewassen in het veld via data van sensoren

Maakt het real-time analyseren van water, zand, fosfor, kalium, etc. mogelijk

Monitoren van de groei van de gewassen in de velden via data van groeimeters

Maakt het mogelijk om de groei van gewassen in elk ontwikkelingsstadium te volgen

Op peil houden van de gezondheid van gewassen in elk ontwikkelingsstadium

Maakt het mogelijk om afwijkingen vroeg te kunnen identificeren en bemesting en irrigatie op het veld bij te stellen

**Wat zijn de voordelen?**

- Verminderd risico tijdens het groeien
- Behoor op bedrijf op een meer knowledige, efficiënte manier
- Verminderd kosten voor bemesting, irrigatie en arbeid
- Hogere opbrengst over uw gewasregio
- Neem weloverwogen besluiten gebaseerd op data uit het veld

**Hoeveel kosten kunnen we per jaar reduceren?**

Conventionele telers met een gemiddeld landbouwbedrijf van 50ha

€30-80 per ha kan bespaard worden voor bemesting

Biologische telers met een gemiddeld landbouwbedrijf van 40ha

€30-320 per ha kan bespaard worden voor bemesting

**MODULE 4**  
**Koolstofkredietenplan**

Agrifirm wil telers helpen om broeikasgas CO<sub>2</sub> die zij helpen te verlagen door opslag van koolstof in de bodem, om te zetten in aantallen in verhandelbare koolstofkredieten. Hierna zal Agrifirm telers helpen om voor hun meest waardevolle land te zorgen (d.w.z. de bodem), en te kwalificeren voor zorgen dat de geproduceerde koolstofkredieten kunnen worden gekocht door bedrijven en/of overheidsinstellingen om hun emissies te compenseren. Dit zal ook een win-win situatie opleveren om de klimaatverandering te matigen.

**Welke behoeften pakken we aan?**

- Realiseren van extra inkomsten
- Behoeftes aan oplossingen voor de huidige uitdagingen van regeneratieve praktijken
- Hulp om actief te zijn op de koolstofmarkt
- Meer zekerheid tijdens de overgang naar regeneratieve praktijken

**Wat doet Agrifirm?**

Huidige akkerbouw vaststellen voor de opslag van koolstof in de bodem en de droogtebestendigheid

Monitoren van de bodemkwaliteit van de bodem en de droogtebestendigheid

Meten en modelleren van SOC en N2O-emissies met behulp van satellietgegevens en veldmetingen

Verkoop van koolstofkredieten op een derde partij

Neem koolstofkredieten later controleren door een derde partij

Telers passen regeneratieve methoden toe, en realiseren CO<sub>2</sub> reductie

**Wat zijn de voordelen?**

- Betere bodemvruchtbaarheid en dus meer productiviteit
- Minder bodemaantasting en meer bodemleven
- Extra inkomsten door waardering van het eindproduct en verkoop van koolstofkredieten
- Verkrachtigere bodem tegen extreme milieugebeurtenissen
- Betere chemische, fysieke en biologische bodemaspecten

**Hoeveel koolstof kunnen we mogelijk opslaan in de bodem?**

Diep-voeding crop: 600 kg C ha<sup>-1</sup> jaar<sup>-1</sup>

Potentiele koolstofopslag in de bodem

→ verbetering van de bodem structuur tot op grotere diepte

Crop reducties: 50-200 kg C ha<sup>-1</sup> jaar<sup>-1</sup>

Potentiele koolstofopslag in de bodem

→ Mogelijke lichte toename van N<sub>2</sub>O-emissies door meer organisch materiaal in de bodem als bron van mineralisatie N

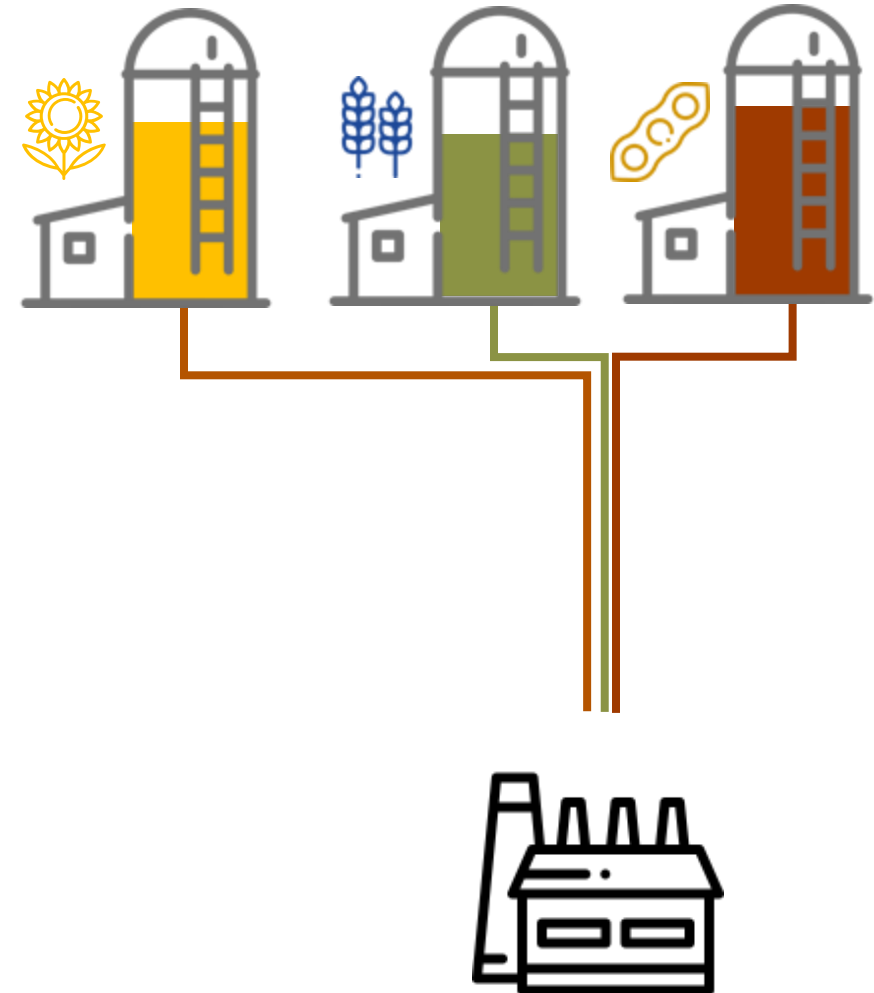
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Making Inedible biomass edible

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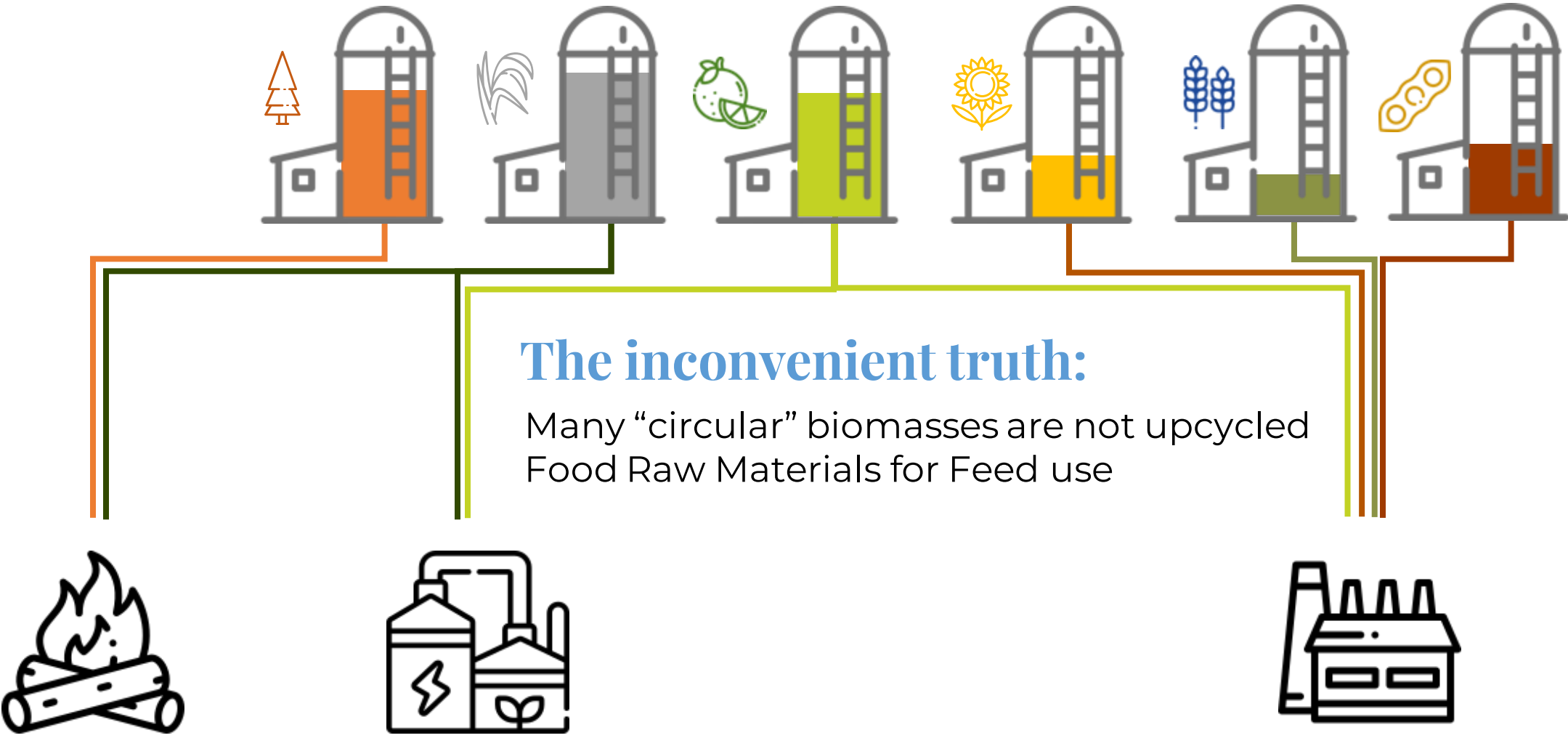
# The story of Agrifirm and biomass upcycling



## **Our traditional right to play:**

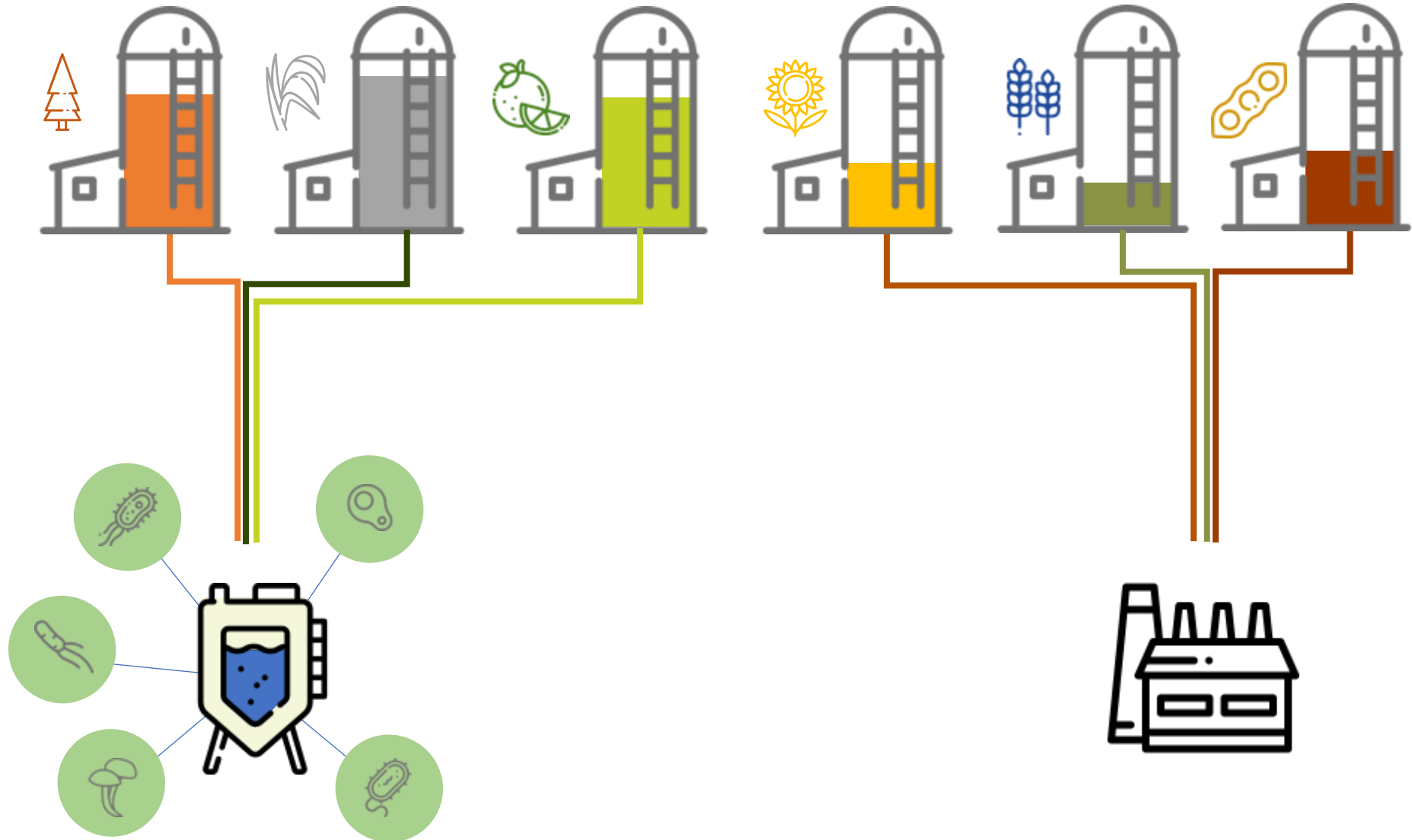
Processing biomass & ingredients into highly nutritious feed

# The story of RAG and biomass upcycling

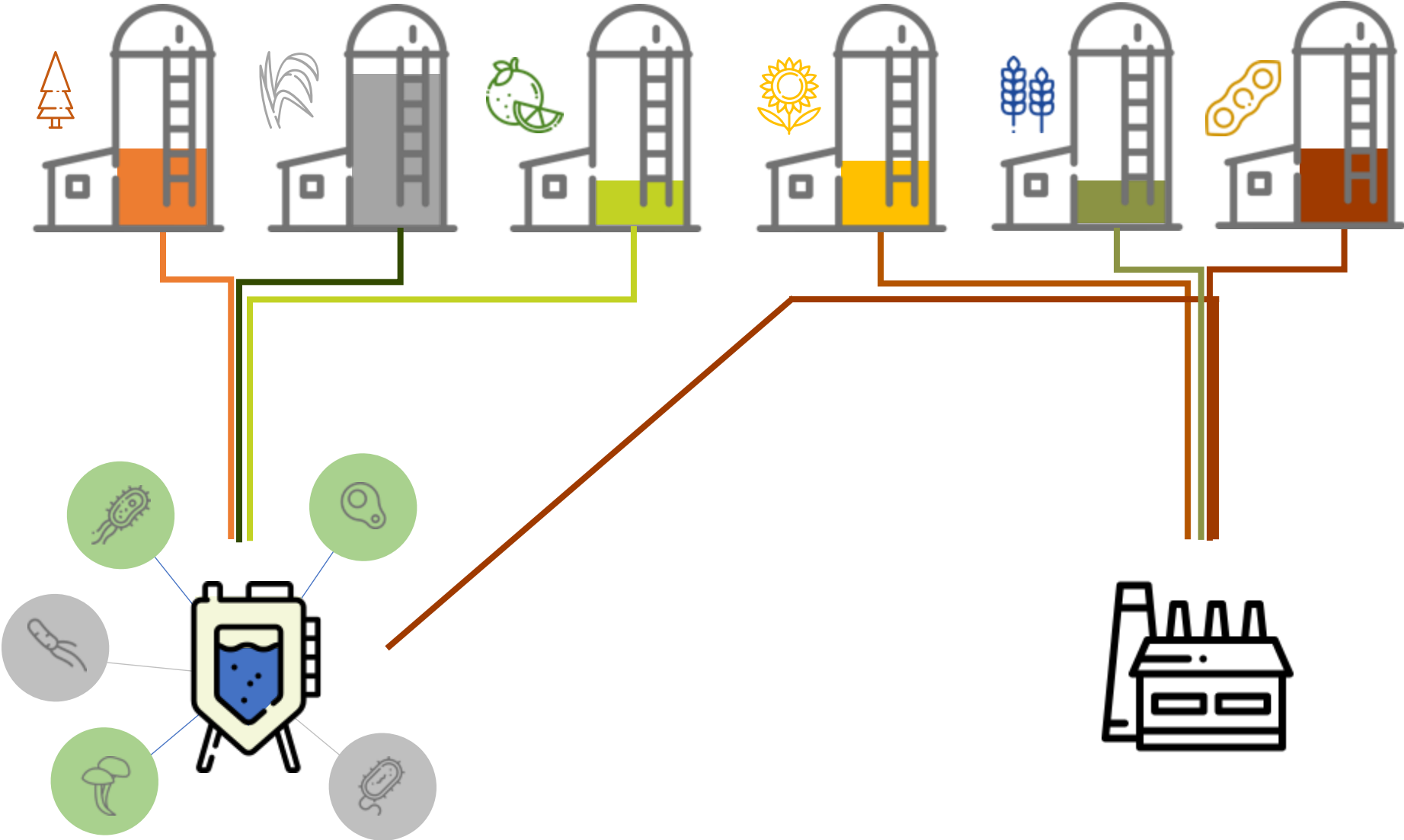




# Solution: flexible Single Cell Protein production



# Solution: flexible Mycoprotein production





# Our workhorse: the fungi

## Inspired by nature

- Fungi are most potent degraders of plant cell walls
- Fungi produce enzymes that enable break down of hemicelluloses, celluloses, and even lignin
- Enzymatic potential depends on fungal strain
- Enzymatic activity is determined by conditions



## Supported by science



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# Short Chains

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KLAAR VOOR DE TOEKOMST!

# Short Chains

---

A sustainable earning  
model for Farmers,  
Agrifirm and Society

(3 MVP's)



# LOCAL MEAT





# PARTNER with start-ups



# SHORT CHAIN CONCEPT







*Perspective*

OUR PURPOSE

*A responsible foodchain for future generations* ”



4:00PM - 4:20PM

4:20PM - 4:40PM

4:40PM - 5:00PM

5:00PM - 5:30PM

**Decarbonization journey:  
From commitment to  
successful execution**



**Fred Nijland**

Food Decarbonization Lead

**A responsible food chain  
for future generations**



**Johan De Schepper**

Head of Innovation

**Creating a world of  
sustainable nutrition**



**Juan Aguiriano**

Group Head of Sustainability

**Panel discussion  
facilitated by**



**Birthe van der Voort**

Future of Food Partner





Our Customers' Most Valued Partner



**KERRY**

Inspiring Food, Nourishing Life

Creating a World of Sustainable Nutrition

A person wearing a patterned orange shirt and a red headscarf stands in a field of tall golden grass at sunset. The person's hands are behind their head, and the sun is low on the horizon, creating a warm, golden glow. The background shows a line of trees under a clear blue sky.

# Beyond the Horizon Strategy



By 2030, we will reach  
over **2 billion**  
**people** with  
sustainable nutrition

***Sustainable Nutrition:***

*The ability to provide positive and balanced nutrition solutions that help maintain good health, while protecting people and the planet.*



# Our Beyond the Horizon Sustainability Strategy

Innovation Enabling Sustainable Nutrition for more than 2 billion people





# Sustainable Innovation Platforms



# Beyond the Horizon

## Our Commitments

### Better for People

Reaching over **two billion people** with **sustainable nutrition** solutions by 2030



**1 billion+**

We currently reach over one billion consumers with positive and balanced nutrition solutions.



### Better for Society

Upholding our **values** and internationally recognised **human rights**

Ensuring a **safe and healthy workplace**

Achieving the highest levels of **diversity, inclusion, belonging and engagement**

Engaging in **community partnerships** that deliver impact

Making the **science of healthier food accessible** through Kerry Health and Nutrition Institute

### Better for Planet

#### Climate Action

#### Scope 1 & 2

Adopting a Science Based Target for a **55% carbon reduction** by 2030 and achieving **net zero** before 2050

#### Scope 3

Working with suppliers to **reduce emissions** intensity by **30%** across our supply chain

#### 100% Renewable Electricity

within 12 months

#### Water Intensity

Achieving a **15% reduction** in water intensity by 2025

#### Circular Economy

#### -50%

Cutting our **food waste** by 2030

#### 100%

of our plastic will be **reusable, recyclable or compostable** by 2025

#### Zero

**Waste to Landfill** by 2025

#### -25%

Achieving 25% **reduction in virgin plastic** use by 2025

#### Responsible Sourcing

#### 100%

of priority raw materials are **responsibly sourced** by 2030



# Our Impact

Creating A World of Sustainable Nutrition to Reach 2 billion people by 2030

Enabling our Customers Move Along The Sustainable Nutrition Spectrum



# What does “lower Carbon and Net Zero” mean for innovation and sustainable growth for the industry ?

- The race to lower carbon solutions is fuelled by leading Food & Beverages industry commitments to net zero carbon climate goals
- Leading Food & Beverage companies are asking their suppliers to disclose and then improve their scope 3 carbon footprint
- Carbon footprint also needs to be quantified at product level
- Kerry already has an interesting portfolio of lower carbon solutions for customers
- We are actively co-creating solutions with customers to reduce their carbon footprint, by leveraging Kerry existing portfolio of lower carbon products and technologies.
- We are also investing in innovation and M&A, identifying developing and investing in low-carbon, leading-edge, emerging technologies and companies.





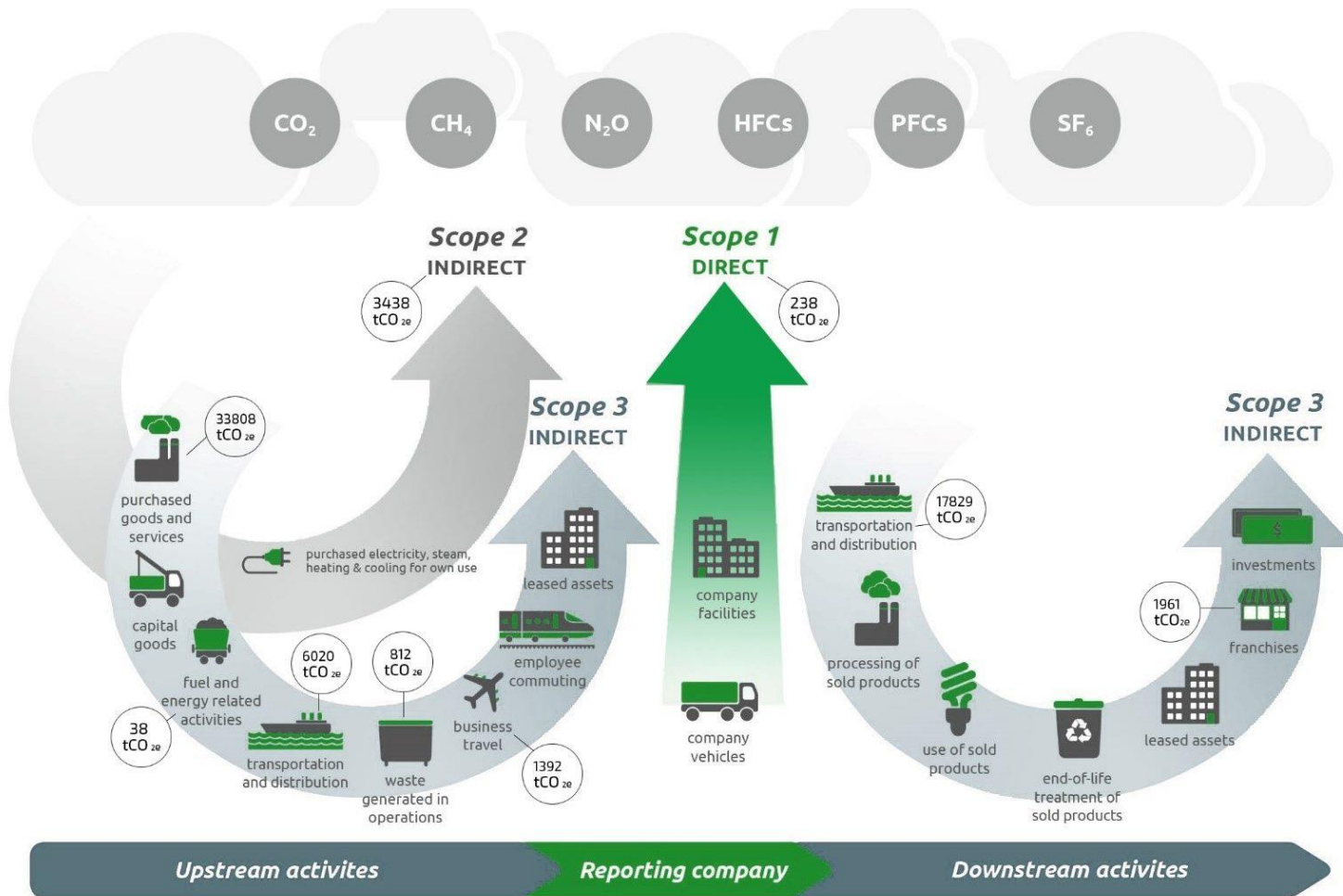
**KERRY**

# Decarbonisation Action Plan

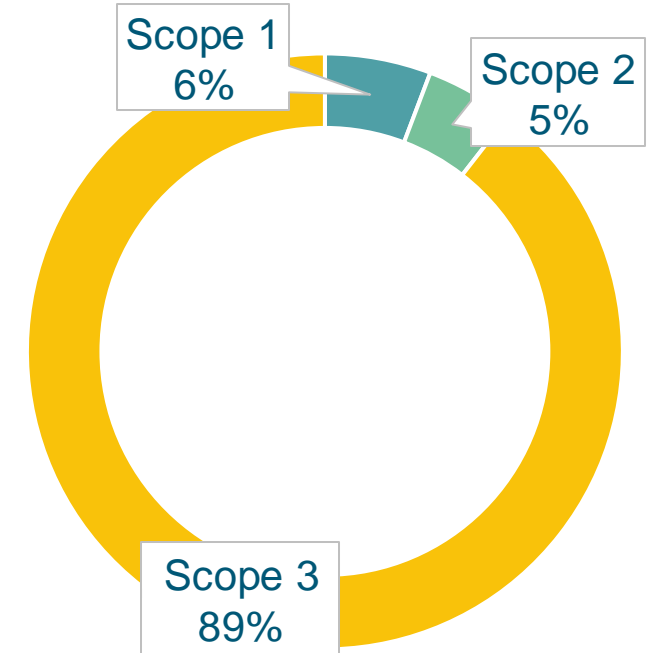
# Our Carbon Emissions Targets

Reduce scope 1 & 2 absolute GHG emissions by 55% by 2030 from a 2017 base year.

Reduce scope 3 GHG emissions 30% per tonne of finished product by 2030 from a 2017 base year.

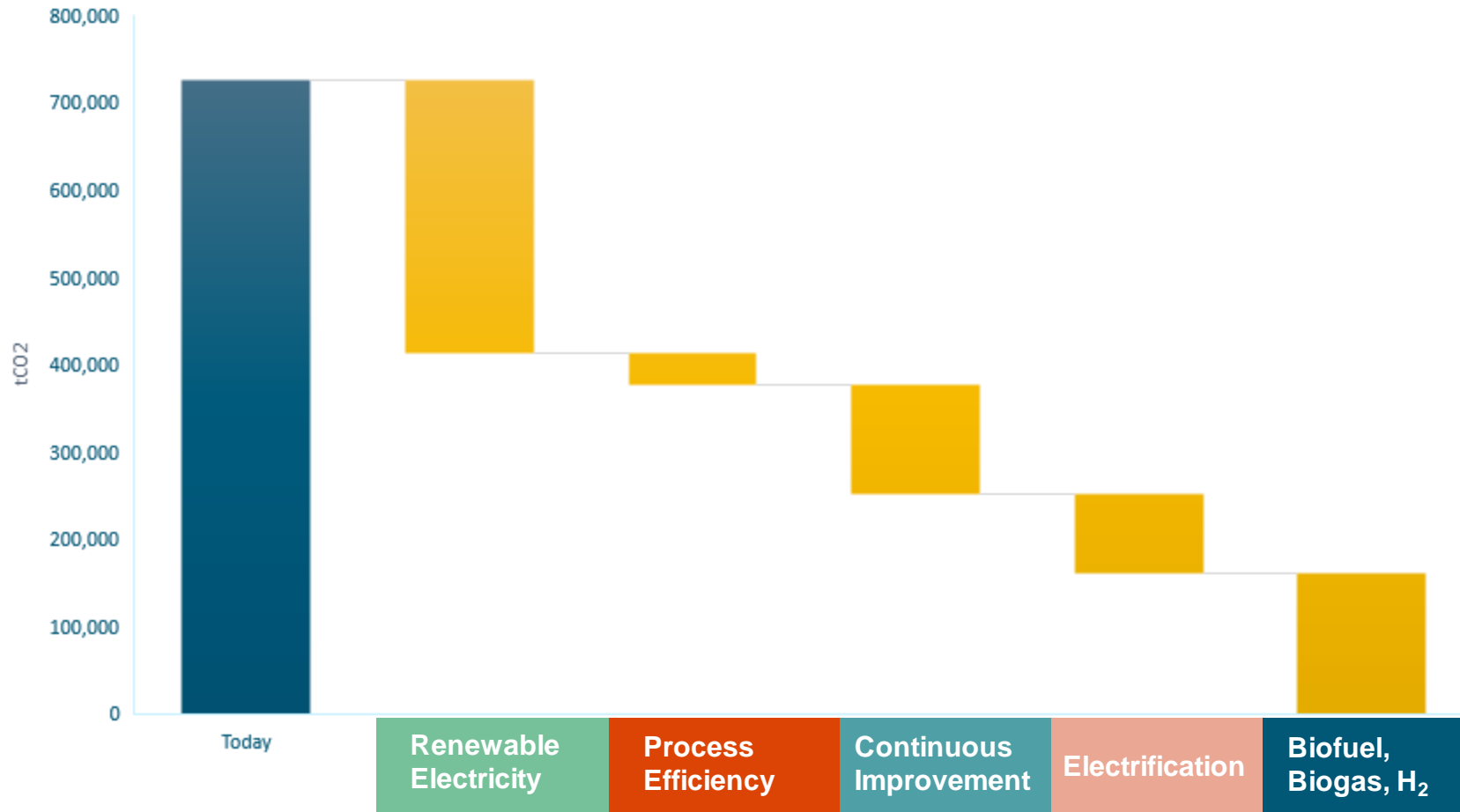


Kerry 2019 Global GHG Emissions (TOTAL)





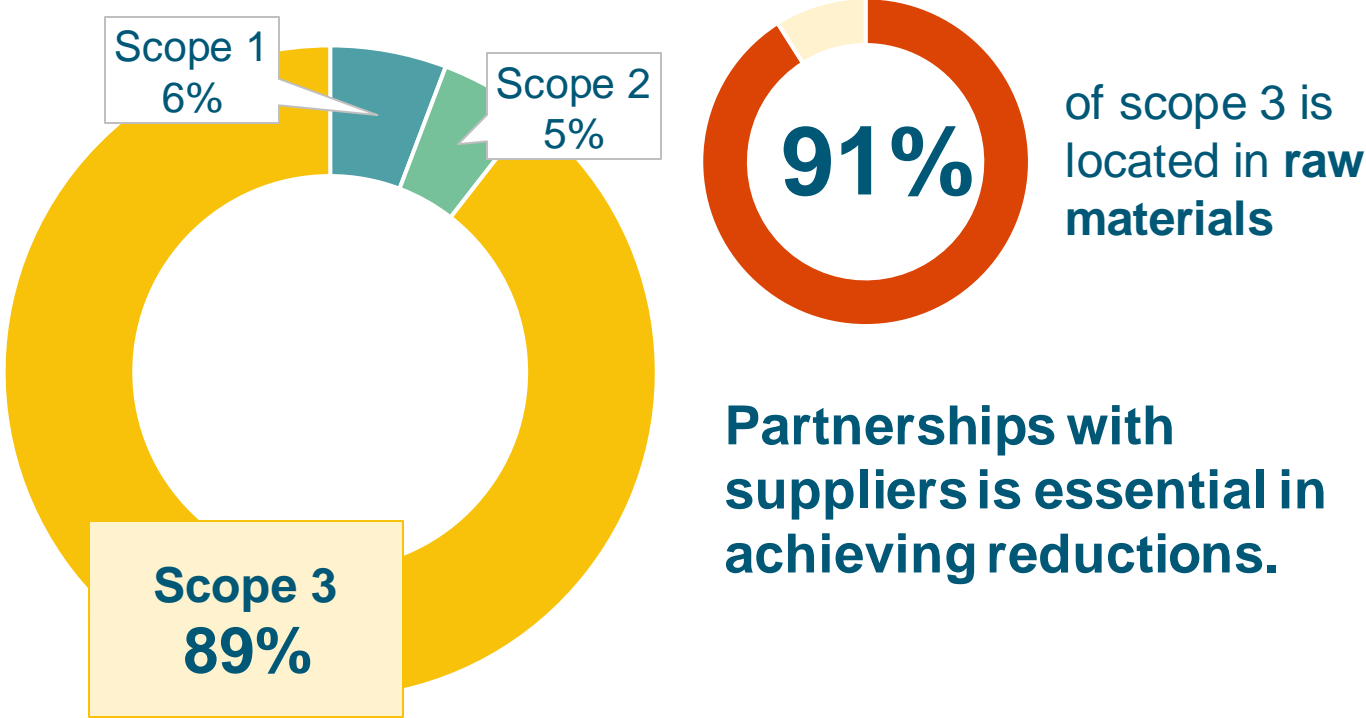
# Carbon Scope 1 & 2 - Abatement Roadmap



# Carbon Scope 3 – Target Overview

- Reduce scope 3 GHG emissions 30% per ton of finished product by 2030 from a 2017 base year
- SBTi Net Zero (submission and approval to new standard 2022-2023)

Kerry 2019 Global GHG Emissions (TOTAL)





# Kerry's 10 Key Priority Raw Materials

These were identified based on their materiality to our business and the associated environmental and social risk they pose.

- **GOAL:** 100% of our priority raw materials will be responsibly sourced by 2030
- Responsible sourcing is **different for each priority raw material**, due to **different challenges** in each category
- Work closely with our **suppliers to increase the traceability of our supply chains**
- **Verification and Certification**

## Palmoil (2025)

- Deforestation and Conversion
- Human Rights
- Carbon

## Paper (2025)

- Deforestation and Conversion
- Carbon

## Cocoa (2025)

- Deforestation and Conversion
- Human Rights
- Carbon

## Coffee (2025)

- Deforestation and Conversion
- Human Rights
- Carbon

## Herbs & Spices (2025)

- Human Rights
- Farmer Livelihoods

## Plastic (2025)

- Reduce virgin plastic by 25%
- 100% reusable, recyclable, compostable

## Soybean (2025)

- Deforestation and Conversion
- Carbon
- Human Rights

## Dairy (2025)

- Carbon
- Animal Welfare
- Deforestation

## Eggs (2025 - 2030)

- Animal Welfare
- Deforestation and Conversion
- Carbon

## Vanilla (2030)

- Farmer Livelihoods
- Human Rights

# Responsible Sourcing Pillars

## Supply Chain Risk Management

Processes are embedded to **mitigate** sustainability **risks** within **our supply chains** such as:

- Human rights
- Environmental
- Animal welfare
- Waste
- Water

**30%** reduction of **Scope 3 emissions** per tonne of finished product by 2030.

**100% renewable electricity** by 2022.

## Certification & Verification

- Working with our suppliers to **increase** the **traceability** of our priority raw materials to agricultural origin.
- **Certification / verification** of sources for **priority** raw materials.

## Smallholder Projects

Kerry owned **smallholder sourcing projects** will be developed in select supply chains to enable impact at farm and/or community level.



# Partnerships, Impact & Performance

## Environmental & Social Impact

### Value Chain Partnerships



SUSTAINABLE VANILLA INITIATIVE



Sustainable Dairy Partnership  
Business to Business



### Social Impact



World Food Programme



Special Olympics



## ESG Performance



Member



SCIENCE  
BASED  
TARGETS

DRIVING AMBITIOUS CORPORATE CLIMATE ACTION



FTSE4Good



# Deforestation & Conversion Free Policy

We have committed to **eliminating deforestation and conversion\*** across our global supply chains by 2025, for **direct sourced raw materials**.

We have identified 5 material categories that are potentially high risk for driving agricultural related deforestation.



Further detail can be found in our corporate [Deforestation and Conversion Free Policy](#)

\* Updated commitments in line with the [Accountability Framework](#)





# Smallholder Sourcing Projects (SSP)

These projects can be designed to have either an environmental impact or a social impact, these issues are closely interlinked so progress in one is also beneficial for the other.

## Environmental Impact

- Biodiversity
- Water
- Carbon reduction
- Deforestation
- Fertilizers
- Soils
- Good agricultural practices

## Social Impact

- Education
- Child labour
- Woman empowerment
- Worker health & safety
- Labour rights & conditions
- Healthcare access
- Nutrition & health
- Infrastructure
- Living wage

**Feasibility Study**  
3-6 months

**Local Implementation**  
Select the right partner

**Objective and Goals**  
Quantify and Measure

**Patience and Results**

# Smallholder Sourcing Projects



**TSARA KALITO**  
VANILLA  
2014



**ILHAM**  
PALM OIL  
2018



**FEMENINO**  
COFFEE  
2019



**HERBS & SPICE  
(SSI)**  
2021 / 2022



**DAIRY**  
2022 / 2023



**COCOA**  
2023



**FRUIT**  
2024



**VEGETABLES**  
2025





# Café Femenino Program

## UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS

<b>1</b> NO POVERTY  	End poverty in all its forms everywhere	<b>5</b> GENDER EQUALITY  	Achieve gender equality and empower all women and girls	<b>8</b> GOOD JOBS AND ECONOMIC GROWTH  	Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
--	---	---	---	---	--

Guatemala  
Mexico  
Nicaragua

Bolivia  
Brazil  
Colombia  
Peru

Rwanda

Sumatra

**9**  
COUNTRIES

**4000+**  
MEMBERS

**178 WOMEN**  
IN LEADERSHIP ROLES

### GENDER BIAS IN COFFEE PRODUCTION

**80%** Women undertake circa 80% of coffee farmwork, yet do not participate equally in:

Income generation  
\$

Decision-making  


Leadership  





Source: [scaa.org/sustainability](http://scaa.org/sustainability)

**In 2002, a group of women farmers in Peru decided to change this dynamic.**

### EMPOWERING WOMEN

The Café Femenino coffee program builds value for women coffee farmers through:

\$ Direct payments

 Payment premiums for women was a catalyst for change

**178** women promoted to leadership roles in executive coffee co-op boards

 Securing ownership rights to the land they farm for all women

### IMPROVING COMMUNITY LIVELIHOODS

 Around 1150 farmers' children are part of our education program developed in partnership with local agencies:

Educational opportunities for their children

Building libraries and schools

Fighting malnutrition

Improving health education

Replacing stoves that lead to smoke inhalation with safer, more modern designs

Providing micro-loan funds for microenterprises led by women



**KERRY IS CAFÉ FEMENINO'S EXCLUSIVE EXTRACTION PARTNER AND A PRIMARY SPONSOR OF THE FOUNDATION**





A wide-angle photograph of a lush green agricultural field, likely soybeans, stretching towards the horizon. The sky is filled with dramatic, dark clouds, with a warm, golden light breaking through on the left side, suggesting a sunset or sunrise. A semi-transparent teal banner is overlaid across the middle of the image, containing white text.

# Lower Carbon to Net-Zero Products and Solutions

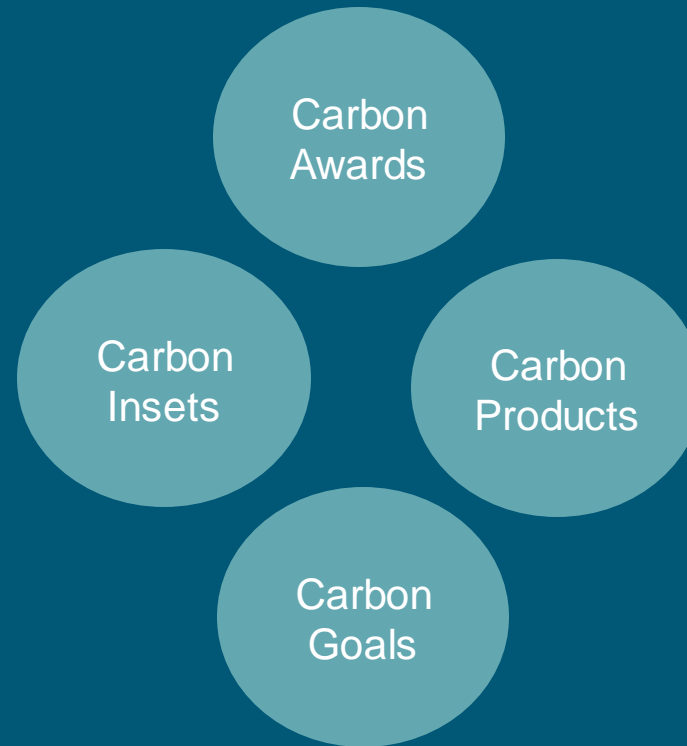


# Kerry leading the race to lower carbon dairy in Ireland

## Context

- The Dairy industry globally has the 2nd largest carbon footprint of the agri-food system
- Consumers are demanding lower-carbon dairy products or swapping to plant-based
- The Irish dairy industry has one of the lowest relative carbon footprint per litre of milk equivalent
- The Irish government has announced goals to reach net zero in Dairy by 2050
- Kerry has already started developing lower-carbon dairy products and solutions
- Kerry will develop carbon insets projects and services with the dairy value chain towards net zero dairy products

## Opportunity



## Added Value & Impact

Carbon Avoidance & Reduction

Kerry partnership program with Farmers and customers co-creation dairy model is focusing efforts on making products better for end consumers, for supply chain partners, and better for the environment

# Innovating taste for a better life & planet

## Customer Opportunity

Consumers are increasingly conscious of sustainability and health

**87%**

of consumers are trying to reduce consumption or consume sugar in moderation

**44%**

increase in Low/no/reduced sugar launches in beverages since 2015

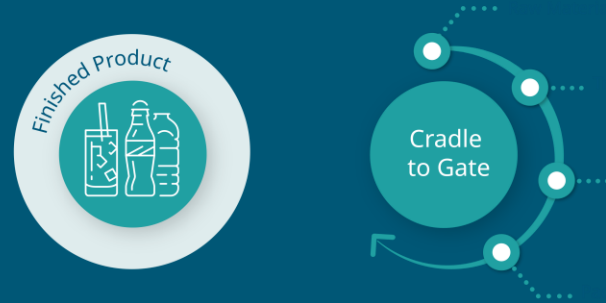
**62%**

of customers and consumers want companies to take a position on sustainability

## Kerry Added Value

### Kerry Tastesense™

Delivering consumer preferred taste with a clean sweetness.



Innovative taste solutions enabling sustainable nutrition.

## Impact

Creating a world of sustainable nutrition



Sugar reduction



Calorie reduction



CO<sub>2</sub> emissions reduction



Water use reduction



Improving the Nutri-Score of products



Supporting nutritional and sustainability goals



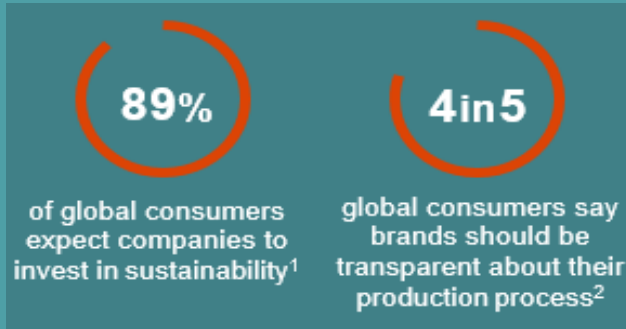
Improving your brand image by fulfilling consumers expectations.

Great taste, low sugar, less impact - help to deliver a better product, that is better for the planet



# Innovating Smoke for a better life & planet

## Customer Opportunity



### Challenge of Conventional smoking

- Large water usage footprint
- High levels of emissions
- Ash, Charcoal, and Tar Cleanup and Disposal
- Higher levels of PAH's on Food
- Limited application techniques

**Conventional Wood Smoking not a sustainable solution for the world's future**

## Kerry Added Value

### Responsible Sourcing

- 100% circularity using timber by-products as a raw material input
- Raw materials come from sustainability managed sources

### Manufacturing Process:

Wood, Heat, Water and removal of harmful by-products (tar, ash) which get re-used as energy source



### A technology that benefits the environment and has social impact

- Reduction of CO<sub>2</sub> Emissions
- Reduction in Water
- Protection of resources: reduced need for wood
- Reduction of Energy Usage

- Healthier foods for the consumer, no toxic substances (e.g. PAH4, 3-MCPD)
- Reduced need for cleaning detergents
- Improved and safe working conditions for employees, no explosive hazards

## Impact

### Creating a World of Sustainable Nutrition

**Manufacturer / Processors Get**

**Cost Savings**

**Process Efficiencies**

**Greater Throughput**

**Preserve Traditions**

**Real sustainability improvements**

**Consumer benefits**

**Great Tasting, Healthier products**

**Consistent, Attractive Color**

**Less water waste**

**Lower carbon emissions**

**Better for you & the environment**

# Accelerating growth with a Plant-Protein challenger brand

## Consumer Needs

- Great Taste
- Recognize ingredients
- Healthier (Salt & Fat)
- Care for Environment
- Transparency
- Trust Message
- Convenient, affordable

## Customer Challenges

- Product enhancement
- Healthier formulations
- Not compromising on taste and texture
- Clean label
- Shelf-life extension
- Waste reduction
- Environment impact

## Kerry Added Value



Consumer and customer insights

Co-creation Partner

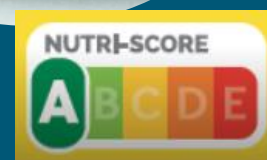
Fat & Salt Optimisation

Clean Label Solutions

Plant Protein expertise

Taste applications

Meat Application Expertise



## Impact

### Better Nutrition

**87%** Reduction saturated fat

- Improved taste and texture
- Clean label solutions

### Better Value

- Brand perception
- Category growth
- Market Share, Profit

### Better Planet

**87%** Reduced carbon emissions

- Reduced food waste
- Energy & water savings

Our plant protein portfolio and application expertise help to deliver a better product, that is better for the planet



# Breaking Boundaries in Traditional Brewing

## Sustainable Innovation

### Customer Need

New Range with Lower  
Environmental Footprint

Improved  
Efficiencies & Yields

Regulatory  
Expertise

### Kerry Value Add

Brewing Ingredients &  
Application Expertise

Enzymes

Process  
Technology  
Know-How

## Integrated Solution

*Our enzymes , brewing ingredients and process expertise along with our alcoholic beverage application know-how help to deliver a better product and better process that is better for the planet*

# Impact

## Brewing Solutions

### Improved local sourcing

- Greater use of local grains & un-malted grains

### Better for Planet

**41%** Reduced carbon  
emissions

- Reduced waste
- Energy & water savings







Thank you



4:00PM - 4:20PM

4:20PM - 4:40PM

4:40PM - 5:00PM

5:00PM - 5:30PM

**Decarbonization journey:  
From commitment to  
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Group Head of Sustainability

**Panel discussion  
facilitated by**



**Birthe van der Voort**

Future of Food Partner





# Panel Discussion

**Let's have a discussion around  
decarbonization of the food system!**



ORCHESTRATED BY

**Deloitte.**

 agrifirm

**KERRY**

# Future of Food.

**Let's connect for impact!**

**Realizing a net zero, or carbon negative  
food system**

**Randy Jagt**

Future of Food Lead  
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