

REDUCING CARBON FOOTPRINT

Valio's Climate Program

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THE CARBON FOOTPRINT OF MILK WHEN LU (AND LUC) IMPACT INCLUDED FROM FIELD TO TABLE



98%

PRIMARY PRODUCTION AT FARM

- 35 % Feeding
- 5 % Grazing
- 1 % Manure storage
- 13 % Feed cultivation
- 32 % Peat field emissions
- 3 % Energy use at the farm
- 6 % Purchased feed use
- 3 % Other external inputs

2%

LOGISTICS AND FACTORIES

- 0,2 % Logistics
- 1,8 % Energy use at factories and packaging

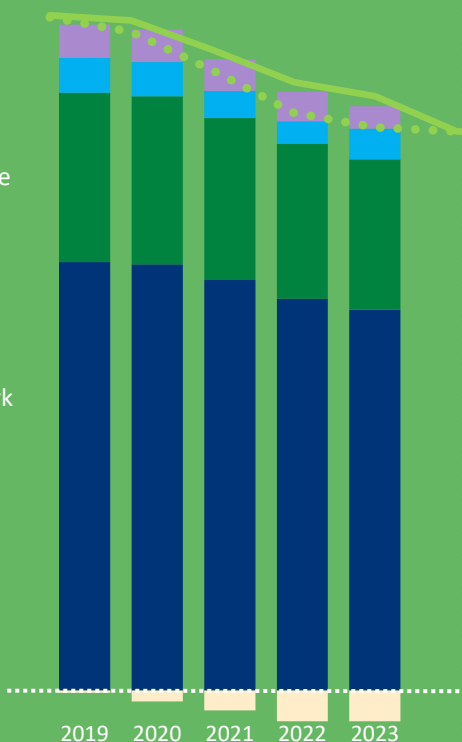
In calculating the carbon footprint, the different greenhouse gases are converted to a common format, carbon dioxide equivalent (CO₂e). The lifecycle calculation model of Valio's raw milk was certified in 2019 (Carbon Trust)

VALIO'S CLIMATE PROGRAM 2019-2035

Valio's climate impacts

3 Mt CO₂e/y (2019)

- 3 % Other
- 7 % Factories and logistics
- 25 % Land use
- 65 % Milk production
- Carbon sequestration
- Handprint work
- Additional actions

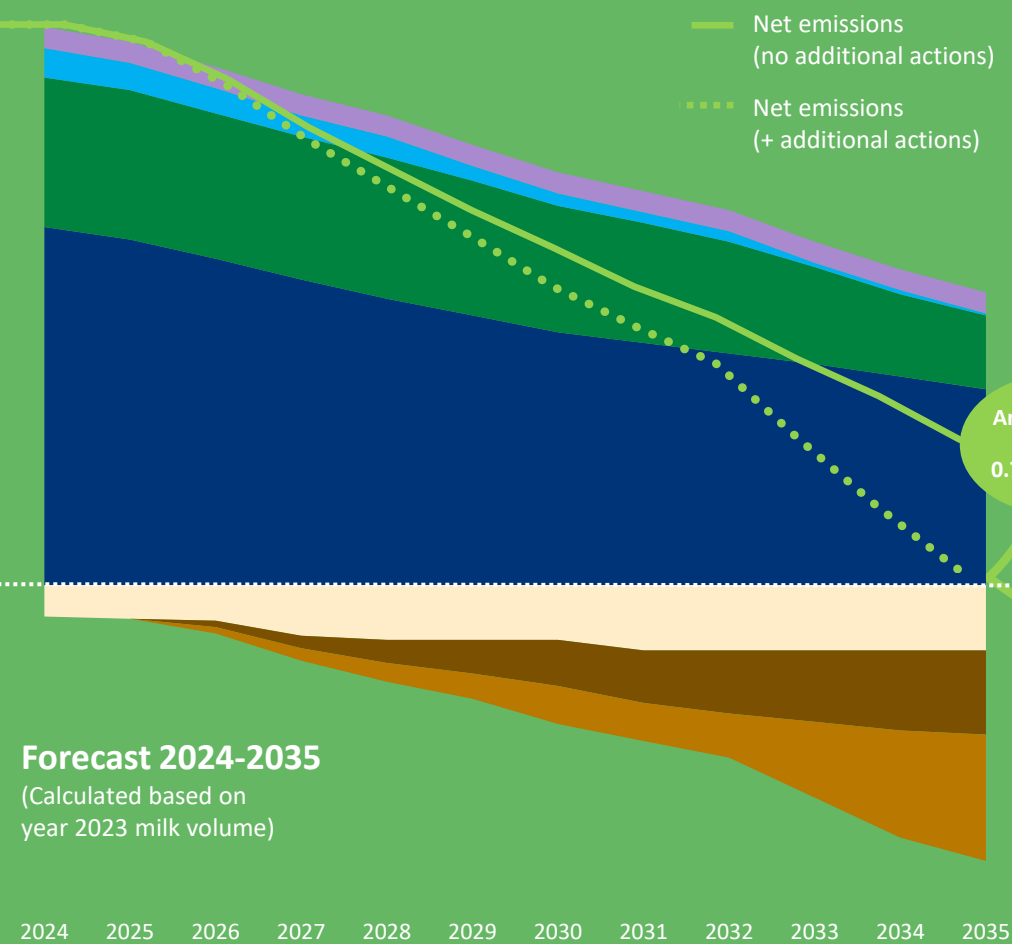


Total emissions of the milk value chain 2019-2023

Reduction -12%

When also carbon sequestration is considered, reduction -17%

Targeting net zero climate impacts from milk value chain by 2035



Forecast 2024-2035

(Calculated based on year 2023 milk volume)

Ambition gap 2035
0.7 Mt CO₂e/y

Share of Climate Programme actions

- 0,4 % Packaging development, raw materials
- 7 % Valio's renewable energy and energy efficiency
- 13 % Peatland emissions reductions
- 31 % Climate actions at farms
 - Animal welfare, feed and breeding
 - Methane decomposition from barn air
 - Renewable energy and energy efficiency
 - Nutrient efficiency and circular economy (manure)
- 12 % Carbon farming in fields and carbon sequestration technologies
- 15 % Handprint work e.g. restoration and biogas in transport
- 22 % Need for additional actions e.g. new technologies

VALIO'S ACTIONS TO REDUCE EMISSIONS



Biogas production and utilization

- Emission reduction from manure storage
- Fertilizer usage reduction
- Usage of biogas in heavy transports reducing usage of fossil fuels
- Utilization of manure as cow bedding material replacing peat
- Utilization of manure fractions in commercial seedbed solutions reducing the usage of peat



Animal welfare, feeding, and breeding

- Improving the welfare and health of cows
- Feed that mitigates methane emissions
- Animal breeding towards resource efficient and welfare dairy herds



Emission reductions from peatlands

- Continuous grass cover
- Reducing tillage of soil
- Raising groundwater level
- Restoration or afforestation of low-yield fields



Renewable energy and energy efficiency

- Increasing energy efficiency in dairy farms, factories and logistics
- Increasing renewable energy use throughout the value chain



Carbon farming

- Carbon sequestration into mineral soils
- Improving soil condition
- Boosting crop yields
- Utilisation of legumes in farming
- Fertilisation methods with lower emissions



New emission reduction technologies

- Recycling of agricultural plastics
- Bioenergy carbon binding and storage using new technologies
- Methane decomposition from barn air with new technology

HIGHLIGHT'S



Carbo®

Environmental Calculator
used at 2,200 farms



1,500 farms trained in
carbon farming



Recycle-ready yoghurt
packaging



Valio & St1: Suomen
Lantakaasu Ltd



55% recycled plastic in sliced
cheese packaging



Carbon Neutral Farm Pilot

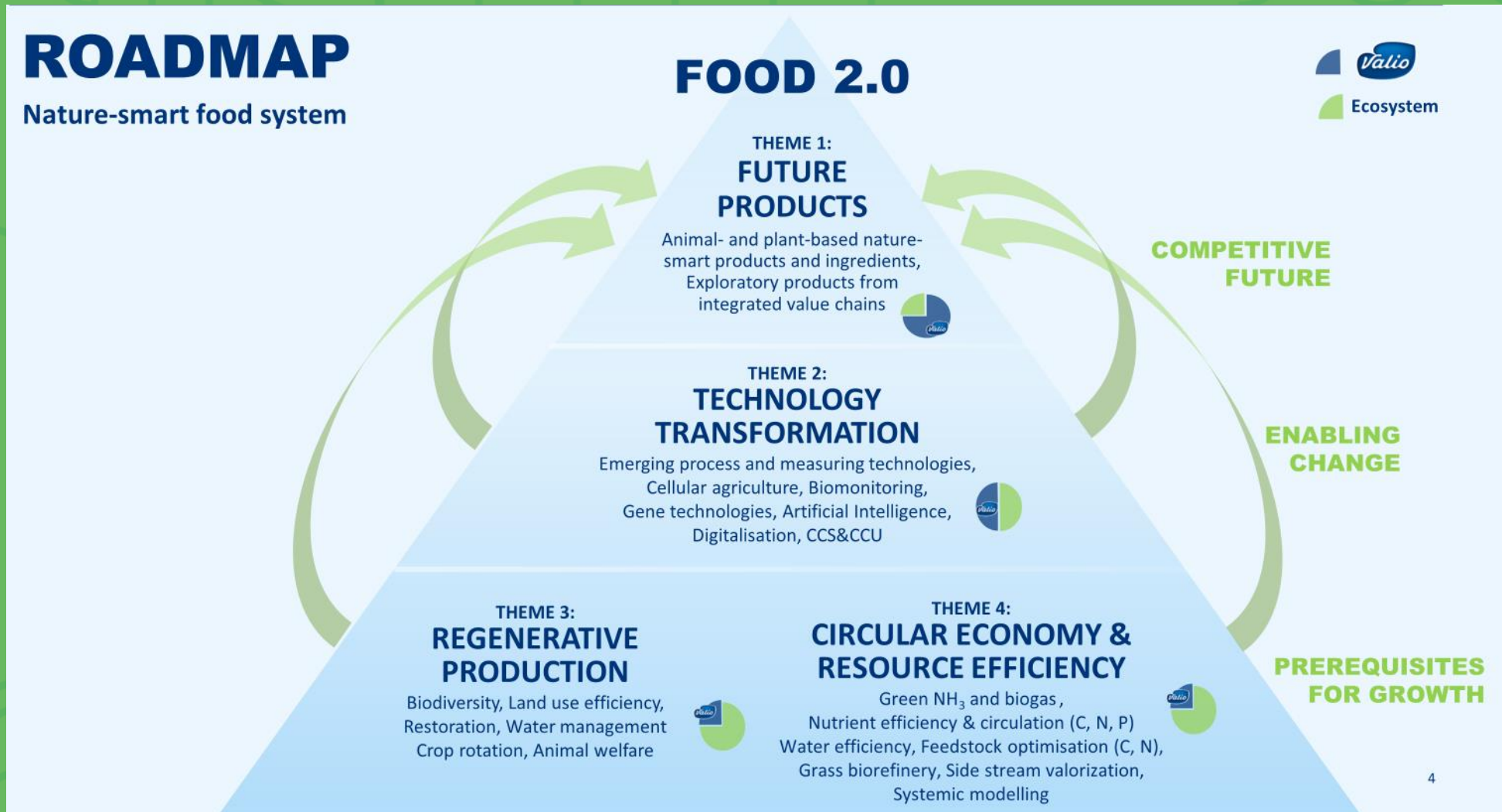


Carbo Partnership



Carbo Consortium

FOOD 2.0 – FUTURE PROOF FOOD PRODUCTION SYSTEM



*H KOHTI
HIILINEUTRAALIA
maitoa 2035*



VALIO CARBO® FARM CALCULATOR

Certified (Carbon Trust) four times

Farm-level calculations

It uses mainly IPCC Tier 3 calculation methods.

It helps farmers to reduce the CFP of raw milk, beef, and feeds. Also, eutrophication, acidification, and land use.

Carbo Consortium

DEVELOPMENT OF CALCULATOR

Feed
Optimiza-
tion Tool

Nutrient
Balance
tool

Lypsikki

Lypsikki
LCA

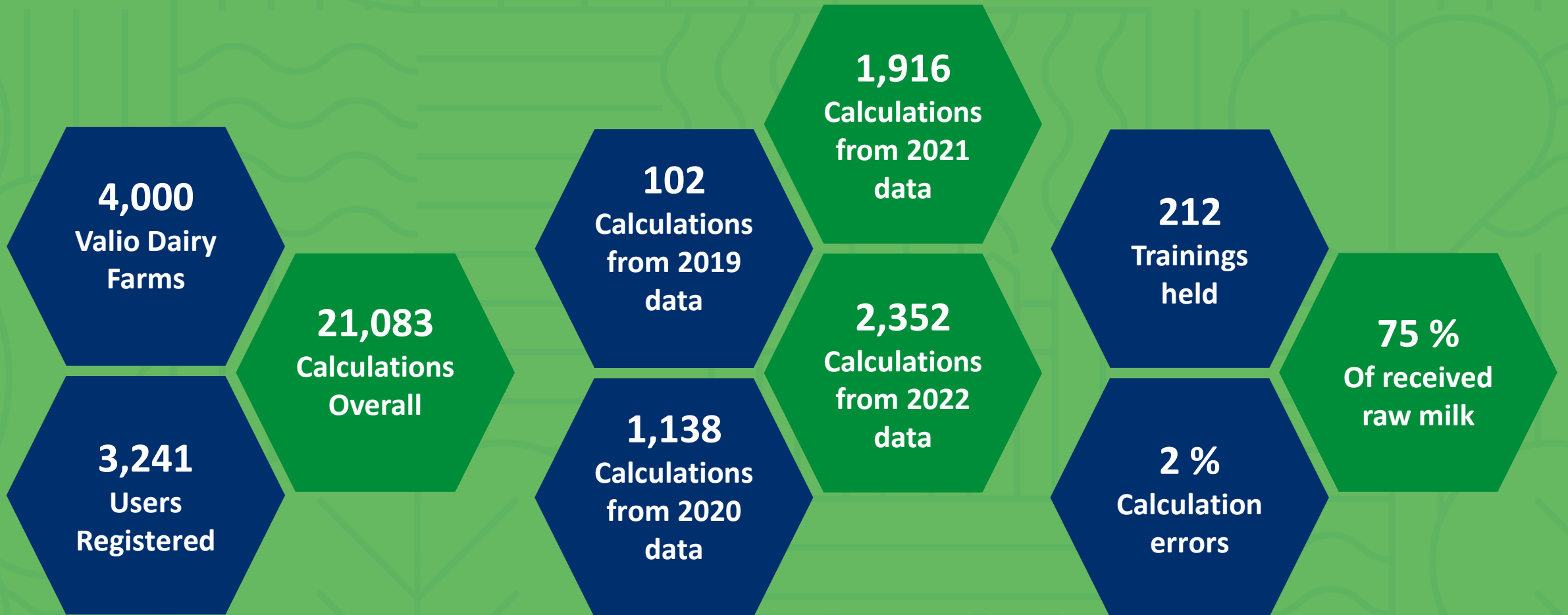
Valio
Carbo
Calculator

Carbo
2.0

Carbo
National
Cattle
Calculator



CARBO[®] ENVIRONMENTAL CALCULATOR USAGE



SUMMING UP

