FARM SUSTAINABILITY

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Presenter:

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ARLA FOODS

AGENDA

1. Sustainability strategy
2. Climate checks and advisory
3. Results from 2020 and key learnings
4. Farmer engagement
5. What’s next step?
6. Q&A

SUSTAINABILITY STRATEGY

ABOUT ARLA

9,406
OWNERS

13.7 BL. KG.
MILK INTAKE

THE 4TH
LARGEST

20,020
COLLEAGUES

4 GLOBAL
BRANDS

10.6 BL. EURO
REVENUE

LARGEST ORGANIC
DAIRY PRODUCER
IN THE WORLD

FOCUSING ON THREE KEY AREAS

BETTER CLIMATE

Carbon Net Zero
by 2050

CLEAN AIR & WATER

Nitrogen and Phosphorus
Cycles in Balance

MORE NATURE

Increase Biodiversity
and Access to Nature

CLEAR AMBITIONS FOR DRIVING CHANGE

2020
Climate checks launched

2030
-30%
CO2e
(Science-based target)

CARBON NET ZERO 2050
Arla

2020 — 2050

23%

CO2e footprint reduction per kilo milk since 1990

50%

Arla emissions intensity per kilo milk is half the global average

CLIMATE CHECKS AND ADVISORY

THE CLIMATE CHECK PROCESS

Farmers submit their climate data in Self Assessments 1x per year

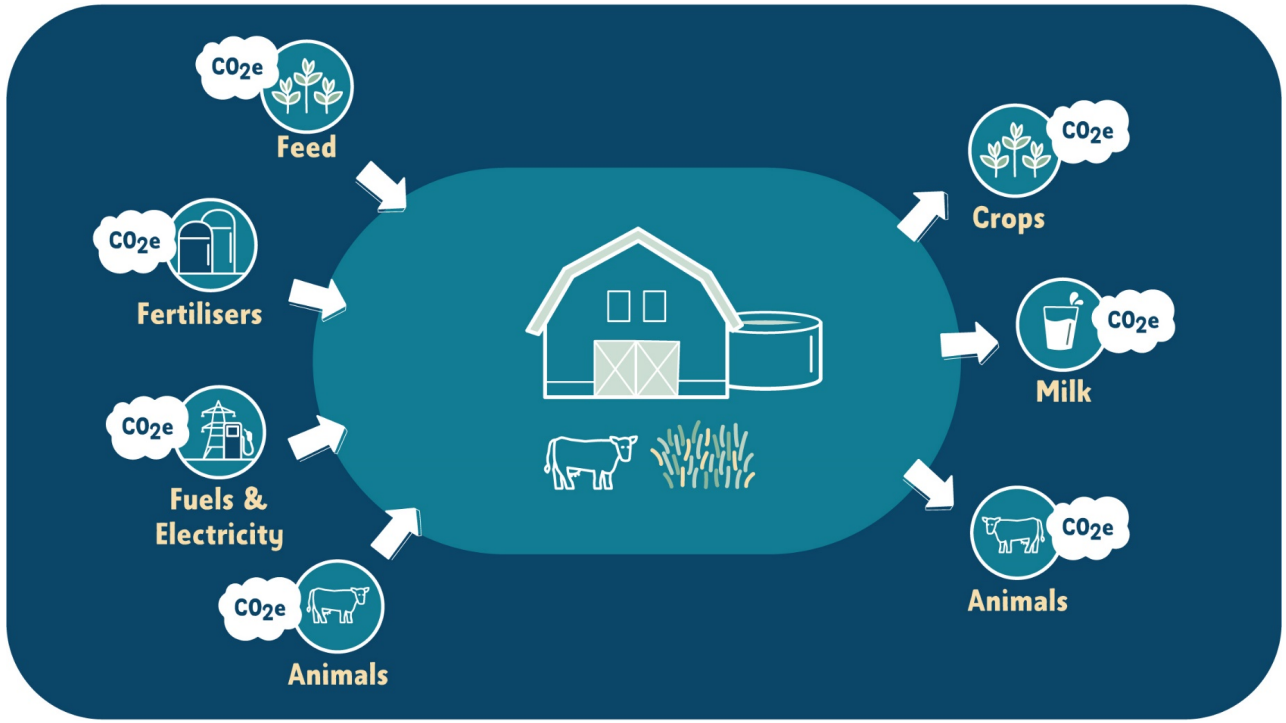
Data transferred to advisor view in an IT-portal and advisor plans individual advisory visit

Advisory visits emphasize the farmer‘s individual **strengths and weaknesses** to support the Arla climate strategy towards 2030 and 2050

After the farm data has been validated a final CO_2-footprint and all advises and KPIs of the farm will be shown in the IT-portal

RULE OF THUMB

"What comes into the company has a CO_2 footprint - and what leaves the company leaves it with a CO_2 footprint"



QUESTIONS TO COVER MOST FARMING SYSTEMS

Scenarios of complexity:

Low

- ✓ Dairy herd only
- ✓ Surplus animals sold
- ✓ No cash crops
- ✓ No forage registration
- ✓ 4-5 feed types purchased

50 – 60 datapoints

Medium

- ✓ Dairy herd only
- ✓ Surplus animals sold
- ✓ Cash crops
- ✓ **Forage registration**
- ✓ 4-5 feed types purchased

80 – 120 datapoints

High

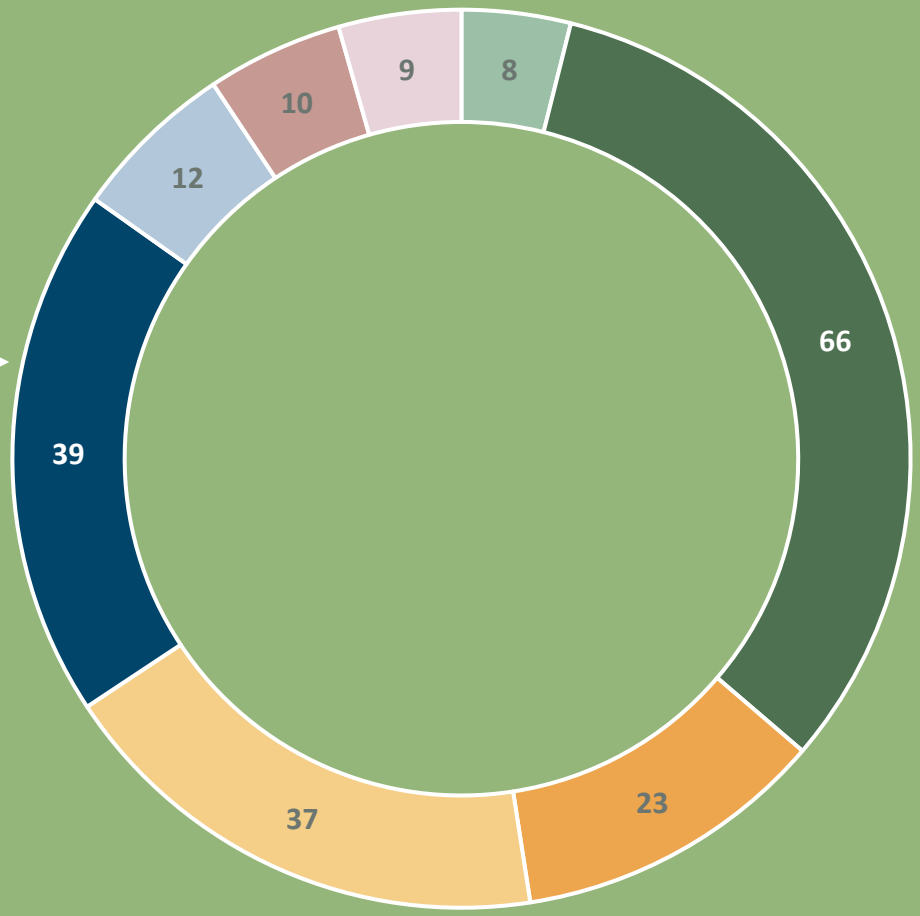
- ✓ Beef production from bull calves and crossbred beef heifers
- ✓ Cash crops
- ✓ Forage registration
- ✓ 4-5 feed types purchased
- ✓ Renewable energy
- ✓ Nutrients exchanged with other farms (slurry, straw)

>150 datapoints

THIS CAN ALSO BE ILLUSTRATED

Example:
39 different options for purchased feed are available.

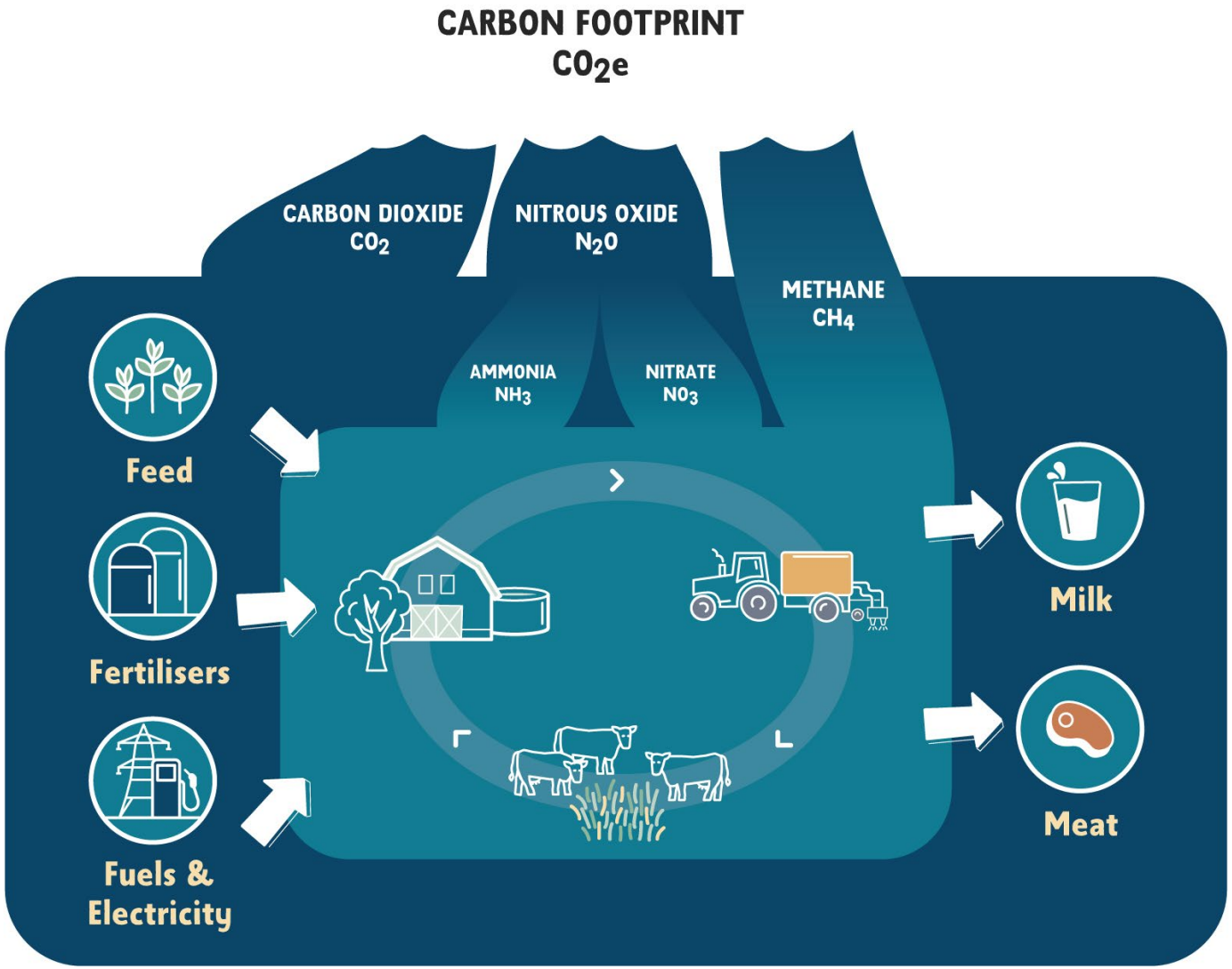
Typically a farm will have app. 5 feed types.



- General data
- Herd data incl. Housing
- Land use and crop yield
- Homegrown feed
- Purchased feed
- Manure handling and storage
- Fertilizer and straw/bedding
- Energy

Diagram illustrates number of questions available per category

ALL GREENHOUSE GASES IN ONE FIGURE: KG CO2E /KG MILK

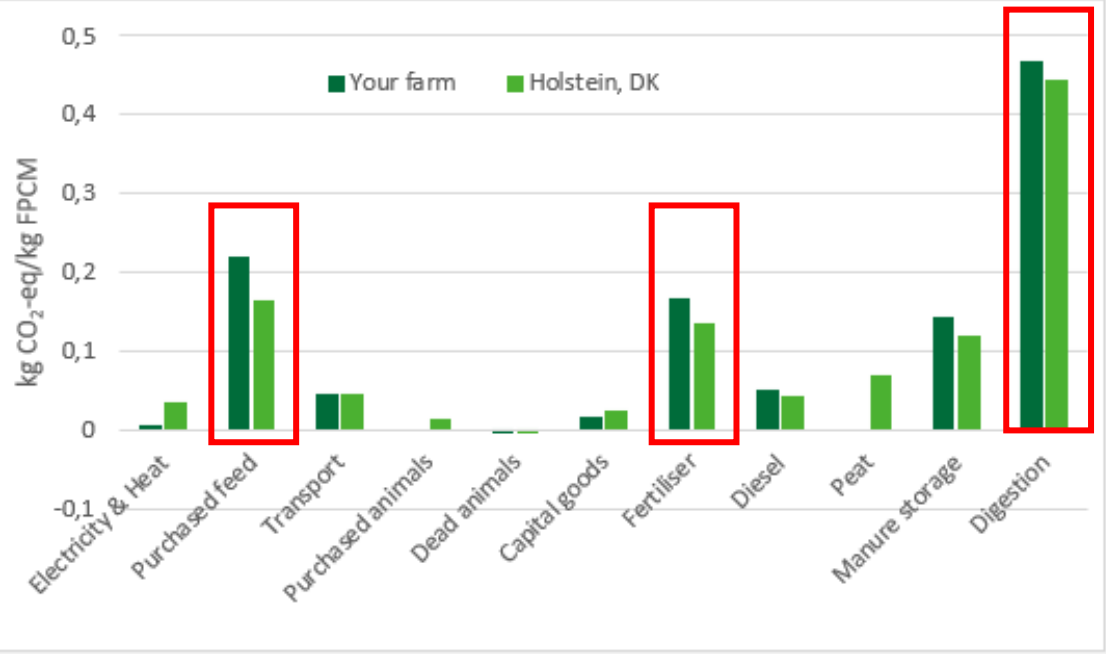


Arla Climate Check

Date sent to farmer
8th September 2020

Member name		
Member ID	0	
Assessment period	2019-04-01	2020-03-31
Advisor		

	kg CO2e per kg FPCM, including peat soil	Kg CO2e per kg FPCM, without peat soil
Your farm	1,104	1,104
Arla average, DK, Holstein	1,07	0,97
Arla average, DK, Jersey	1,00	0,94



The CO2 footprint for your farm and the chosen comparison group

KPI	Unit	Your farm	Holstein, DK
Milk production, delivered to dairy	kg FPCM per cow	8696	10408
Cows	number	420	223
Heifers	number	290	209
Feed efficiency	kg DM per kg FPCM	0,89	0,88
N efficiency	%	26,86	29,00
Heifers per cow	heifers per cow	0,69	0,95
Age at first calving	Months	26,0	25,0
Mortality rate, cows	%	6,43	
Roughage share, whole herd	% of DM	45,3	64,0
Grass from intensive pasture	ton DM per hectar	8,0	9,8
Maize silage	ton DM per hectar	0,0	11,2
Land use, total	m2 per kg FPCM	0,97	1,03
Land use at farm	m2 per kg FPCM	0,46	0,58
Electricity at farm	kWh per kg FPCM	0,011	0,070
Electricity at farm	kWh per cow	100	765
Diesel at farm	litre per kg FPCM	0,02	0,02
Diesel at farm	litre per ha	356	209
N fertiliser, total	kg N per ha	455	209
N fertiliser, manure	kg N per ha	277	142

Key performance indicators for your farm and the chosen comparison group

RESULTS AND KEY LEARNINGS

WE ARE ON A GREAT JOURNEY!

Oct 2019
Presentation of Climate Check programme

May 2020
Climate Check programme started

Apr 2021
Climate Check round 1 completed!

Jun 2021
Climate Check round 2 starting, incl. new tool

2030
-30% CO_2e emissions on farm

7'986
Climate Checks performed!!

INSIGHTS FROM ROUND 1: AVERAGE CARBON FOOTPRINT

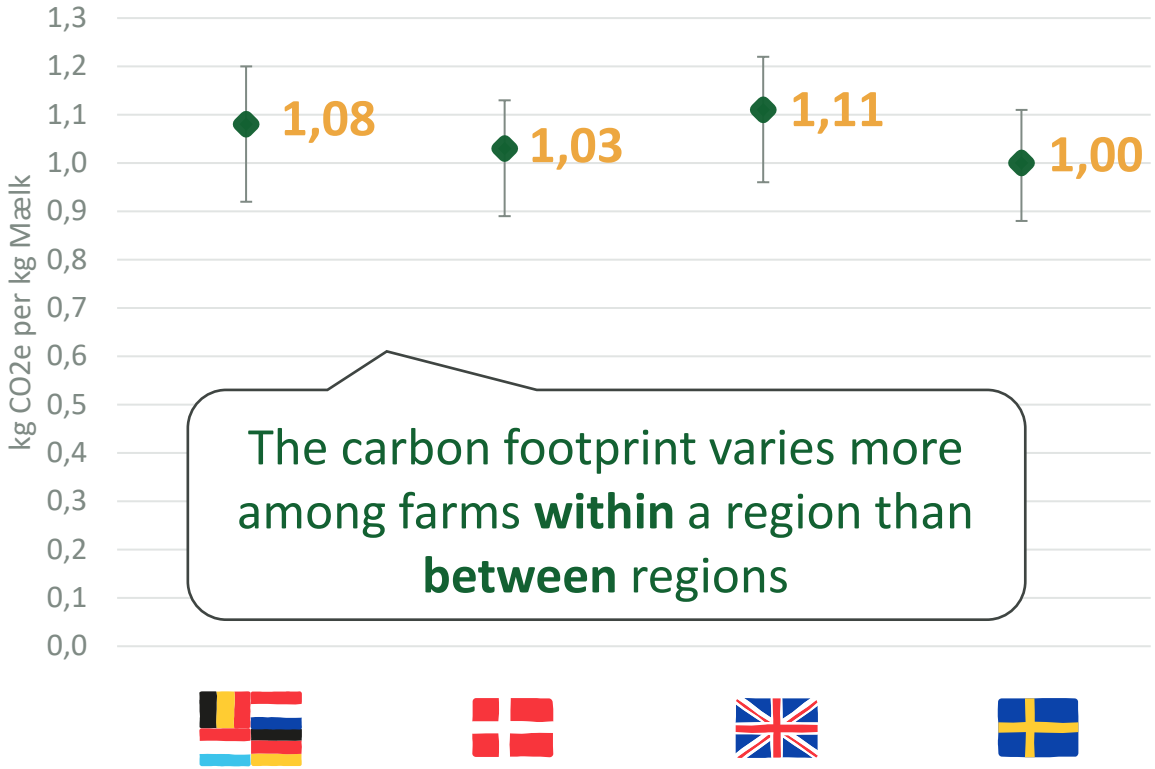
Average carbon footprint Arla kg CO2e/kg milk

Incl peat **1,15**

Excl peat **1,06**

Arla global average carbon footprint indicates **good performance**

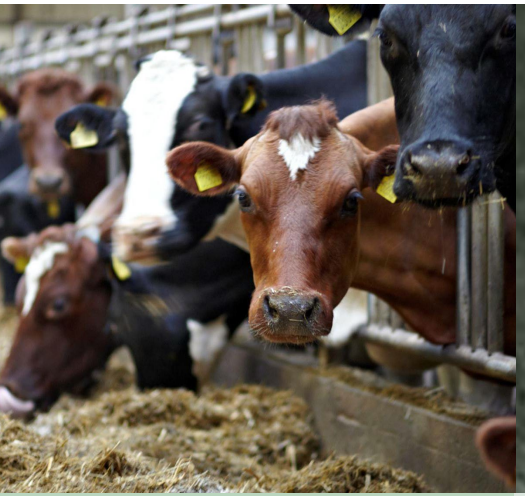
Average CF per region, and 10 + 90 percentiles kg CO2e/kg milk



The carbon footprint varies more among farms **within** a region than **between** regions

THE BIG FIVE

Five universal levers that work for all farm types to reduce the carbon footprint



Feed efficiency, herd

(kg dm/kg milk)

More milk per feed input

Protein efficiency

(% N-eff cow)

Reduce protein surplus in feed ration

Mortality, cow

(%)

Healthy cows

Fertilizer use

(kg total N/ha)

Reduce N surplus from feed production

Land use

(m^2/kg milk)

Better crop yields

11%

of Arla farmers produce **biogas**

24%

of Arla farmers produce **green electricity from wind and solar**

62%

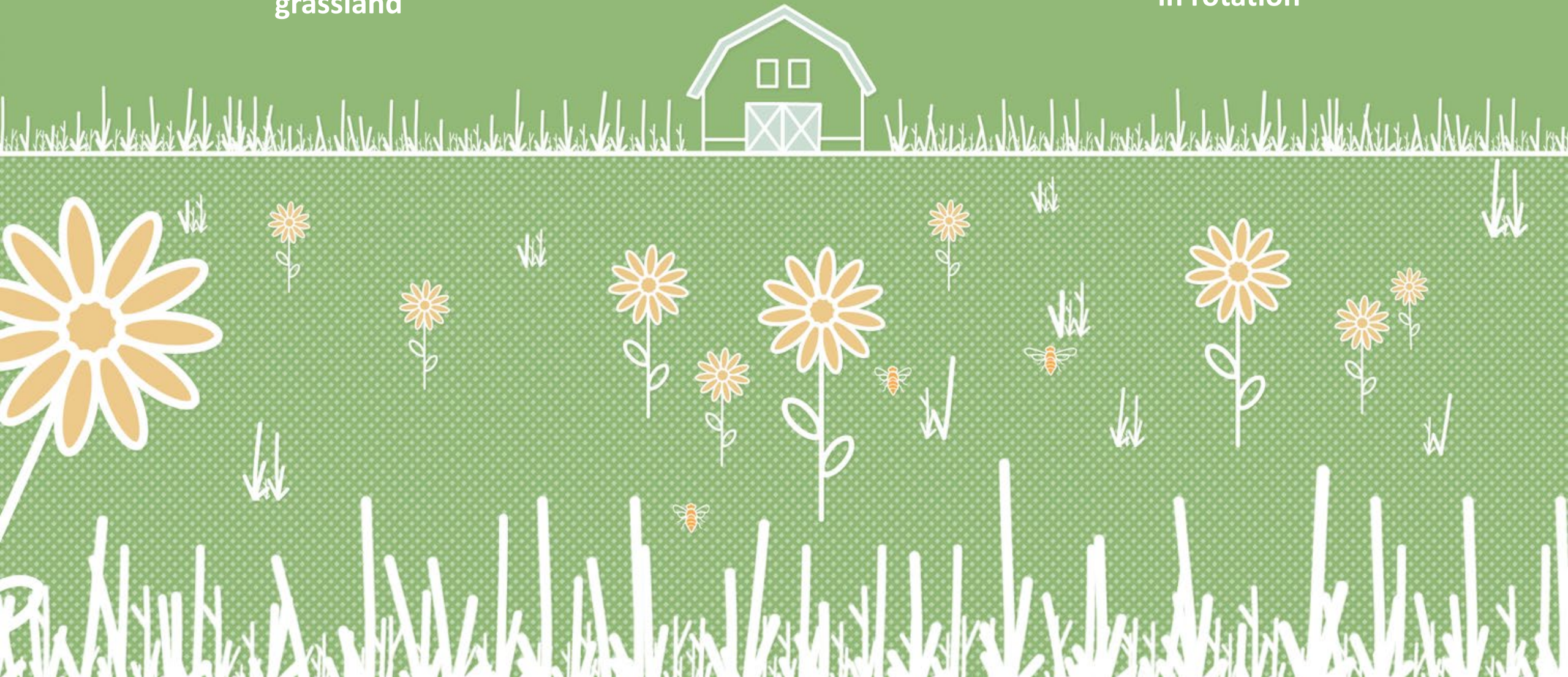
of protein is
grown on farm

58%

of total ha is **grassland**

50%

of grassland is **in rotation**



FARMER ENGAGEMENT

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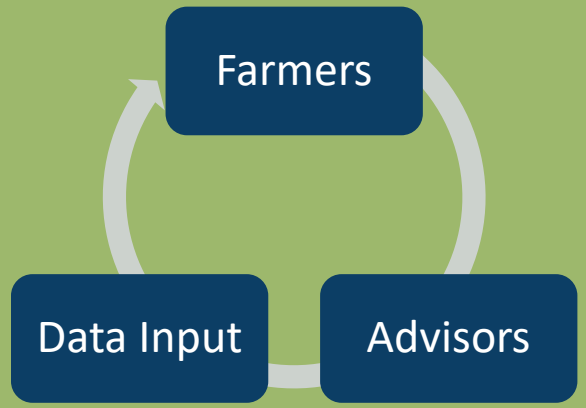
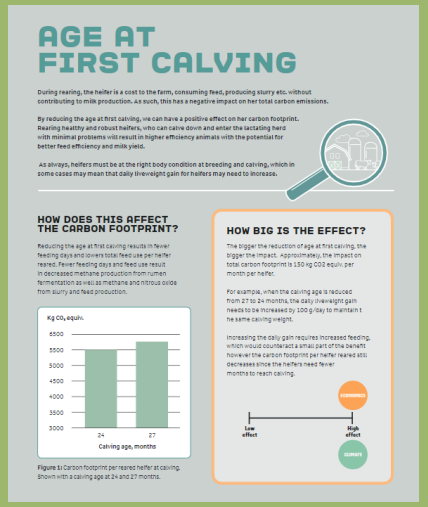
Advisory meetings

Climate cataloge

Farmer interviews

Local webinars




AGE AT FIRST CALVING

During rearing, the heifer is a cost to the farm, consuming feed, producing slurry etc. without contributing to milk production. As such, this has a negative impact on her total carbon emissions.

By reducing the age at first calving, we can have a positive effect on her carbon footprint. Rearing healthy and robust heifers, who can calve down and enter the lactating herd with minimal problems will result in higher efficiency animals with the potential for better feed efficiency and milk yield.

As always, heifers must be at the right body condition at breeding and calving, which in some cases may mean that daily liveweight gain for heifers may need to increase.

HOW DOES THIS AFFECT THE CARBON FOOTPRINT?

Reducing the age at first calving results in fewer feeding days and overs total feed use per heifer reared. Fewer feeding days and feed use result in decreased methane production from rumen fermentation as well as methane and nitrous oxide from slurry and feed production.

Kg CO_2 equiv.

6500
5500
5000
4500
4000
3500
3000

24 27

Calving age, months

Figure 1: Carbon footprint per reared heifer at calving, shown with a calving age at 24 and 27 months.

HOW BIG IS THE EFFECT?

The bigger the reduction of age at first calving, the bigger the impact. Approximately, the impact on total carbon footprint is 150 kg CO_2 equiv. per month per heifer.

For example, when the calving age is reduced from 27 to 24 months, the daily liveweight gain needs to be increased by 100 g/day to maintain t he same calving weight.

Increasing the daily gain requires increased feeding, which would counteract a small part of the benefit. However the carbon footprint per heifer reared still decreases since the heifers need fewer months to reach calving.

Low effect

High effect

CLIMATE CATALOGUE: LEVERS FOR CHANGE

Animal welfare

Breeding

Handling of manure

Feed optimisation

Optimisation of manure

Crop adjustment

Applying manure

Resource consumption

WHAT’S NEXT STEP?

IT PLATFORM FOR FARMERS AND ADVISORS

CLIMATE CHECK

Compare with: Large cross breed | Legal entity: Select an option | Comparison year: Select comparison year

Description of comparison groups

CARBON FOOTPRINT

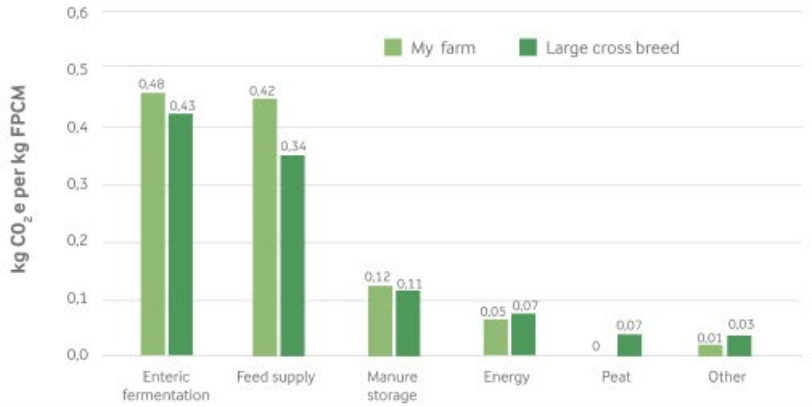
Please see the total carbon footprint per kg FPCM for your farm below.

	kg CO_2e per kg FPCM with peat soil		kg CO_2e per kg FPCM without peat soil	
My farm	1.338	-0,2%	1.331	-0,1%
Large cross breed	1.339	-0,1%	1.330	-0,2%

-0,2% 0,2% Change in comparison with previous year

DETAILED CARBON FOOTPRINT

Below is a general overview of CO_2e emissions by source. For a detailed view, please visit **Emission sources.**



MILK PRODUCTION

9754

More KPI's >

REDUCTION POTENTIAL

Reduction potential >

MY FARM: OTHER SUSTAINABILITY FACTORS

Other Sustainability factors >

ADVISOR COMMENTS

Advisor comments >

C-SEQU PROJECT

C-sequ phase 1
Develop methodology

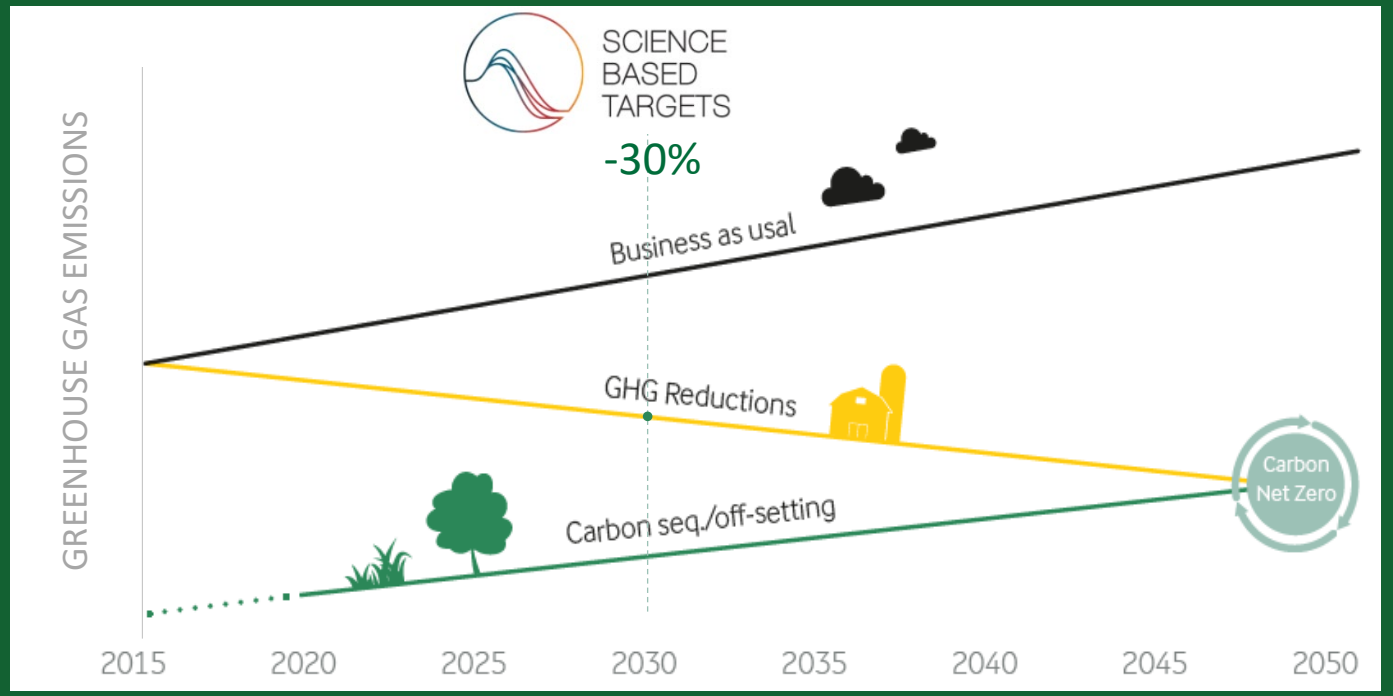
C-sequ phase 2
Pilots on farms

C-sequ phase 3
Include in CF tool

PURPOSE OF THE C-SEQU PROJECT

To establish a carbon sequestration calculation method to be used in Carbon Footprint assessments at farm level.

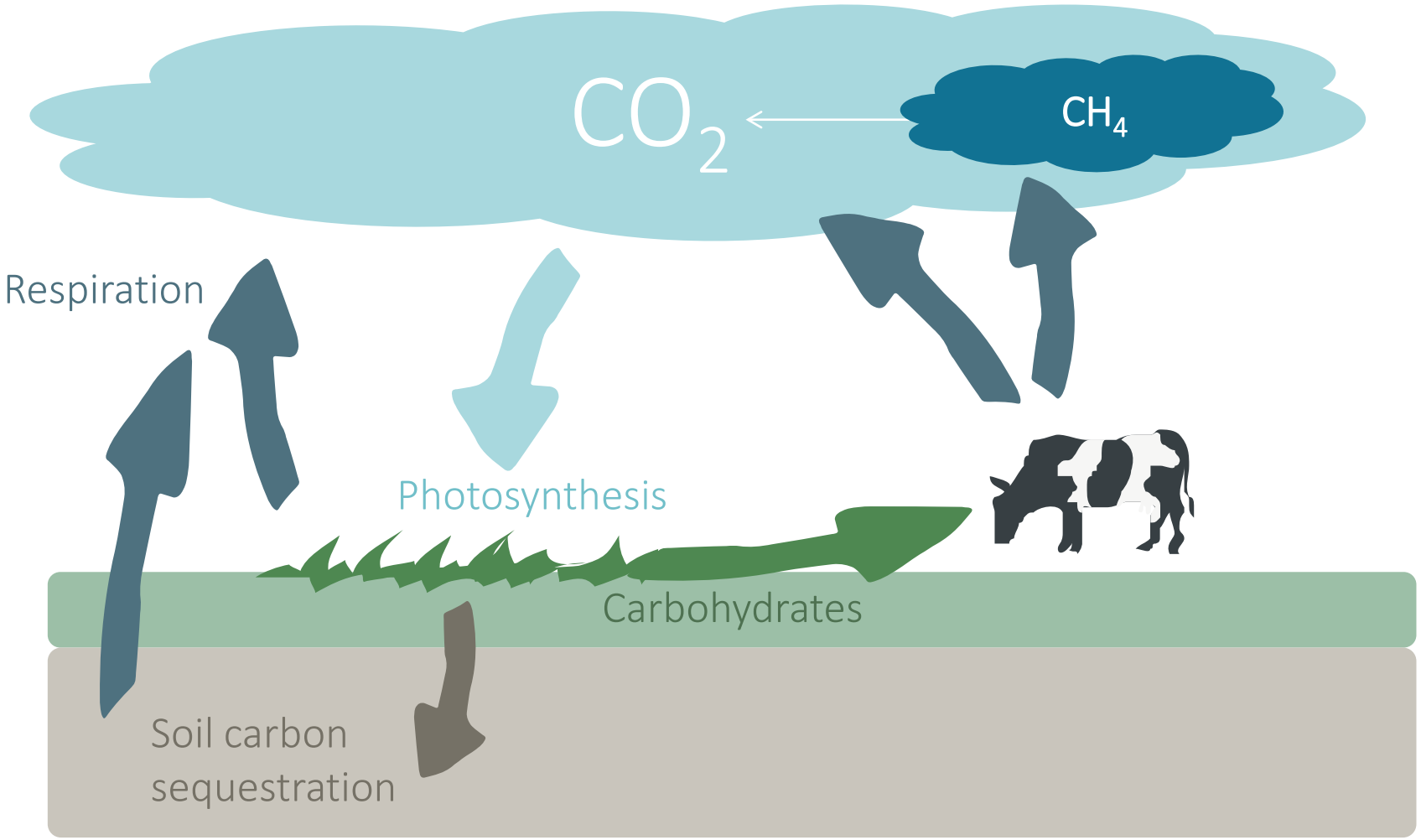
The ultimate goal to have a method that will support and encourage farmers to implement activities and practices that promote carbon sequestration and thereby mitigate climate change.



Carbon sequestration (in first hand within our value chain, but potentially also outside) is necessary to balance our unavoidable emissions in 2050.

THE BIOGENIC CARBON CYCLE

There is only sequestration if uptake (photosynthesis) is larger than emissions (respiration)



While CO_2 is the dominating GHG for most industrial sectors, agriculture also has large emissions of N_2O and CH_4.

CH_4 is oxidated over time to biogenic CO_2 (CO2 that is part of the natural cycle), however, while in the atmosphere, it is a potent GHG.

How long CH_4 resides in the atmosphere depends on the concentration.

Q&A

ANY QUESTIONS?