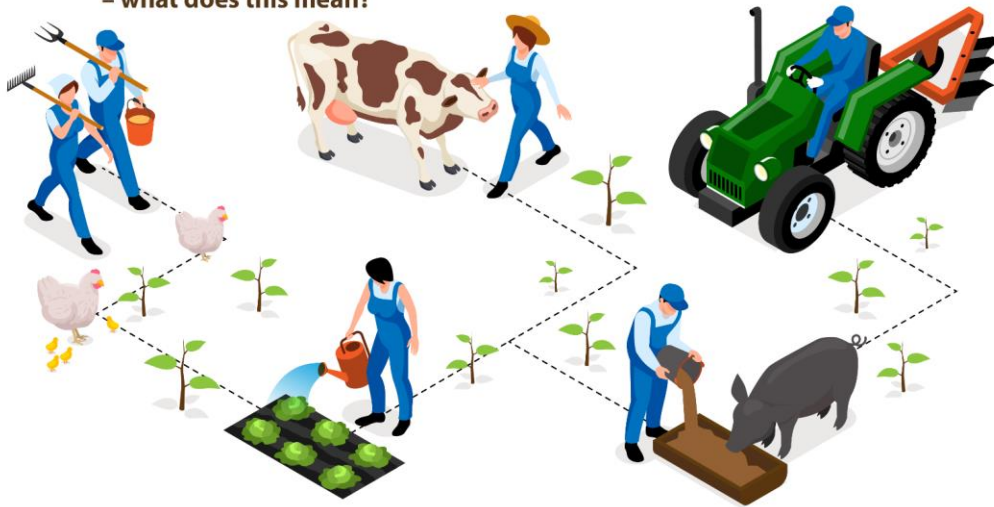


13th ATF Seminar

'Sustainable livestock systems' – what does this mean?

'SUSTAINABLE LIVESTOCK SYSTEMS'
– what does this mean?



What is being used in practice by farmers on GHG mitigation?

An example in the Netherlands

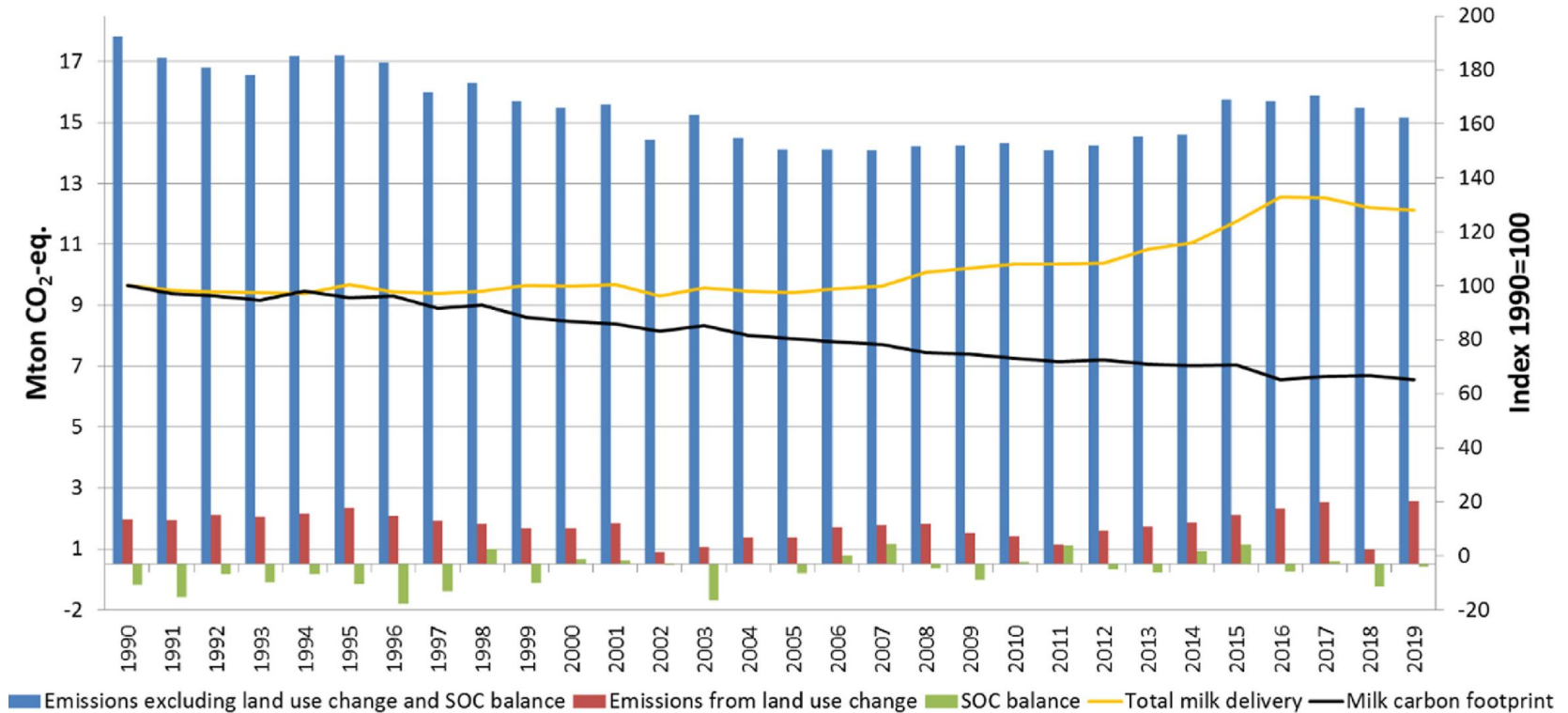
Marion de Vries, Theun Vellinga

Wageningen Livestock Research

Dutch climate targets

- National Climate Act
 - 55% reduction in 2030, 95% in 2050 (-> net zero)
- National Climate Agreement (2030)
 - Agriculture and land use: 3.5–6 Mton CO₂-eq. reduction
 - Dairy sector: 1.6 Mton CO₂-eq. reduction (0.8 Mton methane, 0.2 Mton soils, 0.6 Mton energy)
- National Methane Strategy: 30% CH₄ reduction in 2030
- Industry targets (LCA-based)
 - e.g. FrieslandCampina: 33% reduction in Scope 3 member farms
- Integral approach: nitrogen, water quality, biodiversity, soil quality

Trend in GHG emissions Dutch dairy sector (LCA)



What caused reduction in past 30 years?

Main factors influencing emission intensity:

- Increased milk and roughage yields
- Improved feed efficiency
- Less nitrogen application

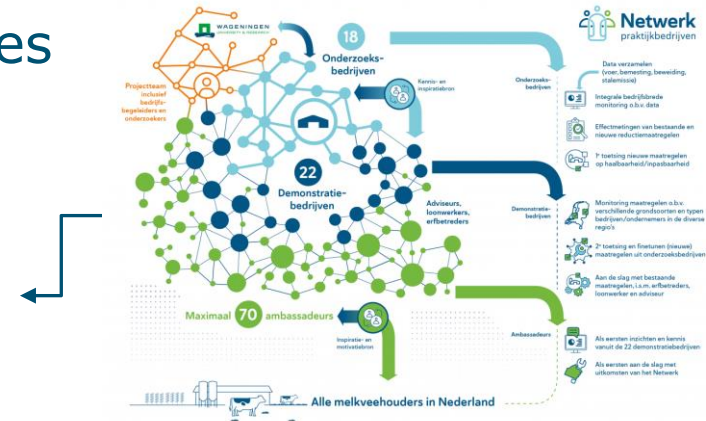


New incentives for GHG mitigation

- Privat sector milk premiums, e.g.:
 - based on milk carbon footprint (e.g. FrieslandCampina, CONO)
 - based on mitigation measures implemented (e.g. A-Ware)
- Communication/dissemination activities
- Participation in projects or networks



Target: 30% methane reduction



GHG mitigation options

Practice (high TRL), e.g.:

- Reduce crude protein, increase energy in feed ration
- Low-emission feed ingredients
- Reduce young stock
- Anaerobic digestion
- Increase grazing
- Grass clover
- Energy use and production



GHG mitigation options



Research/development, e.g.:

- Animal (genetic selection for low CH₄, microbiome)
- Feeding (feed additives, grazing strategies)
- Manure/stable (CH₄ oxidation, cooling slurry)
- Soils (land use, solutions for rewetting peat soils)

Monitoring: ANCA tool

- Farm-specific
- Integral environmental performance
 - Nutrient surplus (N and P)
 - Ammonia emission
 - GHG emissions
 - Other (e.g. home grown protein)
- Calculation rules (PEFCR)
- Quality of input data (automatic data collection)
- Used for financial rewarding in sustainability programs



nederlandse zuivel organisatie



Quantitative simulation tools

- Ex-ante calculation of GHG emission reduction
 - For farm-specific situation
 - Connected to ANCA or other GHG accounting tool
- 'Maatregelen tool' (WUR, FrieslandCampina)
- 'Mitigation Engine' (WUR, Unilever, Cono, Nestlé, Vreugdenhil)

Maatregelen

RANTSOEN ⓘ

- Aanpassen rantsoensamenstelling
- Aanpassen ruw eivik gehalten voedermiddelen
- Verhogen ruwvoerwaliteit
- Verlagen carbon footprint krachtvoer

RUWVOERTEELT ⓘ

- Andere methode dierlijke mest aanwending op grasland
- Andere methode dierlijke mest aanwending op maaisland
- Ander type kunstmest op grasland

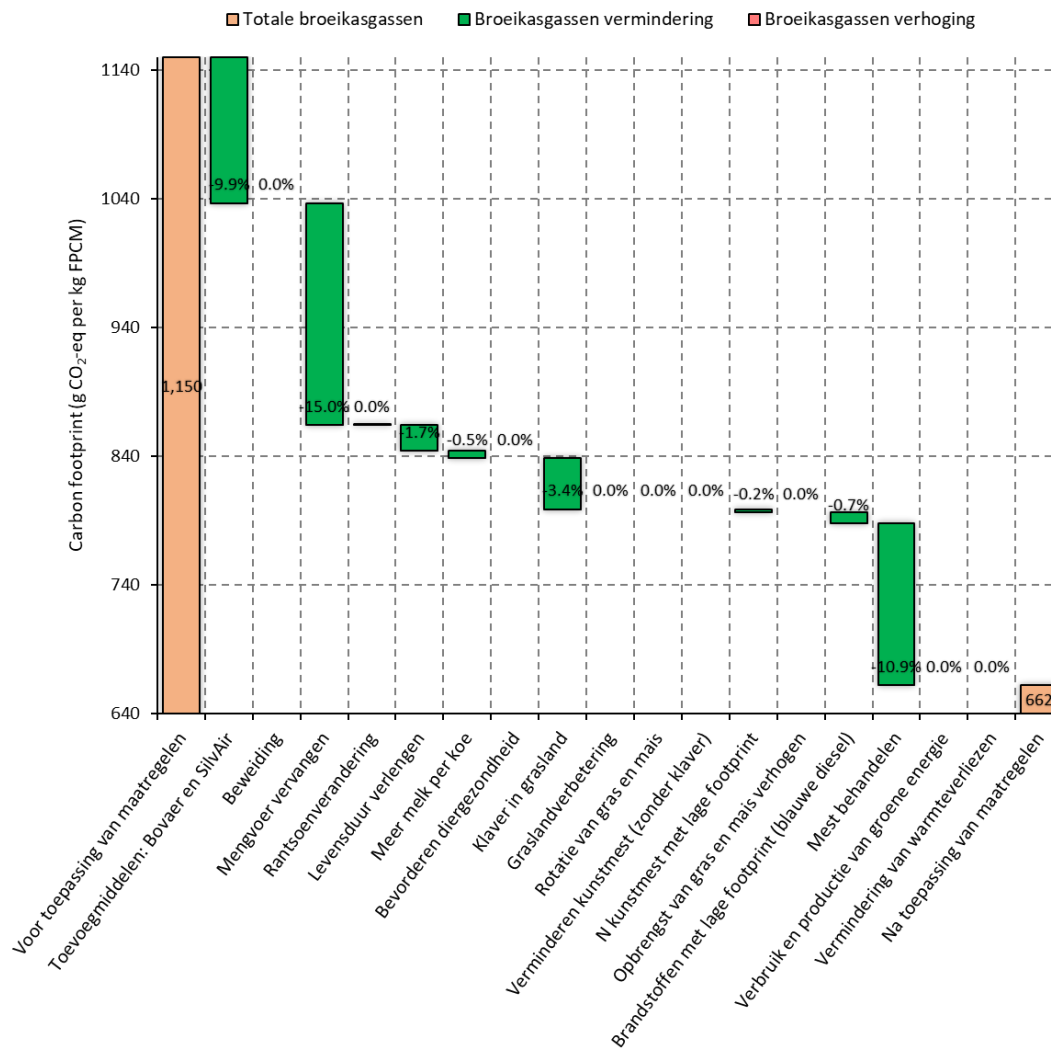
Resultaten

Bekijk kengetallen

Indicator	Huidige toeslag	Maximum toeslag
Broeikasgasuutstoot ⚠	€1.23	€1.50
Stikstofbodembalans	€0.04	€0.10
Ammoniakemissie	€0.10	€0.10
Eivik van eigen land	€0.01	€0.10
Blijvend grasland	€0.00	€0.10
Natuur en landschap		€0.10
Totaal per 100 kg melk	€1.38	€2.00

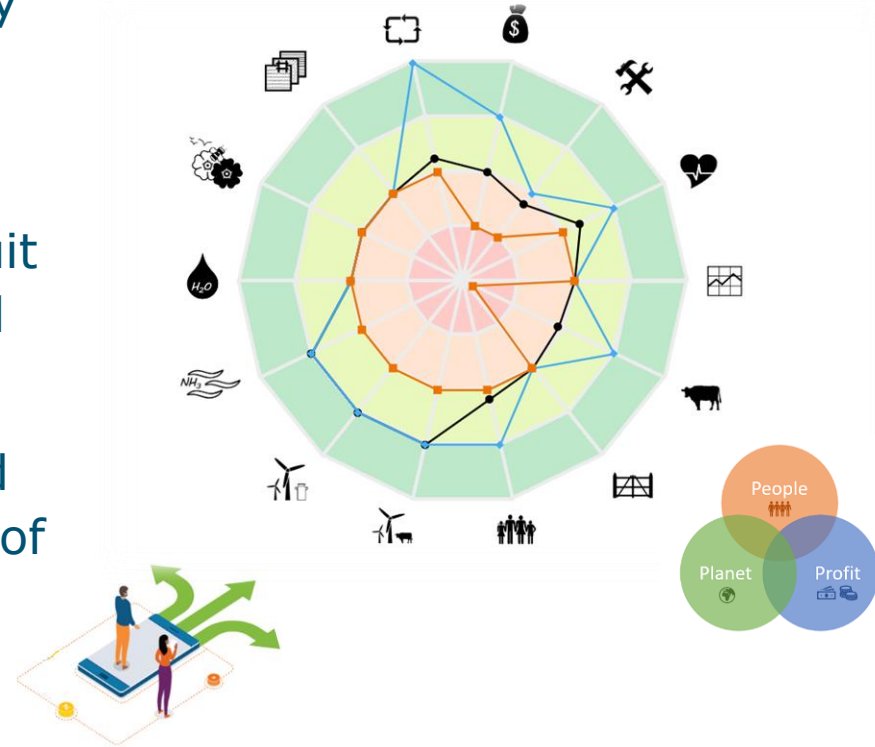
Bij 'Huidige toeslag' staat een fictieve toeslag weergegeven die zou zijn toegevoerd aan betreffende indicatoren binnen de systematiek van Focus planet Duurzame ontwikkeling 2023, op basis van uw ingeladen XML-bestand en de gekozen pakketten voor Natuur & Landschap. Door maatregelen toe te passen kunt u zien hoe die fictieve toeslag verandert, en daarmee een indicatie krijgen van wat een bepaalde maatregel (of set aan maatregelen) potentieel oplevert. De resultaten kunnen afwijken van wat u op melkweb ziet, omdat de Maatregelentool niet aan melkweb is gekoppeld. Bij bedrijven die op veengrond zitten wordt een omrekening gedaan voor de kengetallen broeikasgasuutstoot en stikstofbodembalans.

Example of output Mitigation Engine (Low Carbon Dairy project)



Decision support tool

- Challenge of *integral* sustainability improvement
1. Which sustainability measures suit my specific farming situation and strategy?
 2. What are potential trade-offs and synergies towards other aspects of sustainability?



Closing remarks

- Historical reduction achieved mostly through efficiency gains
- Additional reduction will require additional technical and management interventions (financial incentives)
- Importance of GHG accounting tools and decision support tools
- Importance of integral approach

Thank you!

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<https://clienfarms.eu/solutions/>

