



FrieslandCampina 



'Dairy in a circular economy'

October 2013

# Dutch Dairy: 45,000 jobs, EUR 700 mln investments and EUR 6 bn export



CEO Cees 't Hart and state secretary Sharon Dijksma

# Dutch Dairy: 45,000 jobs, EUR 700 mln investments and EUR 6 bn export



# Now a major global player in dairy..

-In top 40 of FMCG giants

-2nd dairy cooperative in the world

-5th processor of milk

-Annual sales between DSM en Heinz

(Approx. EUR 11 bn)

-Factories in 28 countries, sales in 100 countries



Source:



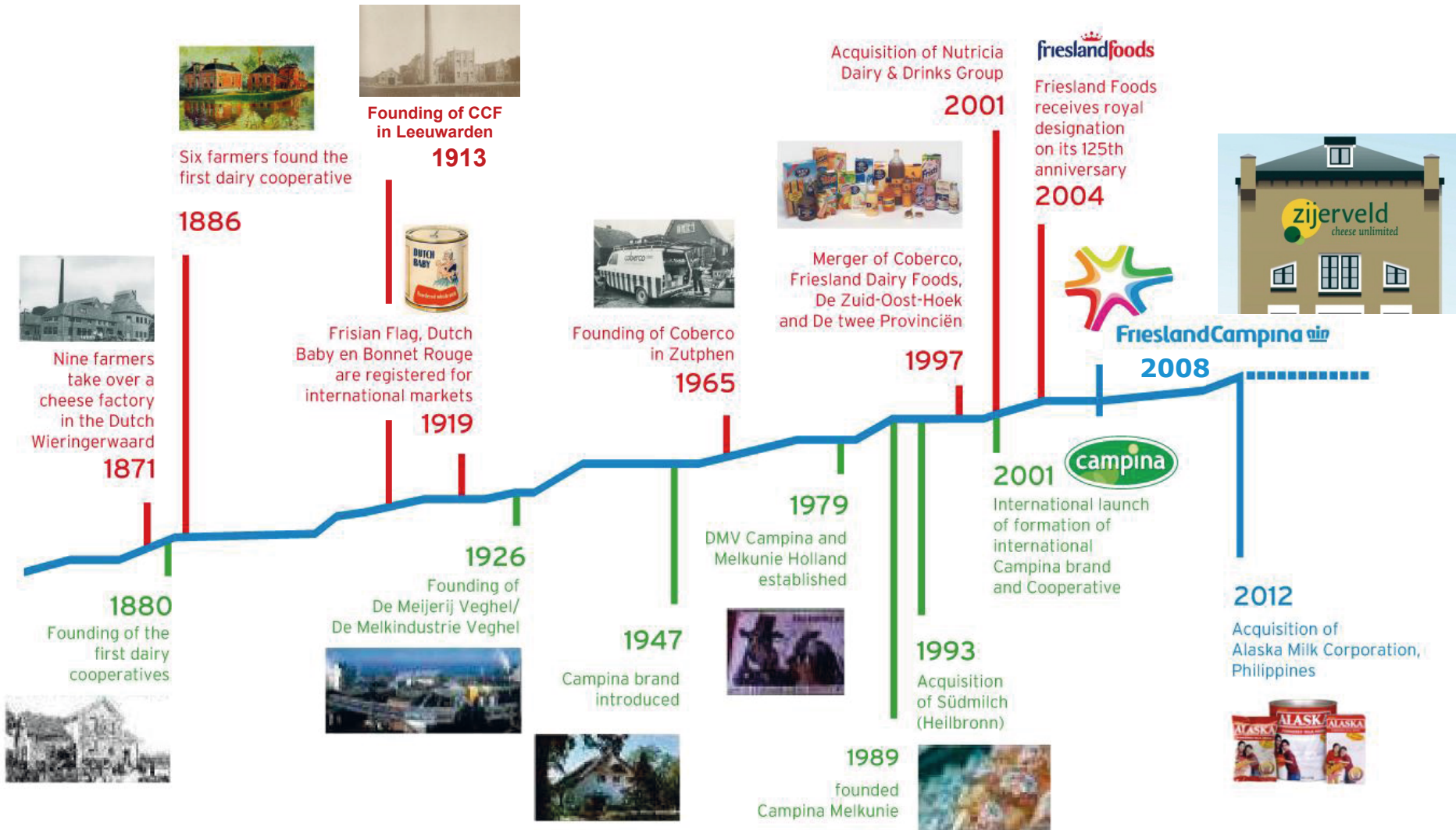
# Circle Economy and the change in the dairy supply chain



SUBMIT  
PROOF  
POINTS

- Land use for dairy & water availability in Netherlands
- Animal feed sources & optimal feed conversion
- Reduce and re-use minerals (phosphates)
- Manure processing to produce biogas & fuel (reduce GHG)
- Trend goes in the direction of 'sustainable diets'

# A dairy cooperative designed to last >140 years



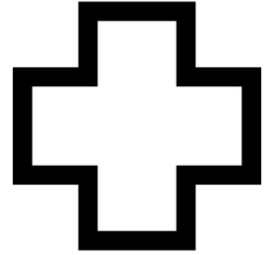
# A unique position throughout the dairy chain

- Rapid growth world population will have a major impact on the **availability of (nutritious) food** and raw materials
- Growing worldwide demand for sustainably produced, healthy food is presenting FrieslandCampina **opportunities**. We go for **climate neutral growth**
- Milk contains **essential nutrients**, such as proteins, fats, vitamins B2 and B12, and minerals (calcium)
- Pursuing a **responsible approach** to dairy farming and milk production in DNA of FrieslandCampina and member dairy farmers – **the continuity** of our cooperative counts! We have a history of approx. 150 years..



As one of the world's biggest dairy cooperatives and a global top-five dairy processor, FrieslandCampina is committed to reflecting its social added value throughout the chain

# USP's of dairy in NL: mild climate, European rivers delta and plenty of pasture land



**DAIRY**  
CAMPUS



 **WAGENINGENUR**  
*For quality of life*



# A remarkable product transition..



Proteins  
Minerals  
Vitamins  
Milk fat  
Bio-actives



Cows produce - very efficiently - highly nutritious foods  
from plant material  
that is **not digestable** by humans

# A remarkable transition..



Proteins  
Minerals  
Vitamins  
Milk fat  
Bio-actives



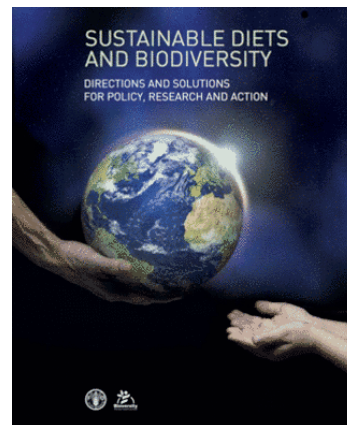
**Feed stock:** approx. **50%** grass; **30%** maize; **20%** concentrates (“krachtvoer”) from recycled residue from food industry (soy crushing; breweries, potato industry, sugar beet leaf, citrus juice producers, etc.)

# Healthy People & Healthy Planet route: 'sustainable diets'

**8 August 2012, Rome** - Immediate action to promote sustainable diets and food biodiversity so as to improve the health of humans and of the planet is urged in a book just published by [FAO](#) and [Bioversity International](#).

“Regardless of the many successes of agriculture in the last three decades, it is clear that food systems, and diets, are not sustainable,” says Barbara Burlingame, Principal Officer of FAO’s Nutrition and Consumer Protection Division, in a preface to the book, *[Sustainable Diets and Biodiversity](#)*.

“While over 900 million people in the world suffer from hunger, even more – about 1.5 billion – are overweight or obese, and an estimated two billion suffer from micronutrient malnutrition including vitamin A, iron, or iodine deficiency,” Burlingame notes.

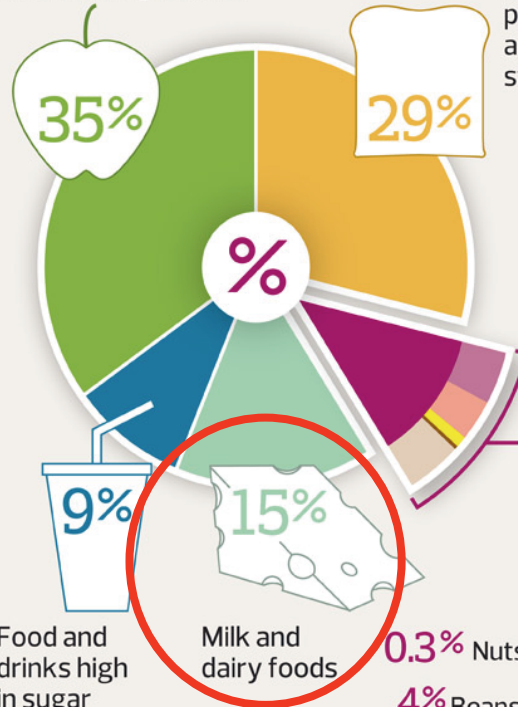


# What is the optimal food balance between nutrients and environmental footprint?



## THE LIVEWELL 2020 DIET

Fruit and vegetables

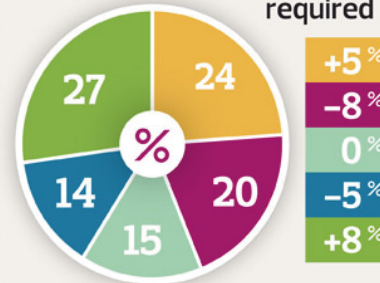


Bread, rice, potato, pasta and other starchy foods

## THE CURRENT UK DIET

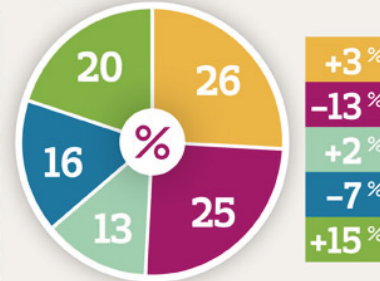
Our present eating habits and how they will need to change if we are to adopt the Livewell diet

Women



Change required

Men



## THE CLIMATE IMPACT

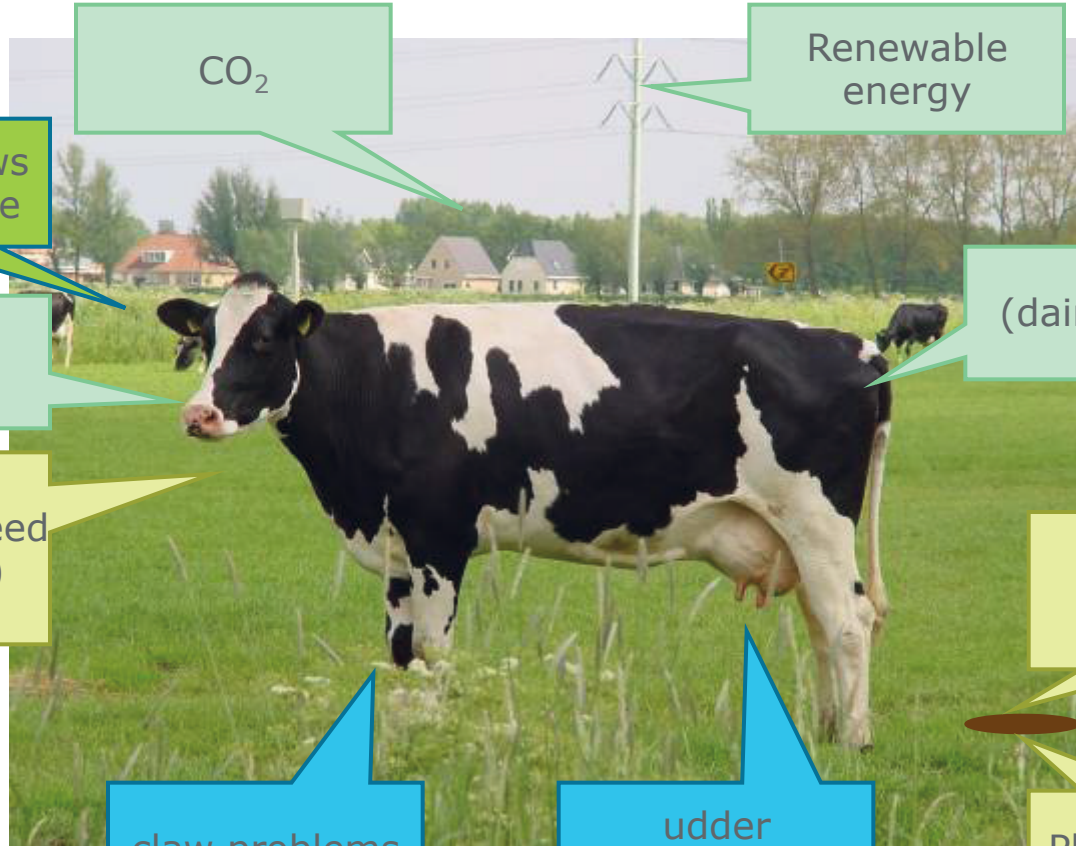
The relative contribution of different food groups to greenhouse gas emissions



SOURCE: WWF



# HOWEVER: Key sustainability issues at the farm



CO<sub>2</sub>

Renewable energy

>20% of cows never outside

Methane

Methane (dairy: 4% global warming)

Sustainable feed (soy usage)

Ammonia

claw problems

udder problems

Phosphate and Nitrogen

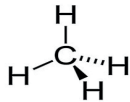
Impact on water quality

- Energy and climate
- Cow is key
- Biodiversity
- Outdoor grazing

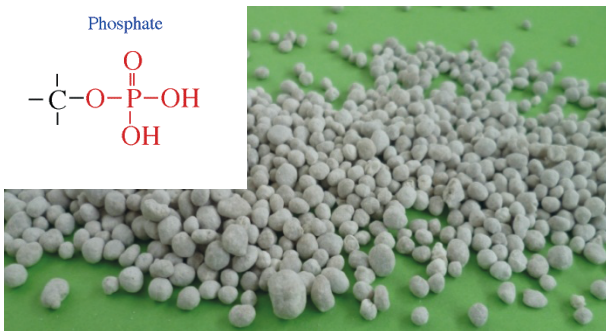
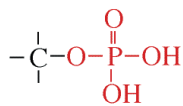
The most pressing sustainability issue on the dairy farm are:  
 1) green house gas emissions 2) animal welfare 3) sustainable soy, 4) mineral balance (manure) 5) ammonia

# What we have to tackle in the NL:

METHANE

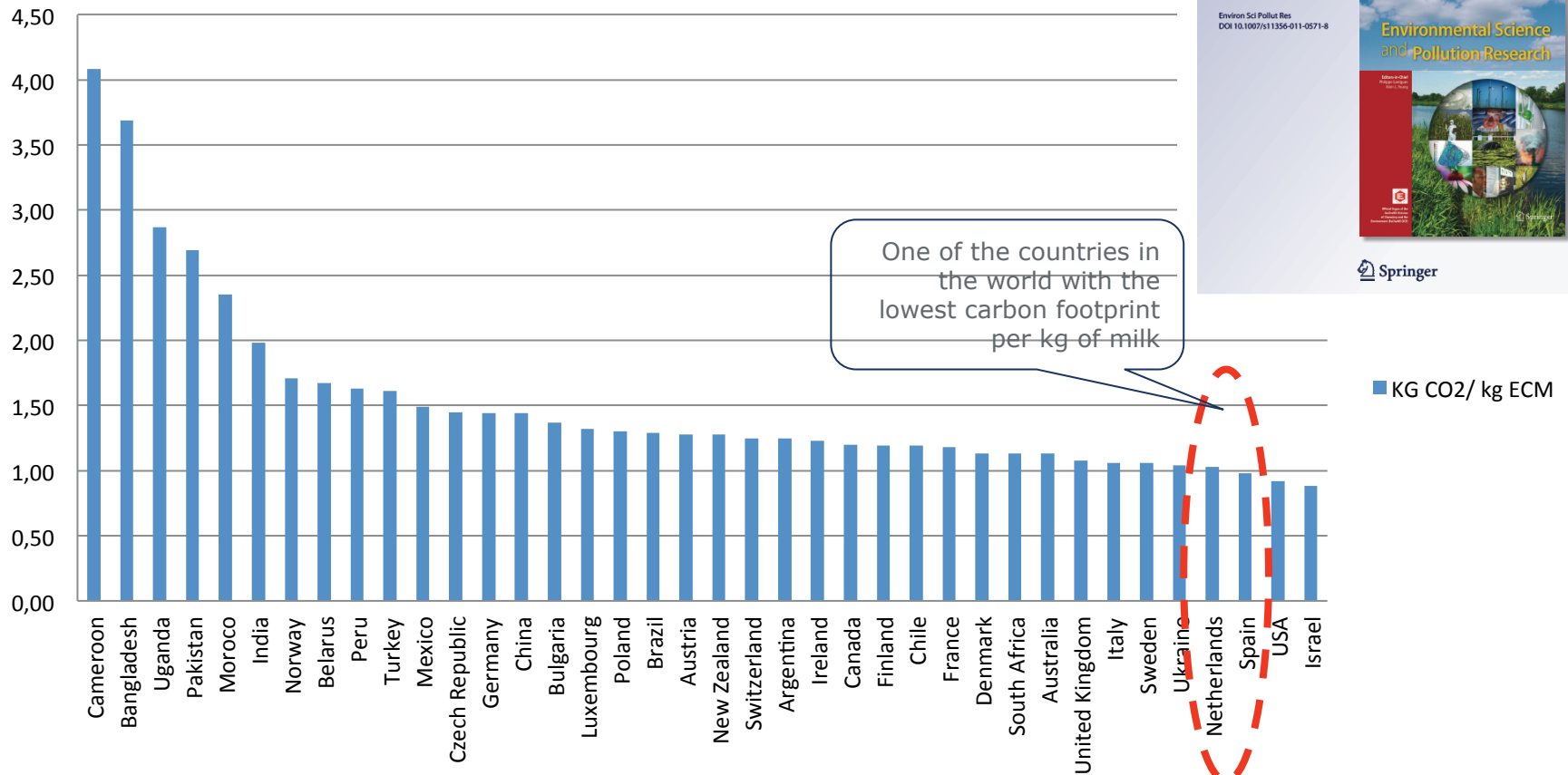


Phosphate



- **Climate neutral growth**
- **30% less GHG** 2020 (1990 benchmark)
- Use of **renewable energy** from our farms by OpCo's in the Netherlands
- Processing **8.5 million tonnes** of manure from COWS
- Reduce & Re-use phosphate (N and K)
- Take out **22 mln kg P** from our sector 50% by efficiency improvement ('Kringloopwijzer') and 50% by manure processing, refining and digestion/fermentation

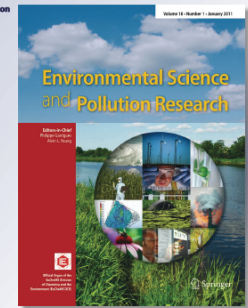
## KG CO<sub>2</sub>/ kg ECM (4% fat; 3.3% protein)



*Contribution of milk production to global greenhouse gas emissions*

**Martin Hagemann, Asaah Ndambi,  
Torsten Hemme & Uwe Latacz-Lohmann**

Environmental Science and Pollution Research  
ISSN 0944-1344  
Environ Sci Pollut Res  
DOI 10.1007/s11356-011-0571-8



Springer

# Key elements of the sustainability program of FrieslandCampina

There is a fundamental need in the world for nutritious foods. Dairy is one of the most nutrient-dense foods. As an international dairy leader we aspire to demonstrate our commitment to responsible production and leadership in the CSR domain by providing:





# FrieslandCampina trucks in Leeuwarden switch to green gas

April 8, 2013

## **FrieslandCampina trucks in Leeuwarden switch to green gas**

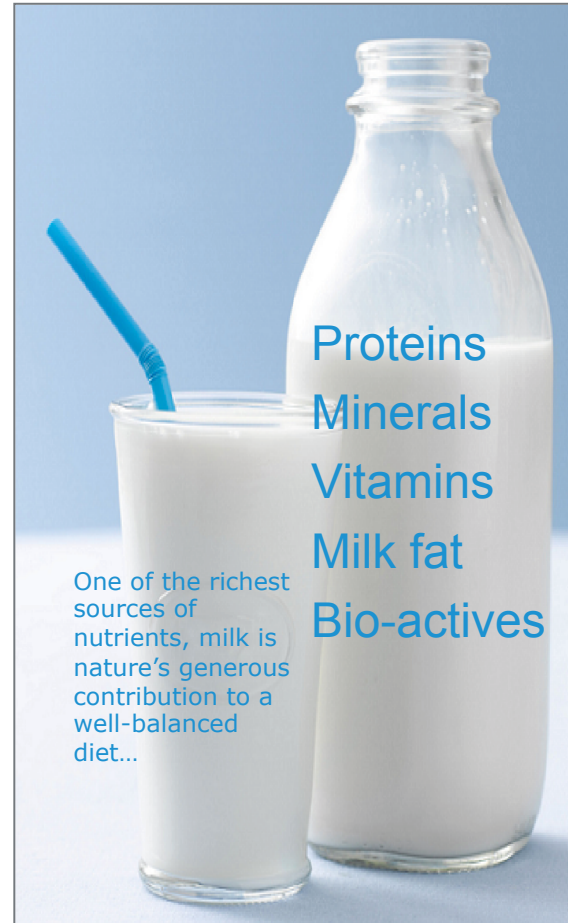
Leeuwarden, the Netherlands - At the end of this month, trucks that transport products from the production location to the container port in Leeuwarden will start the switch from diesel to green gas.

The conversion will lead to a substantial 80% decrease in CO2 emissions. And the much quieter engines will mean a substantial decrease in noise nuisance. Each year, FrieslandCampina trucks clock some 200,000 transport km's between the factory and the container port in Leeuwarden.

The company is growing, and doing so in a climate-neutral way.

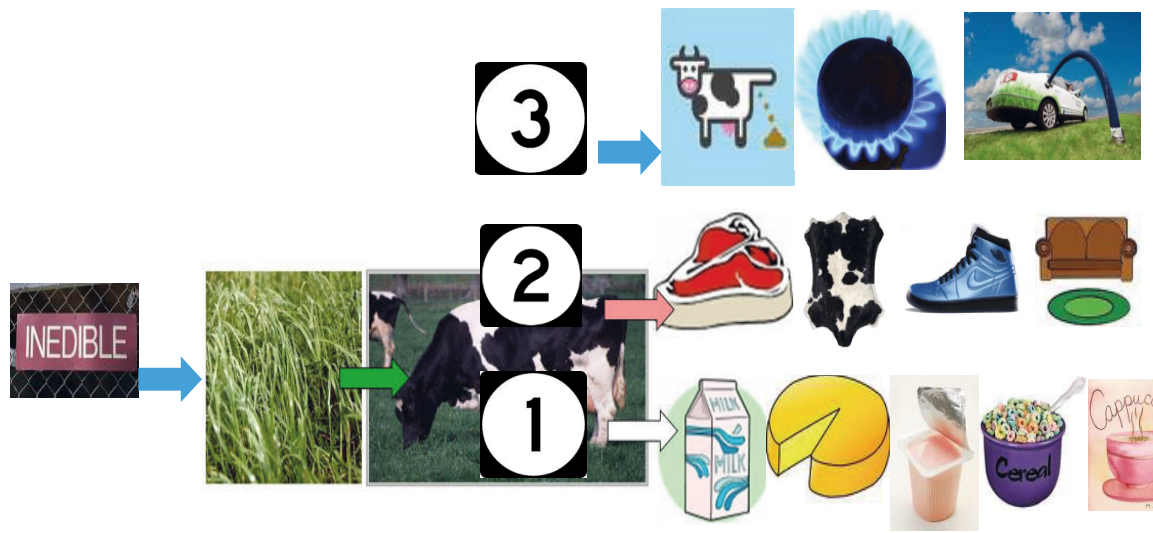


# Are we moving into the next phase of added value creation by dairy cows?



Proteins  
Minerals  
Vitamins  
Milk fat  
Bio-actives

One of the richest sources of nutrients, milk is nature's generous contribution to a well-balanced diet...



# Dairy: moving closer to circular economy and sustainable diets??



**SUBMIT  
PROOF  
POINTS**

- Ideal natural circumstances for 'state of the art' dairy farming in NL (water, soil, mild climate) plus unique knowledge base (WUR)
- Animal feed sources & optimal feed (grass diet) conversion
- Re-use of minerals (phosphates); reduction of CO<sub>2</sub>
- Manure processing to produce biogas, truck fuel and fertilizer
- Dairy made part of sustainable diet proposition

# The ultimate goal...realizing our dream

- Green energy from the farm
- 60 > 100% green power from farms to 35 factories in NL
- Manure as source of energy
- To power processing plants
- Have biogas as truck fuel
- Zero water dairy factories (re-use water from milk)

