Global perspectives for climate smart cattle farming and breeding

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For quality of life

What I want to tell you

- The world need more cattle
- Cattle with a short shadow
- Cattle because of their rumen
- Feed and treat the genes
- Adapt to the societal challenges
- Not by breeding alone
- In a broad and global cooperation

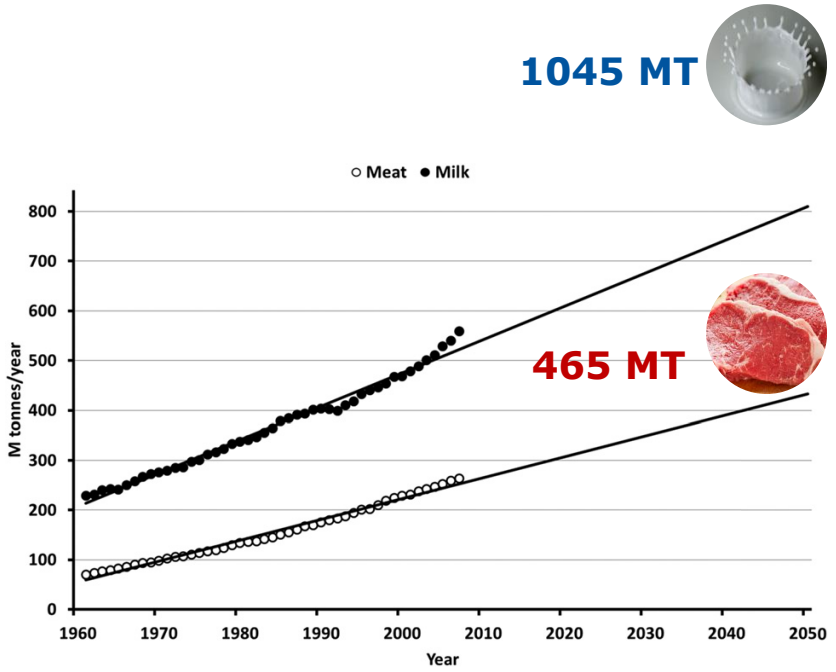
Acknowledgements

Global Nutrition Security

Healthy food and nutrition
for 9 billion people in 2050
within the capacity of our planet

Why the world need cattle

- Animal proteins are needed for Nutritional Food Security
- Ruminants covert raw biomass (feed) into nutritious meat and milk
- More people can afford to consume cattle proteins



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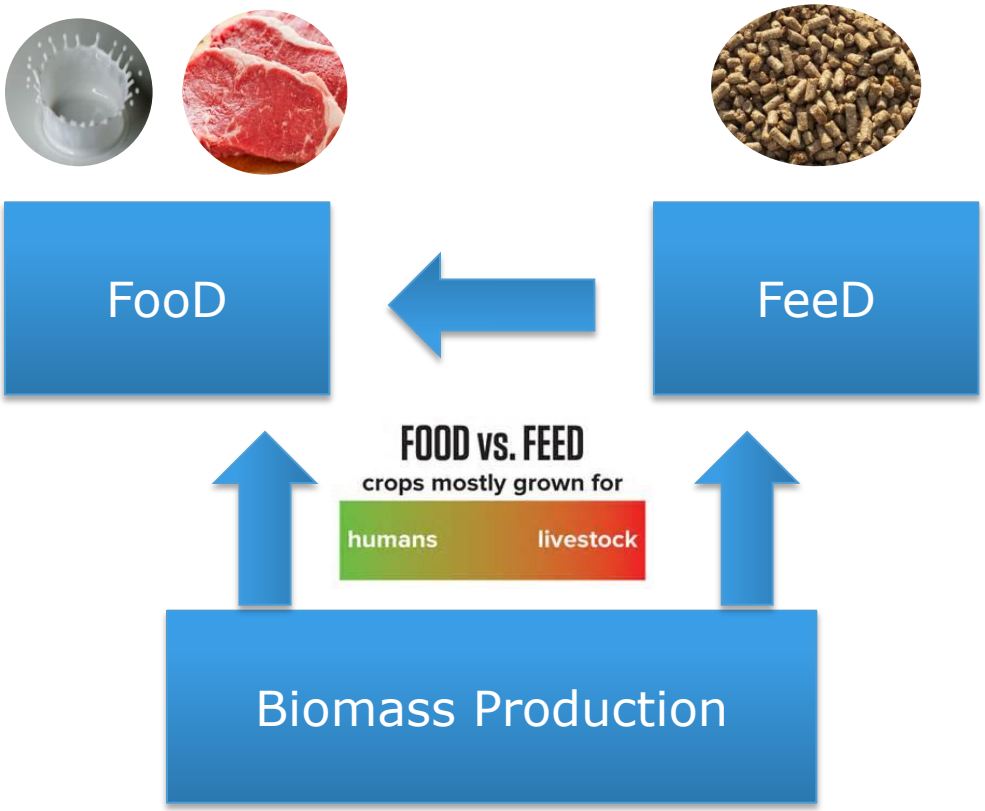
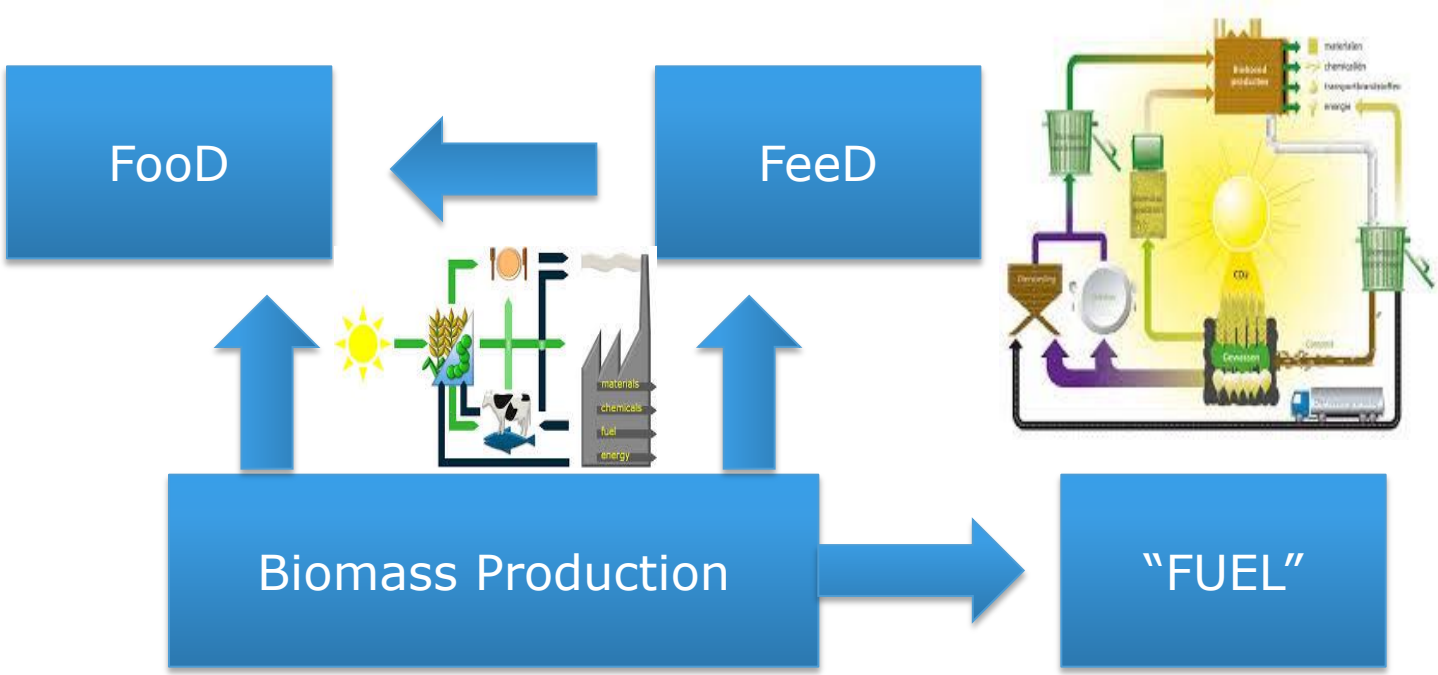
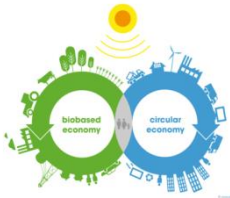
1. An Agrofood Economy: Production of "Proteins"



2. A Biobased Economy: Production of "Fuels"



3. A Circular Biomass-based Economy: the "Nexus"



FeeD

FooD

Biomass Production

"FUEL"

Why cattle are gold

- Coverts biomass in nutritious and appreciated food
- Contributes to optimal use of produced biomass in a circular economy
- Serves the (agro)ecosystem functions
- Adaptive to global diversity

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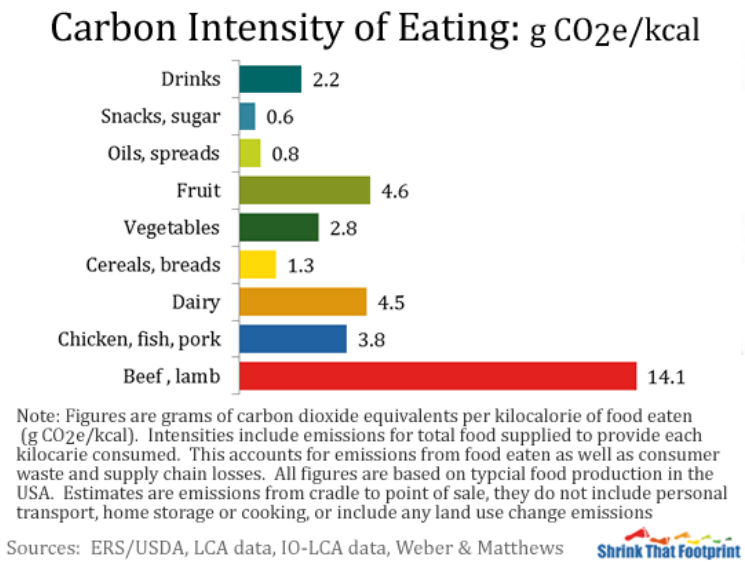
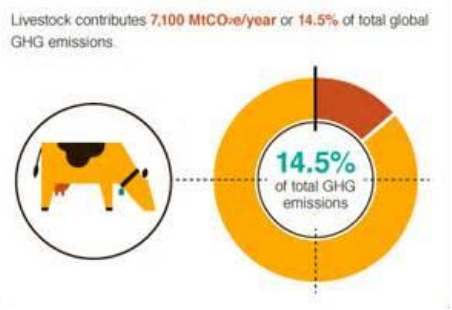
Johan Cruyff's famous wise words

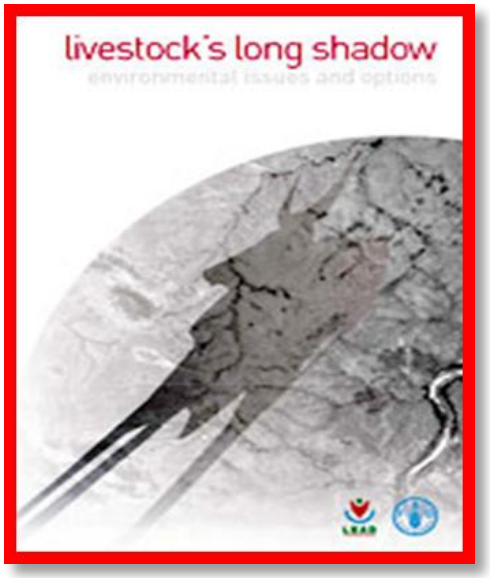
"Elk voordeel heb ze nadeel"

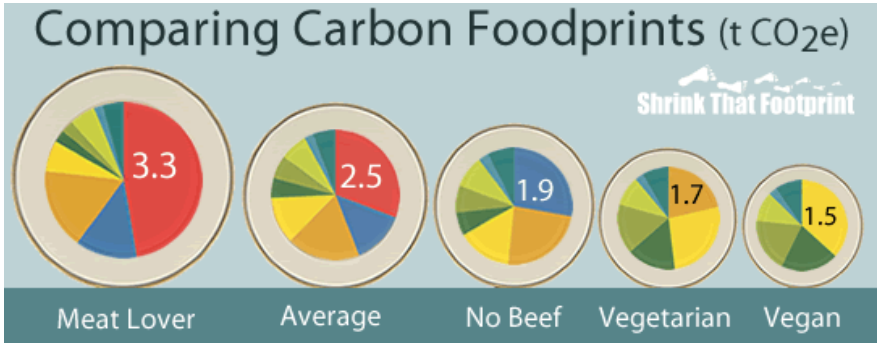
"Every advantage has a disadvantage"

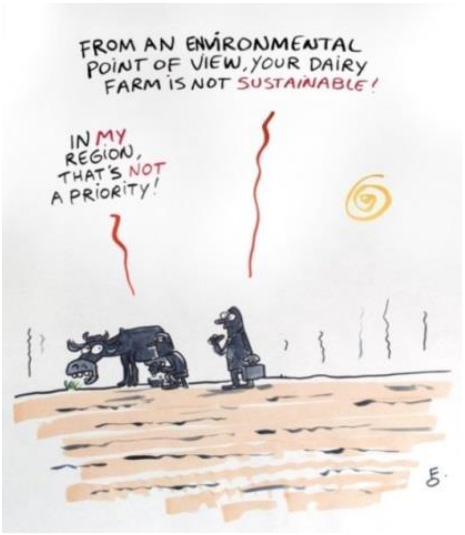
Why cattle are accused











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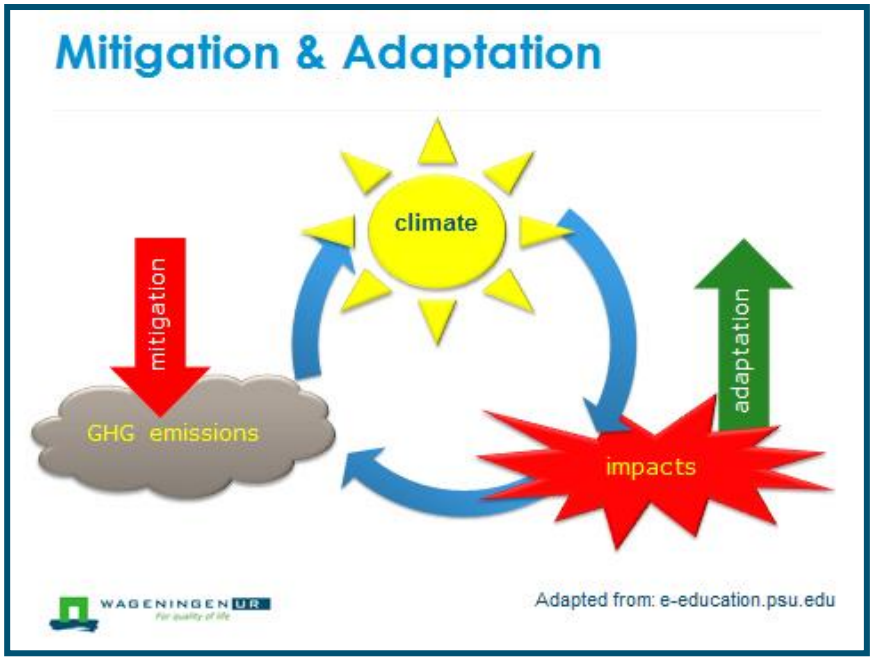
Myth busters needed

- Summing up LCA's single products in a Linear Model
- Do not account for integration in a Global Agro-Ecosystem
- Ignores the variation in Feed for Food Footprint
- Do not envisage optimal land use for human edible protein production

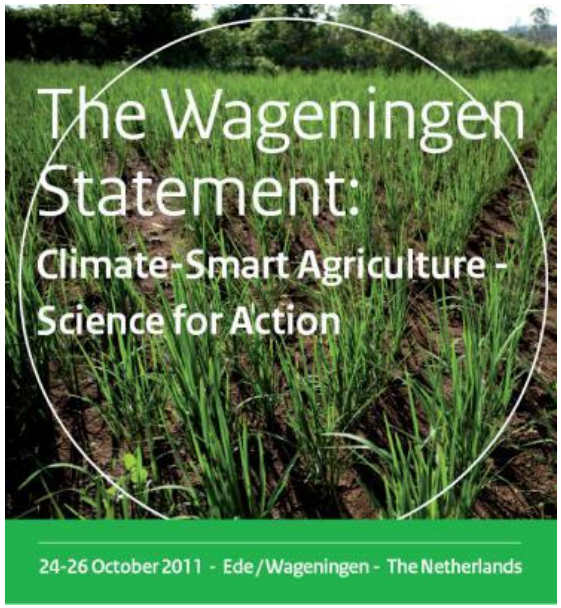
Climate Smart Cattle

FACCEJPI



GLOBAL AGENDA FOR SUSTAINABLE LIVESTOCK

CGIAR RESEARCH PROGRAM ON Climate Change, Agriculture and Food Security CCAFS



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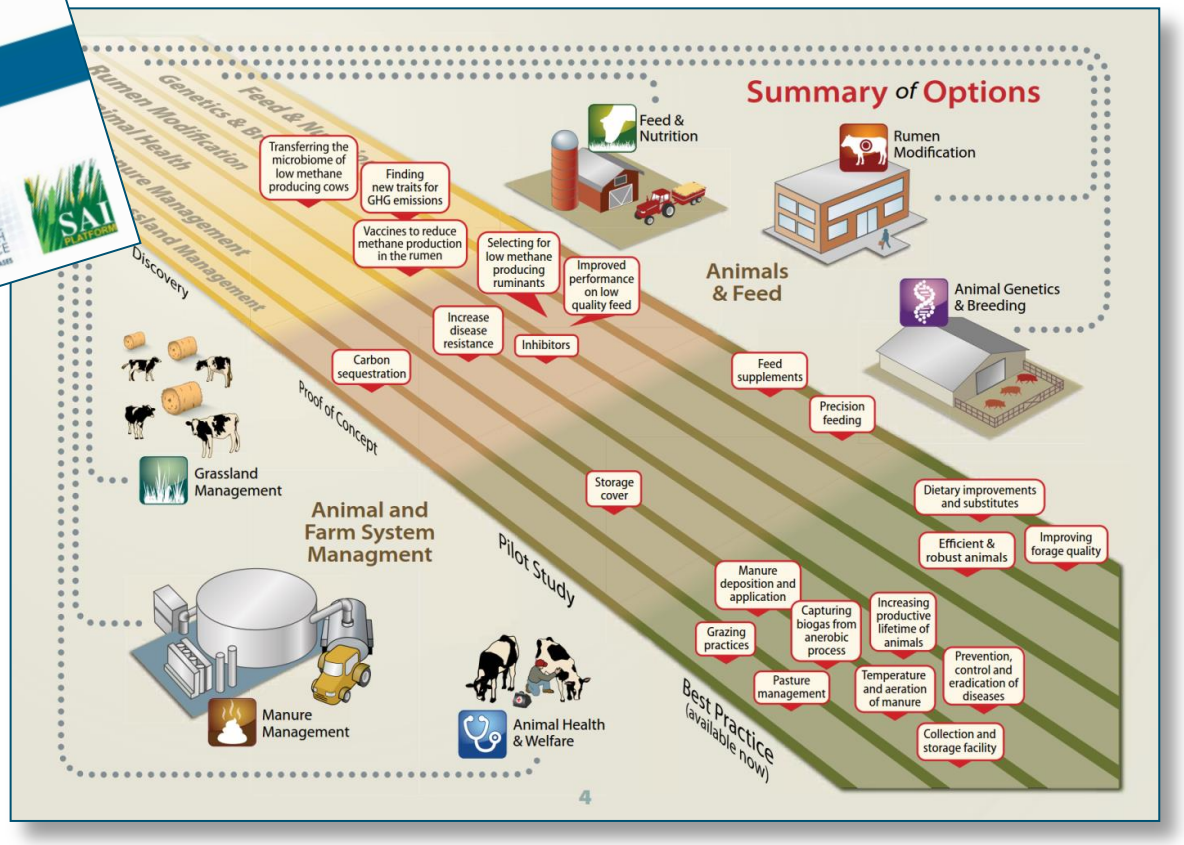
Mitigation Perspectives



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Mitigation Perspectives

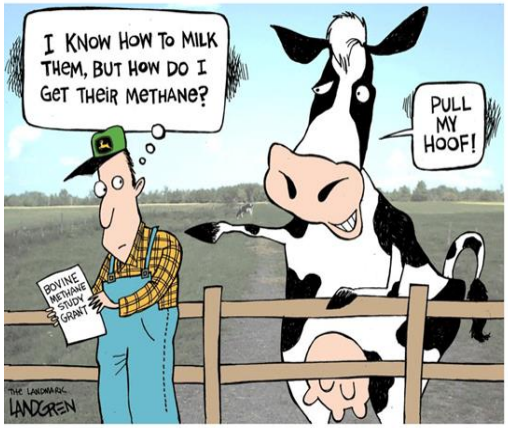
Perspective:
40+% methane reduction

- Genotyping low methane production for selection
- Improving feed quality and digestibility, rumen microbes
- Improving animal health and husbandry conditions
- Manure management: collection, storage and utilisation
- Improving C sequestration soils
- Precision Livestock Farming

Adaptation Perspectives

- **Use Biodiversity:** More adaptive breeds with traits from local breeds

METHAGENE



- **Use Rumen Potential:** mobilize proteins from alternative, regional feed-stocks

RUMINOMICS

RMG NETWORK
RUMEN MICROBIAL GENOMICS NETWORK



Feed4 Foodure

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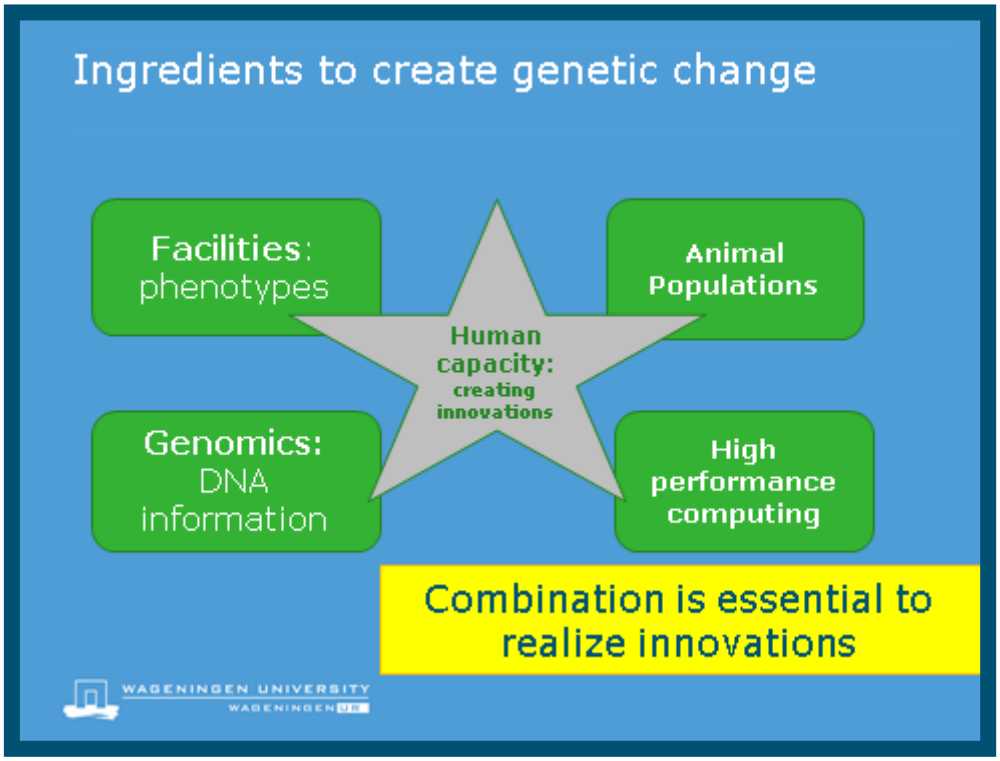
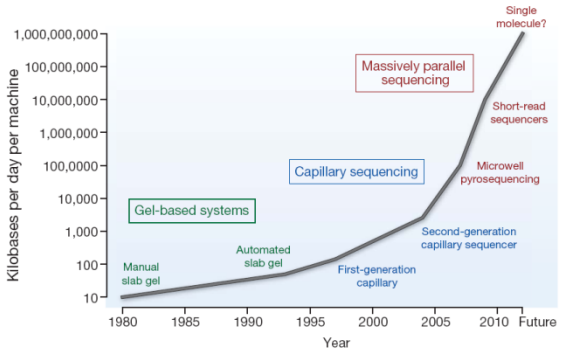
More Breeding Perspectives



- Gene Editing
- Reporter Genes
- Infectivity Genes
- Trans-genese
- Cis-genese
- **Epi-genetics**



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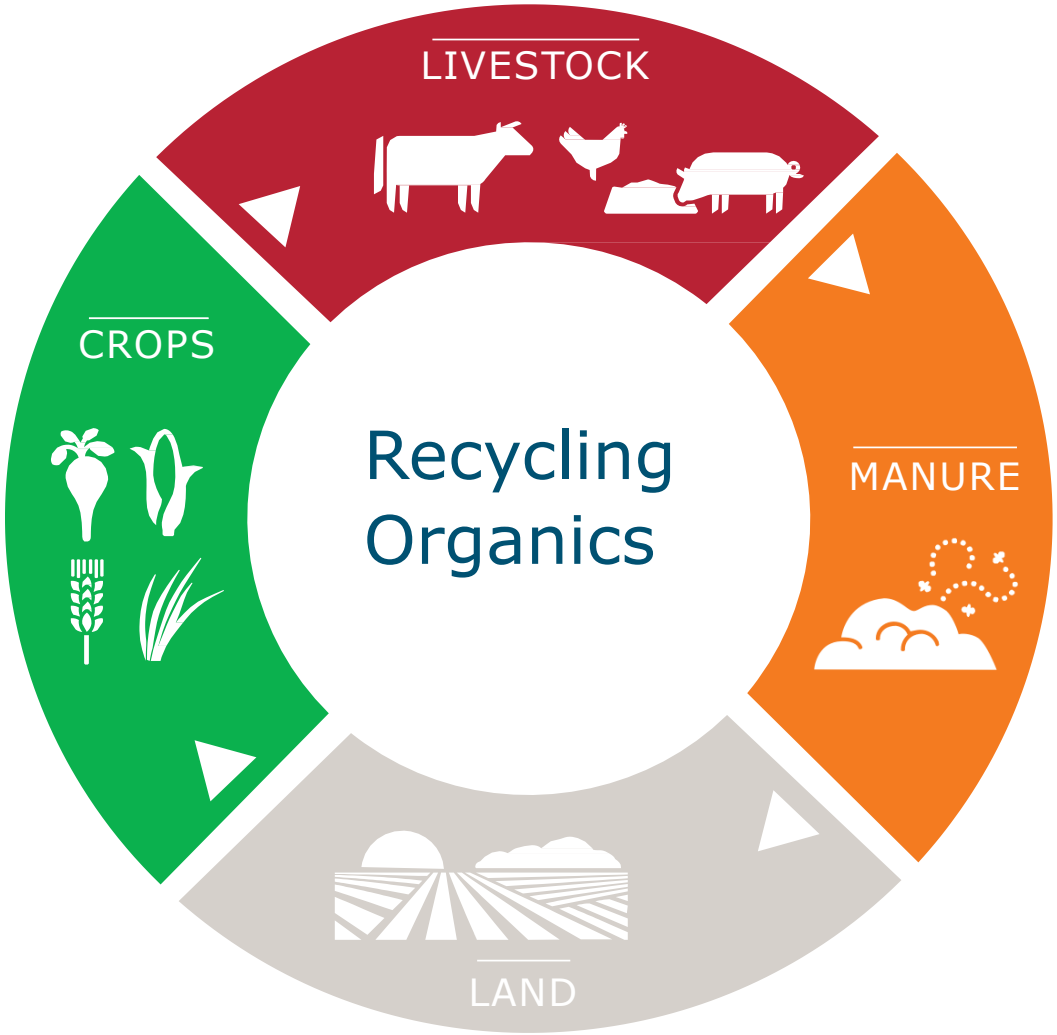
Integrated Approach: 1. Agro-Ecological

KRINGLOOP WIJZER



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Integrated Approach: 2. Complete Care

M.C.Th. Scholten, I.J.M. de Boer, B. Gremmen, C. Lokhorst; Livestock Farming with Care: towards sustainable production of animal-source food
NJAS - Wageningen Journal of Life Sciences, Volume 66, November 2013, Pages 3–5

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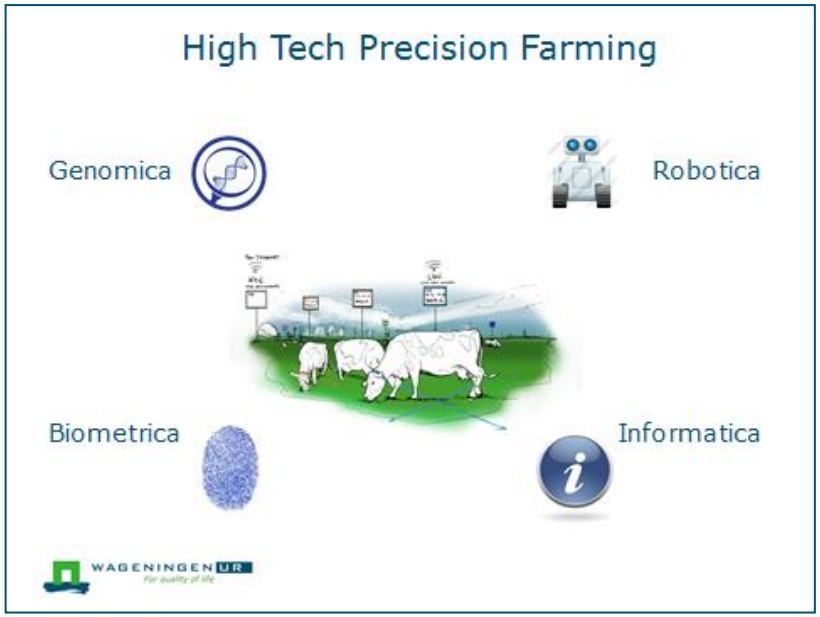
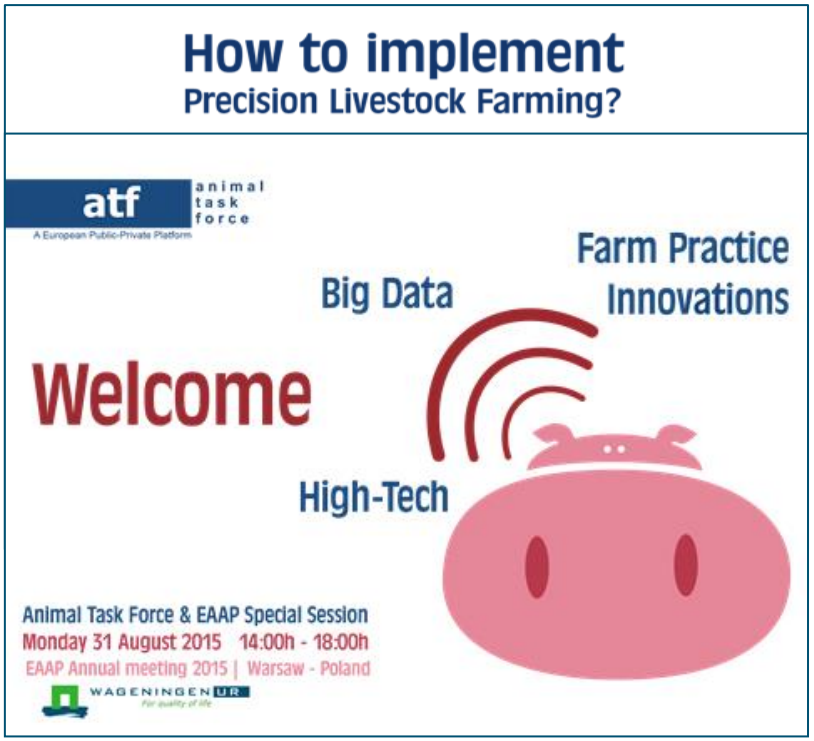
Integrated Approach: 3. Smart Farming





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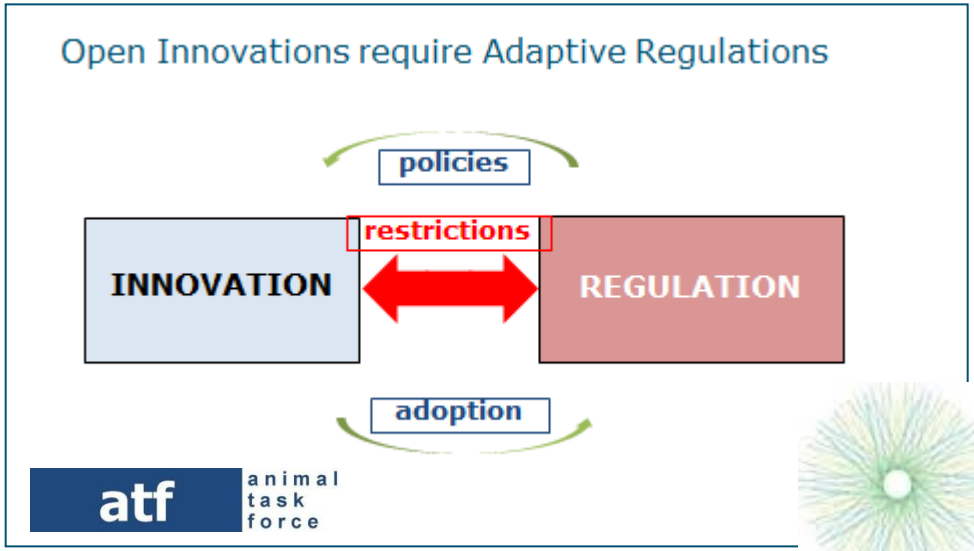
Integrated Approach: 4. Open Innovation

Koeien & Kansen



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eip-agri

Integrated Approach: 5. Global Scope

In summary: What I have told you, ... is for discussion:

- The world need more cattle
- Cattle with a short shadow
- Cattle because of their rumen
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- Adapt to the societal challenges
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SHORTLY

Foster the Cattle to Feed the World

within the capacity of planet earth

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Thanks!

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