

GLOBAL
RESEARCH
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ON AGRICULTURAL GREENHOUSE GASES

Climate Smart Circular Food Systems

Martin C.Th. Scholten



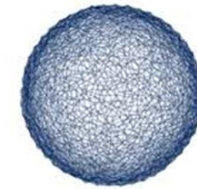
Terms of Reference for GRA

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- brings countries together to find ways to grow more food with lower emissions
- by improving global cooperation in research
- to support farmers, policies and other international organizations

2011



COP15
COPENHAGEN
UN CLIMATE CHANGE CONFERENCE 2009



PARIS2015
UN CLIMATE CHANGE CONFERENCE
COP21•CMP11

AT A GLANCE

58
member
countries



20 partner
organisations



Over **3000** scientists
involved in activities of the GRA

72 international
collaborative projects
supporting the GRA



117 fellowships awarded to
recipients from **36** countries



4 Research
Groups



Paddy Rice
Research
Group



Livestock
Research
Group



Croplands
Research
Group



Integrative
Research
Group



17 Science
Networks



40 technical training
workshops held



23 technical guidelines,
resource materials and
databases produced



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@GRA_GHG

Sept 2019



Task Force to Develop a Flagship Proposal on Circular Food Systems (CFS)

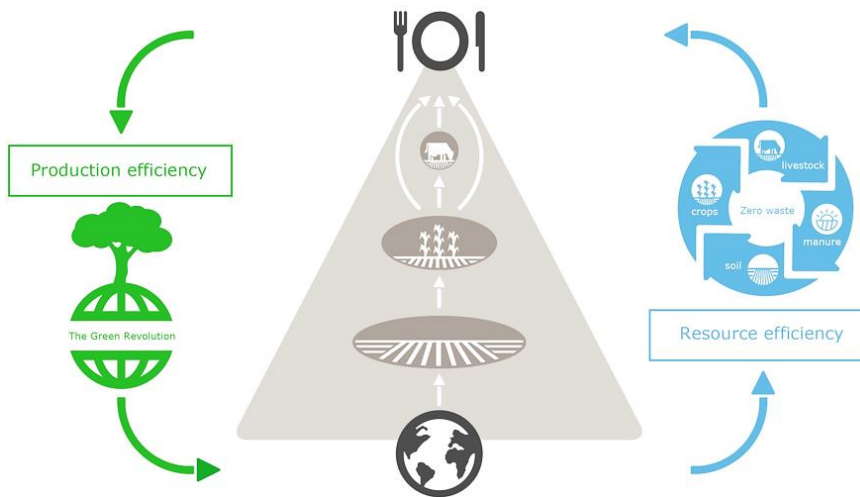
- to improve food security with lower GHG emissions by circularity across the entire agri-food system with an economy on by/co-products
 - Identify divers concepts, best practices and evidences for potential to reduce GHG at various scales
 - Identify R&D topics to transfer concepts to the practice in showcases
 - Developing a strategy to accelerate a transition towards circularity
 - Review progress and scope in Council meeting 2019 (Bali)

Food Security connected to Resource Security

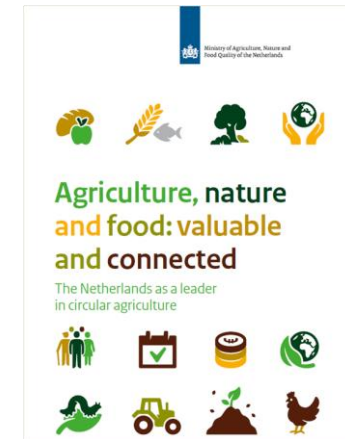
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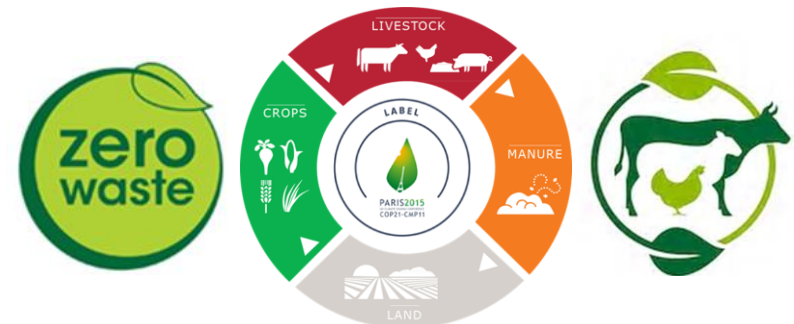
FOOD SECURITY



RESOURCE SECURITY



- Optimized use natural & renewable resource
- No waste of produced biomass
- Valorisation of residual biomass as coproducts
- Interconnected integration within foodsystem



Direct Mitigation Options Livestock: Methane focussed

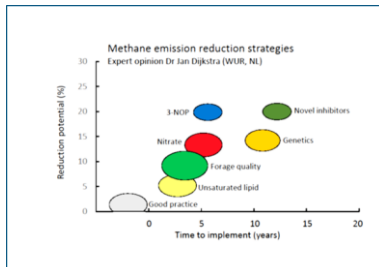
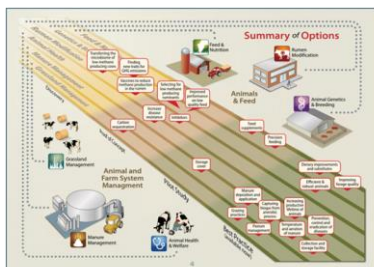
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> 50% reduction

- 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
- Precision Livestock Farming



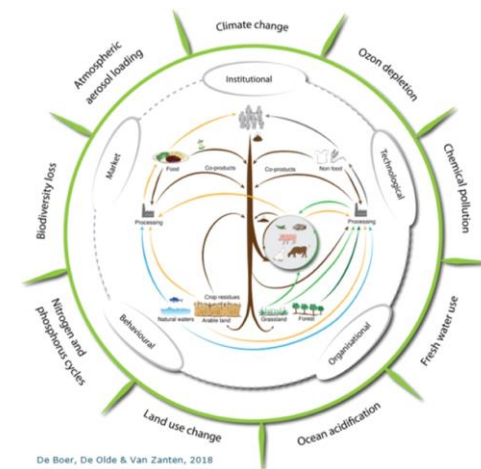
Indirect Mitigation Options Food System: Carbon focussed

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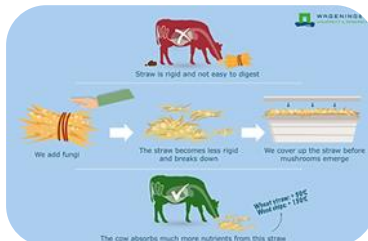
ON AGRICULTURAL GREENHOUSE GASES

- Better agricultural land use
- More efficient use of food crops (including residuals), grass and other marginal crops
- Less specific feed production
- Low emission husbandry management
- Smart use of manure for biobased organic fertilizing
- More carbon sequestration in soils and biomass

+ 40% reduction



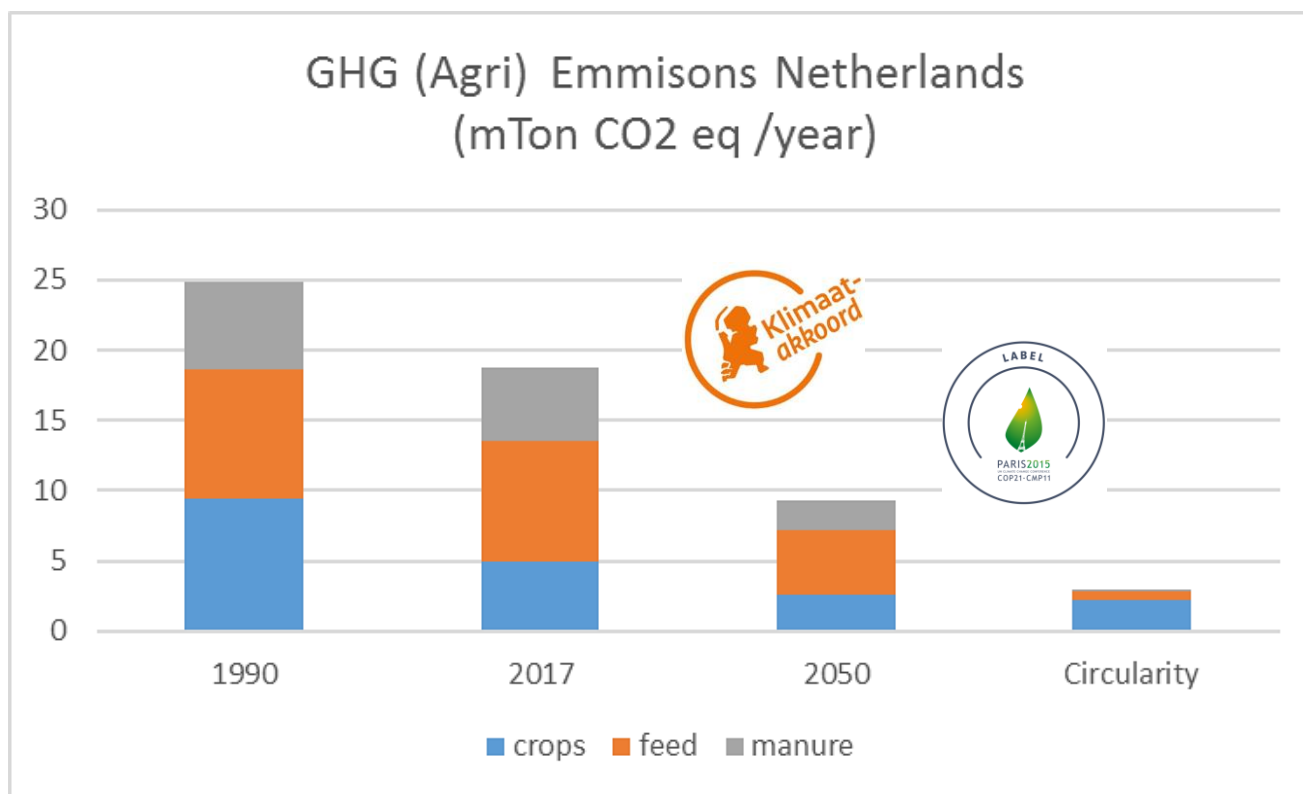
De Boer, De Olde & Van Zanten, 2018



Climate Mitigation by Circularity

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GRA Country Stock Take regarding CFS

The concept of CFS is generally recognised, but often hidden under “circular biobased economy”

- Some countries have clear action plans for CFS
- Few recognise CFS as the core of the future for their agriculture
- Focus: minimize use of resource, no waste, all biomass used and reused, lowest emissions

Promoted by all countries in response:

- to address resource scarcity
- to reduce waste of by-products
- to address depletion of soil fertility
- to optimize the use of lands for food production
- to address climate change

Research topics:

- use of residual by-products and food waste in feed production
- development of higher value organic fertilizers
- improvement of soil quality, health and fertility
- green energy production

Role of Governments:

- appropriate policies, regulations and legislations
- stakeholder engagement

Next Steps to follow

1. Programme Outline ("white paper") based on Inventory and considering past discussions with CGIAR and FAO to be presented at GRA Council 2019
2. Extend and Enforce the Task Force, linked to GRA (RGs) and partners (a coalition of the willing)
3. Roadshow to collect Commitment and Support by various Countries, Organizations and Funds (fund raising)
4. Recruitment of a Community of Experts, linked to GRA networks
5. Organizing a Kick-Off Seminar, linked to a global conference organized by GRA or partner
6. Arranging and running a kind of Global Flagship Programme, with shared and joint projects



RESEARCH PROGRAM ON
**Climate Change,
Agriculture and
Food Security**



**Food and Agriculture
Organization of the
United Nations**



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We are open for all your support !