FarmersandClimate.nl – a farmers network to reduce GHG emissions from farming

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Background

- Greenhouse gas emissions (GHG) are a serious and worldwide problem
- Agriculture contributes substantially to these emissions, in particular with respect to methane and nitrous oxides.
- Mitigation is crucial and urgent (reduction of emissions)

Objective network

- Accelerate and facilitate development of farms in practice towards energy-neutral and climate-neutral farming, reducing the CO_2-footprint (see below)
- Support and stimulate innovation (R&D, see figure and 4 tracks)
- Create portfolio methods and strategies, ready for dissemination and communication
- Explore options and possibilities climate-friendly agriculture

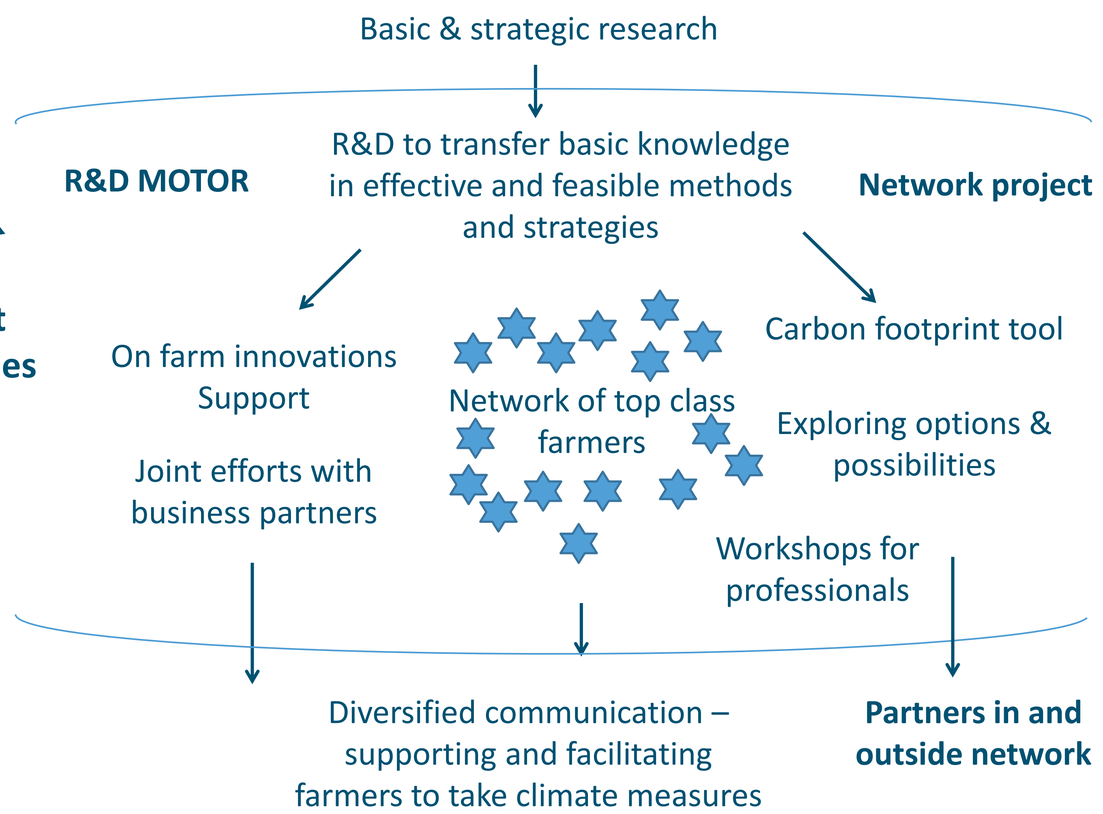
4 track approach (with key focus)

1. Reduction energy use (direct and indirect) & production of sustainable energy
   - energy use in stables, storage, gasoil use in cultivation and cropping,
   - energy from wind, sun, biomass, (ground source) heat pumps, fermentation etc.
2. Reduction emissions methane and nitrous oxides
   - stable construction and manure handling (animal husbandry)
   - soil management and fertilization (arable crops)
3. Reduction of off farm inputs – emissions
   - optimizing use of external inputs notably fertilizers
   - smart fodder composition and origin (region)
4. CO_2 sequestration in soils and long cyclic (>50 years) biomass
   - optimizing organic matter - and soil management

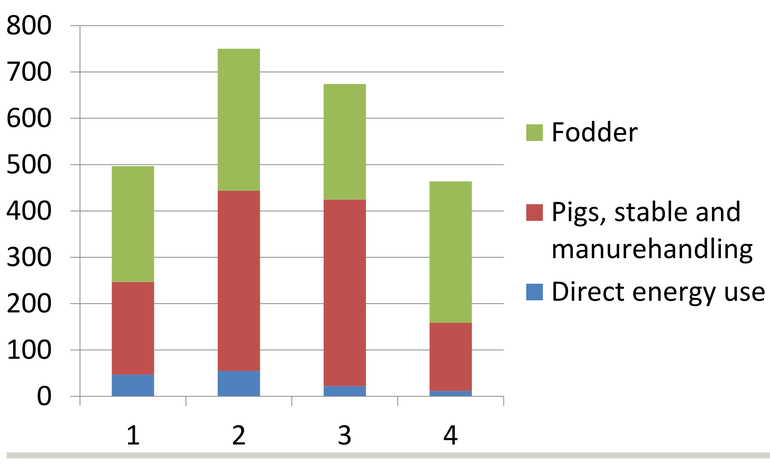
Many new approaches require careful integration into existing farm practices or modifications of existing routines.

The project

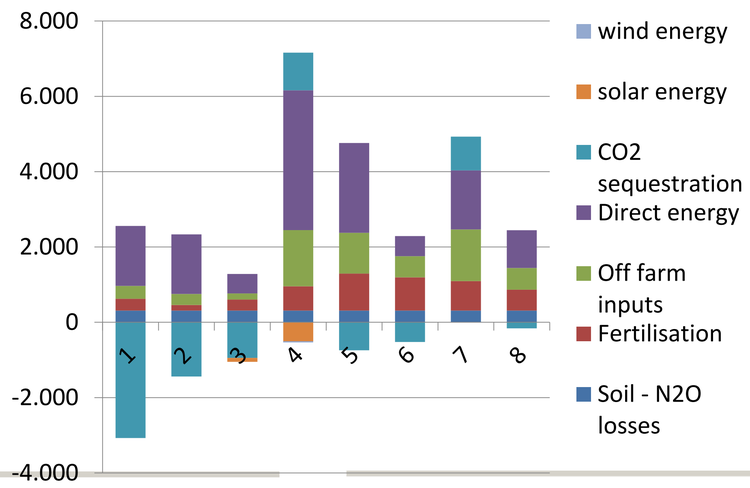
Farmersandclimate.nl is a cooperative effort of 16 farmers (conventional and organic) in arable farming, poultry and pig husbandry, Wageningen UR and Louis Bolk Institute, farmers organizations and business partners, running from 2010-2013. Financed/sponsored by NL Ministry of Agriculture



Impression of CO_2-footprint pig farms (kg CO_2 eq/pigunit)



Impression of CO_2-footprint arable farms (ton CO_2 eq/farm) above x-axis = emission, below = sequestration or sustainable energy production



Cradle to gate approach

- Summarizes GHG emissions from off-farm inputs and on farm activities and processes
- Off farm inputs:
  - fertilizers, pesticides, plant material, fodder etc.
- On farm activities and processes
  - CO_2 emission direct energy use
  - NO_2 emission from N inputs in soil and N in soils
  - NO_2 and CH_4 emission from animals and manure
  - CO_2 sequestration in soils and long term biomass & sustainable energy production

CO_2 footprint, energy- and climate neutral farming

- CO_2-footprint = GHG emissions from off-farm inputs and on farm activities and processes minus CO_2 sequestration in soil and production of sustainable energy
- Energy-neutral: Energy use is compensated by production of sustainable energy (on farm or based on rest products of farm). Concept can be applied to stables, storages or whole farm.
- Climate-neutral: CO_2 footprint is zero.

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