Farming for a Better Climate by Improving Nitrogen Use Efficiency and Reducing Greenhouse Gas Emissions (FarmClim)

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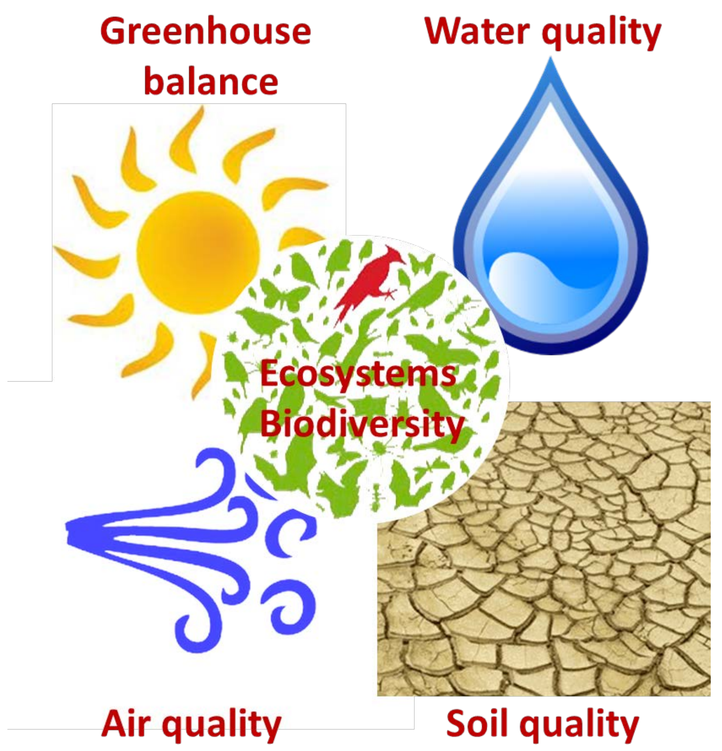
SYNOPSIS

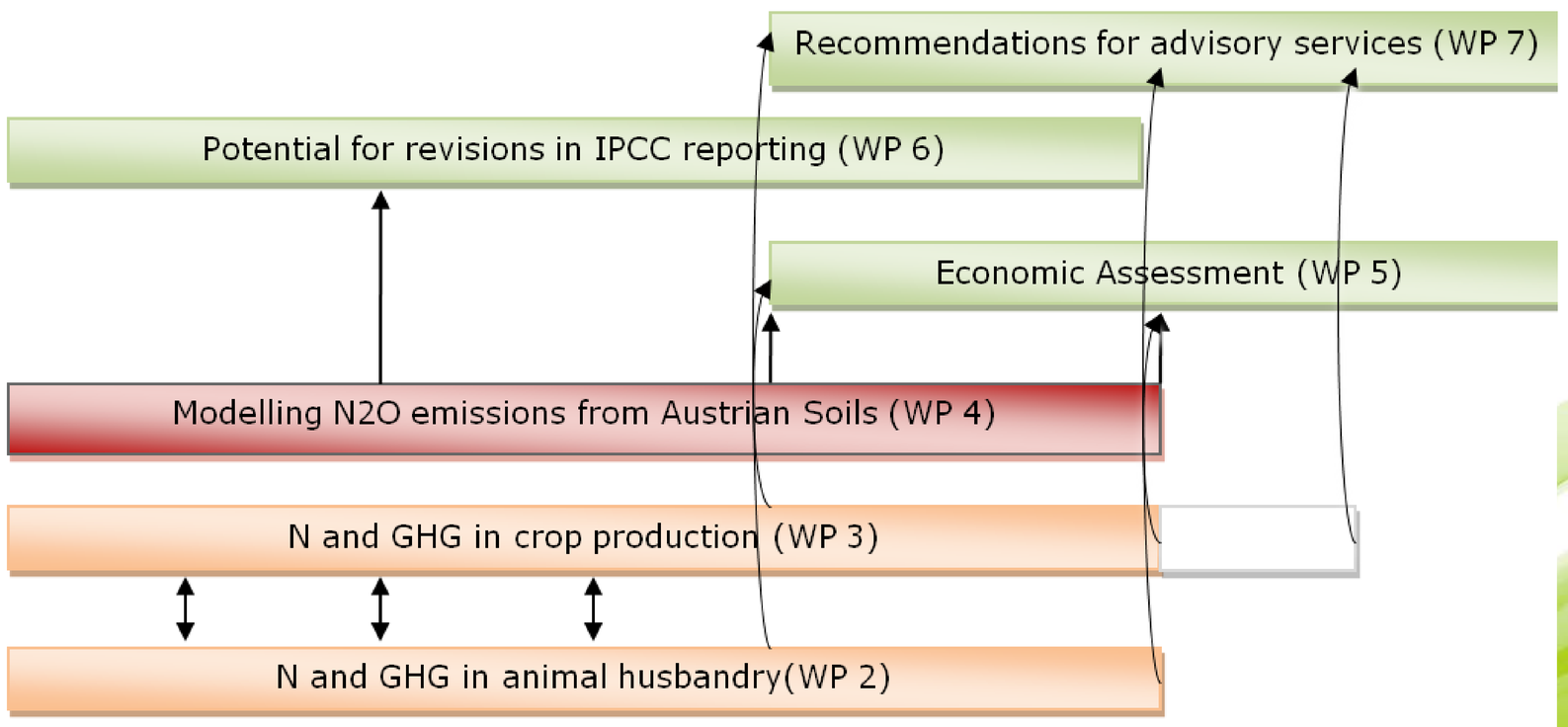
The FarmClim project applies a new approach towards implementing scientific results in the agricultural practice. While application of nitrogen fertilizer in crop production is indispensable, its adverse environmental effects have been known for long. Increasing nitrogen use efficiency, i.e. higher production for less nitrogen applied, therefore has been on the agenda of environmental scientists as well as agronomists. In FarmClim, scientific evidence is being used to create a priority list of actions. Combined with economic evaluation this provides hands-on guidance to agricultural support agencies. For the situation of Austria, a concrete set of measures is being suggested that will allow to improve the ratio of production over environmental pollution.

OBJECTIVES

- Optimise N use in Austrian Agriculture
- Minimise N and GHG losses to the environment
- Identify intervention points in agriculture which are relevant for a general N and GHG strategy
- Derive costs of the implementation of N and GHG mitigation strategies
- Develop a basis on which guidelines on recommendations for agricultural advisory services on potential optimisation measures and their economic impact can be developed
- Close the science-policy gap on the possibilities to optimise N use and minimise GHG losses



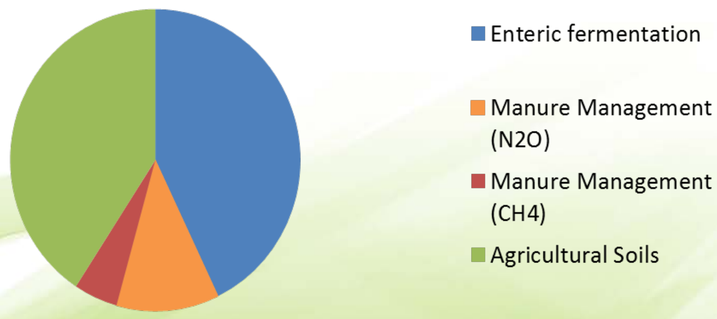
Five key societal threats related to N (following the European Nitrogen Assessment, Sutton et al., 2011)



Work flow within the project throughout the duration. Triangles presented with the “coordination” work package indicate progress meetings, rhomboids represent interim and stakeholder workshops. Arrows display interactions between work packages.

Measures in animal husbandry:

- Improving performance and increasing milk yield
- Optimum use of fodder, increasing fodder quality
- Phase feeding for pigs
- Biogas production from animal manures



GHG 2009 [Gg CO2-equ.] in Austria‘s agriculture

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- Chamber of Agriculture of Lower Austria
- University of Graz, Institute of Systems Sciences, Innovation and Sustainability Research
- Federal Research and Training Centre for Forests, Natural Hazards and Landscape (BFW)

DURATION: 05/2012 to 04/2014

NEXT STEPS

- Integrate the list of mitigation measures into an economic assessment
- Draft a concept to optimize material flows in crop production
- Initiate a database on soil properties and conditions for model regions
- Develop an economic model for the assessment of adaptation costs for on farm implementation of mitigation measures
- Use results for the improvement of inventory reporting
- Use results as a basis for recommendations for on farm implementation

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