

# A TOOL FOR LOCAL ASSESSMENT OF DIFFERENT AGRICULTURAL N-REGULATION STRATEGIES FOR ENVIRONMENTAL EFFECTIVENESS AND ECONOMIC EFFICIENCY

Applications are invited for a PhD fellowship/scholarship at the Graduate School of Science and Technology, Aarhus University, Denmark, within the November call 2013.

## Title:

A Tool for Local Assessment of Different Agricultural N-regulation Strategies for Environmental Effectiveness and Economic Efficiency

## Research area and project description:

The Danish Nitrogen Mitigation Assessment – Research and Know-how for a sustainable food production ([www.dNmark.dk](http://www.dNmark.dk)) is a Research Alliance funded by the Strategic Research Council 2013-2017. The alliance aims to assess and optimize nitrogen use in all parts of the nitrogen cycle, and include a series of PhD and post-doc studies connected to selected focus areas. Special attention is drawn to the development of new tools for the communal assessment and optimization of the nitrogen resource use, related to land use and agricultural production in intensively farmed watersheds, with specific targets for the reduction of N-losses.

Until now, most tools to assess effects of agricultural N-regulation focus the farm or the field level, and are hypothesized to lead to suboptimal use of the N-resource and problems to meet the current standards for N-losses to the environment. Consequently, the current project will focus on the development of a local watershed based tool, including all N flow and losses and how they respond to land use and management. It should also include assessment of relevant options for mitigation of N losses and associated pollution and for optimizing production input and land use. This tool will be prototyped for use in regional case studies within the [www.dNmark.dk](http://www.dNmark.dk) study areas and within the case study regions of the Soils2Sea project that covers the Baltic Sea area. Data to test and develop this tool will be collected from a mix of national and local sources. Further the project will develop and analyze a range of scenarios for changes in land use and management to better manage the N flows and losses.

The PhD student will become part of a research alliance with a creative and stimulating environment, which includes 5+5 other postdocs and PhD students connected to the various [www.dnmark.dk](http://www.dnmark.dk) alliance partners, and a larger number of other relevant studies within the AU Department of Agroecology. In relation to Danish case studies, the PhD project involve a close collaboration with the Danish Knowledge Centre for Agriculture in Skejby ([www.vfl.dk](http://www.vfl.dk)). The development of the local N-assessment tool will be coordinated with the general tool development in the research alliance, and a planned PhD dedicated to the specific development of the "Regional Nitrogen Management and Communication between Stakeholders", also including a test and use of the prototype tool.

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# REGIONAL NITROGEN MANAGEMENT AND COMMUNICATION BETWEEN STAKEHOLDERS

Applications are invited for a PhD fellowship/scholarship at the Graduate School of Science and Technology, Aarhus University, Denmark, within the November call 2013.

## Title:

Regional Nitrogen Management and Communication between Stakeholders

## Research area and project description:

The Danish Nitrogen Mitigation Assessment – Research and Know-how for a sustainable food production ([www.dNmark.dk](http://www.dNmark.dk)) is a Research Alliance funded by the Strategic Research Council 2013-2017. The alliance aims to assess and optimize nitrogen use in all parts of the nitrogen cycle, and include a series of PhD and post-doc studies connected to selected focus areas. Special attention is drawn to the development of new tools for communal assessment and optimization of the nitrogen resource use, related to land use and agricultural production in intensively farmed watersheds, with specific targets for the reduction of N-losses (for example around Limfjorden).

The PhD project will focus on regional case studies within the [www.dNmark.dk](http://www.dNmark.dk) study areas, and the involvement of local municipalities, farmers, farm advisors, business partners and other relevant national and local stakeholders in the development and demonstration of more sustainable nitrogen management strategies. The general hypothesis is that an improved coordination and collaboration between stakeholders, including an optimized geographical targeting of the N-use as well as new crop management and product chains can help to develop an agricultural production that meets environmental objectives while maintaining farm income. (focus on how to create win-win solutions). Data will, as a part of the general [www.dNmark.dk](http://www.dNmark.dk) activities, be collected from a mix of national and local sources, and a general tool for the assessment of N-flows and N-losses from the agricultural system at farm and field scale is being developed. The task of the PhD will be to adapt, demonstrate and further develop this tool for the application in the study areas selected, map the different/overlapping stakeholder perspectives and needs, and explore how different regulatory regimes and incentive structures will influence farm activities and resulting N flows and losses. The study will further explore how stakeholders can interact to improve N management and how farm advisory services can support this.

The PhD student will become part of a research alliance with a creative and stimulating environment, which includes 5+5 other postdocs and PhD students connected to the various [www.dNmark.dk](http://www.dNmark.dk) alliance partners, and a larger number of other relevant studies within the AU Department of Agroecology. In relation to local case studies, the current PhD project involve a close collaboration with the Knowledge Centre for Agriculture in Skejby ([www.vfl.dk](http://www.vfl.dk)), and the development of the local N-assessment tool will be coordinated with the general tool development in the research alliance, and a planned PhD dedicated to the specific development of such "Tool for Environmental Effectiveness and Economic Efficiency of Different Strategies for Agricultural N-regulation".

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