



Improving economic and environmental farm performance through Nitrogen Use Efficiency

Cambridge, 12 December 2019: EU Nitrogen Expert Panel showcased its latest publication *“Exploring nitrogen indicators of farm performance among farm types across several European case studies”* at the 2019 IFS Agronomic Conference. The report demonstrated how the economic and environmental performance of a specific farm regarding different nitrogen indicators is closely related to its type and its management.

The 2019 IFS Agronomic Conference was a unique opportunity to present the new scientific paper entitled *“Exploring nitrogen indicators of farm performance among farm types across several European case studies”*, by Prof. Miguel Quemada et al. on behalf of the EU Nitrogen Expert Panel (EU NEP).

The publication elaborates on the analysis of the farm performance in several European countries via the application of several nitrogen indicators, one of those being the Nitrogen Use Efficiency.

Professor Miguel Quemada, one of the authors of the publication, stated that *“the ambition of this paper is to contribute to the improvement of efficient nitrogen use in food production in Europe and to the reduction of the environmental impacts of EU’s agricultural systems”*.

The authors collected information from more than 1200 farms from 6 different European countries (Denmark, France, Germany, Ireland, The Netherlands and Spain) and applied the nitrogen indicators with the aim of understanding differences in nitrogen performance between different farm types. They demonstrate that the Nitrogen Use Efficiency indicator is suitable for use by farm advisors or policy-makers in order to set realistic targets to improve nitrogen management and to monitor the progress in reaching resource efficiency at farm level.

Professor Miguel Quemada added that *“the performance of a specific farm regarding different nitrogen indicators is related to its type and its management. Arable farms have the highest Nitrogen Use Efficiency, the highest yields and the lowest level of nitrogen losses to the environment. It means that arable farms studied demonstrated a high level of resource efficiency”*.

The authors also identify a “characteristic operating space” for any farm population, depending on the farm type or region, through a two-dimensional framework proposed for plotting the farms. This may have a large impact on the scientific discussion as the population of farms is plotted in a nitrogen input/nitrogen output framework together with the different nitrogen indicators. This space could be used by policy-makers and crop advisors to analyze the effects of environmental policy implementation or to assess the performance of a specific farm relatively to the rest of the respective farm population. Farms outside the identified characteristic operating space should change production practices to move into the space, either via an extensification or a sustainable intensification pathway.



For more information on the study:

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Background:

The paper, "Exploring nitrogen indicators of farm performance among farm types across several European case studies", referred in this press release can be downloaded here:

<https://www.sciencedirect.com/science/article/pii/S0308521X19305979> .

About the EUNEP:

Key players from the scientific community, from decision-making institutions and the industry are gathered within the EU Nitrogen Expert Panel (EUNEP). The EUNEP was initiated by Fertilizers Europe together with its former Chairman Prof. Oene Oenema (Wageningen University) in 2014 with the goal of contributing to improving Nitrogen Use Efficiency (NUE) in food systems in Europe. The EUNEP, today under the lead of Prof. Lars Stoumann Jensen (Copenhagen University), pursues this goal by communicating a vision and strategies on how to improve NUE in food systems in Europe; and also by generating new ideas and recommending effective proposals and solutions (such as its recent paper). The Panel is composed from 11 experts from science, 3 from policy and 6 from the agri-food value-chain. They came from 10 different EU countries.