WWTF Project LS05-036

NITRO-GENOM: Increasing Nitrogen Efficacy in Agricultural Systems by Understanding and Manipulating the Biotic 'Black-Box'

Abstract

Low nitrogen fertilizer use efficiency by agricultural crops leads to severe environmental problems and economic losses. Despite their large impact on fertilizer N turnover, the variability and predictable impact of microbial communities on N fertilizer use by plants is poorly understood. By a unique combination of molecular genetic and bio/chemical approaches, the present project aims at investigating, in a representative laboratory format, the exact fate of fertilizer nitrogen. In particular, nitrogen cycling and distribution parameters (including gaseous N loss) will be set in relation to microbial activity and population dynamics, and to transcriptional responses of bacteria, fungi and plants. These studies will provide novel insights into the mechanisms regulating the distribution and compartmentalization of fertilizer-N to plant, soil, fungal, bacterial and environmental pools and provide concepts for targeted strategies to improve nitrogen fertilizer use efficiency.

Keywords:
nitrogen efficiency, nitrogen cycle. fungi, bacteria

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Status: Completed (01.03.2006 - 31.12.2009) 46 months

Funding volume: EUR 806,000

Further links about the involved persons and regarding the project you can find at
https://archiv.wwtf.at/programmes/life_sciences/LS05-036