# Article information:

Metagenomics reveals taxon-specific responses of the nitrogen-cycling microbial community to long-term nitrogen fertilization - ScienceDirect  
<https://www.sciencedirect.com/science/article/pii/S0038071721000869?via%3Dihub>

# Article summary:

1. Urea fertilization increased the abundance of most N-cycling genes but decreased that of nifH.

2. The composition of the microbial groups involved in each N-transforming process was altered by fertilization, even though the abundance of several functional genes was not significantly changed.

3. Long-term N fertilization resulted in succession towards microbial communities with a higher abundance of microorganisms associated with ureolysis, nitrification and denitrification.

# Article rating:

May be slightly imbalanced: The article presents the information in a generally reliable way, but there are minor points of consideration that could be explored further or claims that are not fully backed by appropriate evidence. Some perspectives may also be omitted, and you are encouraged to use the research topics section to explore the topic further.

# Article analysis:

The article “Metagenomics reveals taxon-specific responses of the nitrogen-cycling microbial community to long-term nitrogen fertilization” is a well written and comprehensive study on how long-term nitrogen (N) fertilization affects soil microorganisms involved in N transformation processes. The authors used metagenomic sequencing combined with direct assembly of N-cycling genes to assess the effects of long-term N input on the microbial community structure and composition. The results showed that long-term N fertilization elevated the abundance of most N-cycling genes but decreased that of nifH, and that different responses to N fertilization were exhibited by taxa within the same functional group, which may be important for sustaining microbial nitrogen cycling in complex and dynamic environments.

The article is reliable and trustworthy as it provides detailed information about the methods used for data collection and analysis, as well as clear explanations for all results obtained from this study. Furthermore, it is based on a 20 year field experiment conducted in North China Plain, one of the areas with intensive agriculture in China, which adds credibility to its findings. Additionally, all claims made are supported by evidence from previous studies or from this study itself.

However, there are some points that could have been explored further such as potential risks associated with excessive nitrogen input into agricultural ecosystems or possible counterarguments against its findings. Additionally, while this study provides valuable insights into how long term nitrogen input affects soil microorganisms involved in nitrogen transformation processes, it does not explore other factors such as climate change or land use changes which may also affect these processes.

In conclusion, this article is reliable and trustworthy due to its detailed methodology and evidence provided for all claims made; however there are some points which could have been explored further such as potential risks associated with excessive nitrogen input or other factors affecting these processes.

# Topics for further research:

* Nitrogen fertilization risks
* Climate change and nitrogen cycling
* Land use changes and nitrogen cycling
* Microbial community responses to nitrogen input
* Long-term nitrogen input effects
* Counterarguments against nitrogen fertilization

# Report location:

<https://www.fullpicture.app/item/f64876257f8a42c0cdfd35f87fb475fd>