Thank you for your review. We respond below to your comments in blue text.

In this study, the authors investigated the dynamics of nitrogen (N) flow over a 3-year crop rotation cycle using digestates and cattle effluents as fertilizers. Given the significance of nitrogen loss through processes like ammonia volatilization and N2O emission, which contribute to nutrient depletion and climate change, the study's objective aligns well with the need to manage nitrogen sustainably in agricultural ecosystems. The experimental design, which includes a three-year crop rotation and compares various fertilization practices, offers a thorough assessment of how different approaches impact nitrogen dynamics, including emissions, crop N uptake, and soil mineral N stocks following each fertilizer application. Moreover, the obtained results were logically and systematically arranged and discussed. Therefore, this manuscript needs a minor revision and my concerns are given as follows. Data presentation in some figures lacks clarity, making it difficult to differentiate between control and treatment groups. For example, in Figure 1 and Figure 2, the authors need to include data from unfertilized plots and compare them with fertilized plots to provide a comprehensive understanding.

In Figure 1, the net N mineralization from digestate or manure is plotted, i.e., it is the mineralized N for the mixture of soil with digestate (or manure), minus the mineralized N for the unamended soil, as explained in lines 177-179. It is thus not meaningful to plot the control treatment. Regarding ammonia volatilization in Figure 2, we will include the NH3 volatilization in the control treatment in the revised manuscript (very low and negative values, indicating low NH3 deposition).

Additionally, the legends of Figure 1 require improvement in clarity to enhance reader comprehension.

We propose the following legend for Figure 1:

“Figure 1: Evolution of (a) net N mineralized or immobilized, and of (b) available mineral N in the soil, originating from the EOM, during the incubation of soil-EOM mixtures under laboratory-controlled conditions. Net N mineralization or immobilization is expressed as a percentage of the organic N initially present in the EOM, calculated by subtracting the amount of mineralized N in the unamended control incubation (soil mineralization) from the amount measured in the soil-EOM incubation. Available mineral N in the soil that originated from the EOM is the sum of mineral N input and organic N mineralized or immobilized. In each panel, error bars show one standard error.”

It would also be beneficial for the authors to ensure that significant differences in data are clearly indicated in figures and tables, probably using different letters. Overall, addressing these issues will enhance the clarity and impact of the manuscript.

We agree that the statistical analysis is insufficient at the moment. We did not make any statistical analysis before because the design of the experiment was not a randomized block design, with only one strip per treatment. However, we have some replicates within each strip, and we propose to include statistical analysis in the revised manuscript (for yield, NH3 and N2O emissions) while mentioning the limitations of the experiment design. We also propose to include a statistical analysis of the EOM characteristics (nutrient content, N mineralization in controlled conditions). It will show that most of the effects discussed are significant.