

Interactive comment on “Statistical analysis to characterize transport of nutrients in groundwater near an abandoned feedlot” by P. Gbolo and P. Gerla

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We thank the Referee for the thorough review and have revised our paper in response to the comments and suggestions.

1. Concerning the use of cluster analysis, our approach was to group the sites with similar water quality and therefore delineate areas with contrasting high and low concentrations. The result obtained in the cluster analysis is consistent with what is shown in Figures 3 and 4. With cluster analysis, there is no "rule-of-thumb" for the sample size used for the analysis (e.g., Mooi and Sarstedt, 2011). 2. Although the sample size was small, factor analysis further supports the observed pattern obtained through cluster

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analysis. The referee suggested the use of permutation test and bootstrapping, which we think would also show patterns of similarities or dissimilarities, but we chose hierarchical cluster analysis because it is widely used and the most appropriate method for small sample sizes (Hall et al., 1998). 3. The referee stated “In fact factors cannot be correlated and individuals could not draw a linear trend”, but the main use of factor analysis is to quantify trends in data. It is also used to explain correlation between measurable variables in terms of underlying factors that are not directly measurable. 4. The value for the nitrite-nitrate correlation coefficient is incorrect in the text (0.96) and should be the same as what appears in the table (0.91).

Based on these comments and explanations, we hope we have been able to address the comments of the referee.

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