

## ***Interactive comment on “Effects of golf course management on subsurface soil properties in Iowa” by Matthew T. Streeter and Keith E. Schilling***

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General comments: This original study deals with soil evolution under golf course. It tries to evaluate the anthropogenic impact on soils and to evaluate the management practices that influence sustainability of soil resource. To do so, the soils of various golf course with various soil management practices were analysed. The influence of management is highlighted using variation in depth. This method should be reconsidered, given that natural differences of soil properties with depth are high, probably higher than the differences that result from anthropogenic influence. The paper would be therefore highly improved by comparing, for each golf course (or courses in a similar landform), the differences between fairways, rough and tee (mostly between tee and fairways), which represent an intensification of soil use and management (e.g. fairways

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not fertilised?). This could mostly be observed in the 0-20 cm layers, maybe in deeper layers under specific conditions. Line to line comments: L.10: Why is Iowa ideal? Briefly explain. L.97: Soil Organic Matter L.113-114: paired t-test would make it (compare 0-20cm to below) L.115-117: I don't think it is not possible to evaluate the textural changes due to golf management. I don't understand why you don't differentiate the fairways (natural?) to the other more intensive soil management. L.122 & 125 Need the p-value to support the correlation showed by the Pearson r. L.122 The information is not very relevant as  $TC = inorgC + orgC$ . The correlation between orgC and TC should not be calculated without precaution and it doesn't bring much information apart that inorgC is not highly correlated to orgC... L.125 NO<sub>3</sub> is highly mobile, therefore the last fertilisation date is often the most important information that influence NO<sub>3</sub>, at least in the 0-20cm. L.130 C/N should always express the ratio between organic C and total N, because this ratio was used to interpret the SOM "quality". Moreover, in depth, OC and N concentrations are often very low, too low to be accurately measured. Therefore, the value of C/N ratio is very inaccurate (especially if TN close to 0 mg/g). (take care in the interpretation of this value, especially L.183). L.140 Soil properties vary with depth. That is not intriguing at all, please rephrase to be more accurate, what is exactly intriguing? L.156 In average 25% higher sand content. Risky to show the result that way because few samples with extreme values can strongly influence an average. Use statistical test to "prove" that sand content is higher (e.g. t-test). L.180-181 Is this IC leaching a natural process or do you suggest that it is an influence of golf management? L.193-195: Not clear, please rephrase. Higher... than? Table 3 Depth in mm, in cm? Please explain in the legend or make it clear in the table.

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