Review Report Form

**Open Review**

(x) I would not like to sign my review report  
( ) I would like to sign my review report

English language and style

( ) Extensive editing of English language and style required  
( ) Moderate English changes required  
( ) English language and style are fine/minor spell check required  
(x) I don't feel qualified to judge about the English language and style

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| --- | --- | --- | --- | --- |
|  | Yes | Can be improved | Must be improved | Not applicable |
| Does the introduction provide sufficient background and include all relevant references? | (x) | ( ) | ( ) | ( ) |
| Are all the cited references relevant to the research? | (x) | ( ) | ( ) | ( ) |
| Is the research design appropriate? | (x) | ( ) | ( ) | ( ) |
| Are the methods adequately described? | ( ) | (x) | ( ) | ( ) |
| Are the results clearly presented? | ( ) | (x) | ( ) | ( ) |
| Are the conclusions supported by the results? | ( ) | (x) | ( ) | ( ) |

Comments and Suggestions for Authors

The reviewed manuscript concerns the variability of the basic soil properties (mechanical composition, soil bulk density, organic mater content) as well as soil hydraulic conductivity and water repellency index. Measured values of soil penetration resistance were used for establishing four treatments (measuring points) where soil properties were measured. The study was conducted on coarse-textured Inceptisol on a farm in central Chile, in a fallow-maize rotation under conventional tillage. The results of measured data were analyzed using statistical methods (kriging, ANOVA, regression). The reviewed manuscript is thematically appropriate for “Soil Systems” journal. The manuscript is well written and the overall layout of the work is correct and legible. The introduction provides sufficient background and supports the research topic of the study. The description of the research methodology used is accurate, however requires some additional information. Discussion is well written and conclusions presented are result from the conducted research and analysis

Comments (suggestions):

In Fig.1 and 2 please add scale of the map.  On Fig. 2 please mark location “four treatments”

Please clarified how many samples were used for determination of mechanical composition, BD, OM and R. Line 128 – 32 samples for hydraulic conductivity, how many samples were used for other characteristics?

Line 185 – please add reference for Surfer 10, please specified what type of kriging was used for interpolation.

Line 207 – please add reference for R package

Please specified the median value of PR which was used for division of PR into high and low class. I cannot find what does it mean  high and low PR values.

For me caption of Fig. 2 is not clear. I do not see “Average areas”

What type ANOVA was used for the analysis of the data?  One-way? Why not 3-way (zone, treatment, position)?

In table 1 results of ANOVA analysis are presented as average values and SD. Why not 95% interval? The detection of the existence of the significant differences in Table 1 is not very clear to me  (some letters are italic bold, some not)

In Fig 6 – symbols OWT and WT should be explained (or changed)

In my opinion “Soil water pressure” should be presented as negative values (suction)

When you citated paper whit 3 and mor authors please use Author et al. (for example lines 312, 331 and more, please check this).

In Keywords instead of hydrophobicity please use repellency index

Submission Date

25 August 2022

Date of this review

06 Sep 2022 23:25:45