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Discussions

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Interactive comment on "Lime and zinc application influence soil zinc availability, dry matter yield and zinc uptake by maize grown on Alfisols" *by* S. K. Behera et al..

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Lime and zinc application influence soil zinc availability, dry matter yield and zinc uptake by maize grown on Alfisols .

My overall assessment of the revised version of this manuscript, published on 07/10/2016,is that it addresses most of the questions raised by the reviewers , albeit some minor ones remain.

First I list those points raised by both reviewers that, in my view, have been address properly. 1- Make a clear definition of the situation and objectives of the experiment to avoid the impression that the manuscript presents three related (but not properly

coordinated) experiments. The changes made by the authors with a new version of introduction and M&Methods, including clearly stated objectives have addressed properly this issue. 2- The need for a better description of the experiments and methods, among them a better description of the pots and manure used. This has also been properly addressed. 3- Elimination of duplication of results presented in Tables and Graphs. This has also been properly addressed with the elimination of some Figures.

The fourth, and major, issue raised by both reviewers was the need for a much improved presentation and discussion of the results. From reviewer 1 I quote, among some of them, "a) Irrelevant results were included (e.g., adding farmyard manure increased the soil OC, the addition of lime increased soil pH, ..., adding Zn (and FYM) to soil increased Zn concentration in plant)" b) "No critical levels of Zn in soil and/or plant tissues were indicated". c) "Was the concentration of Zn in plants for unfavorable treatment below the critical values (literature)? Was there observed Zn deficiency symptoms in the plants with lower Zn concentration? –" d) "The Tables do not clarify the results of statistical analysis (comparison of means). The differences observed between means of the different treatments should be indicated by adding the corresponding letter (a, b, c...) to each mean value" I also quote some of the major comments by reviewer 2. "a) To evaluate the interaction between the two variables (FYM, and lime dose) in the statistical model" b) "Been more critical when extrapolating optimum lime application from initial stages of the crop. 60 days in a 4 l pot, to an adult plant exploring a larger soil volume not considered in their experiment" c) "Use same symbol in the same soil to facilitate identification to reader in Figures."

Many of these have been addressed but a few of them remain problematic. These issues can be summarized in:

a- The statistical results presented in Tables 2 to 4 remain difficult to understand. A better explanation of the statistical model used (a three factors analysis of variance with interaction among these factors by pairs as it seems reading the Tables?) should be included in the material and methods section (section 2.3) and also in an improved,

more comprehensive, caption for these Tables. In its present form it is clear how to interpretate the difference between means for any given FYM and soil according to the LR and the Zinc levels. However it remains complicated to understand the statistical significance (or not) of the different treatments, and their interactions. For instance, in Table 2 Hariharapur soil series, dry matter results, what is the interpretation of the LSD(0.01) for Lime x FYM level = 0.61 in your results. Is it a significant or a non-significant interaction across the experimental results? This need be revised. Also indicate in the caption that double letters (e.g. aa, bb and so on) are used as single symbol for the mean values across the Zinc levels.

2- Graphs remain non-intuitive. Please try to use a more straightforward design. For instance use the same color in all the lines, use the symbol to identify the soil series. I mean the same symbol for the same soil series (e.g. solid square for Hariharapur and non-solid circle for Debatoli) and use the line style to differentiate between added or non-added FYM (e.g. continuous for added FYM and dotted for non-added FYM). Using for different colors and symbols makes more complicated a quick interpretation of the graphs. 3- Please in the conclusions be a bit more cautious about the need to extrapolate these results to field recommendations. 4- Some misspellings and sections that should be double checked for proper English editing remain. I have added same comments in the PDF version of the manuscript in order to help you to deal with these final issues, and also to improve the edition in English . So my recommendation is that this revised version merits publication in SOIL but after the authors revise this, now minor changes, before final publication.

Please also note the supplement to this comment:
http://www.soil-discuss.net/soil-2016-41/soil-2016-41-EC2-supplement.pdf

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