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Journal Name:	American Journal of Experimental Agriculture
Manuscript Number:	2013_AJEA_8670
Title of the Manuscript:	Long-Term Fertilization Effect On Agronomic Yield And Soil Organic Carbon Under Semi-Arid Mediterranean Region
Type of the Article	Original Research Article

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This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound.

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PART 1: Review Comments

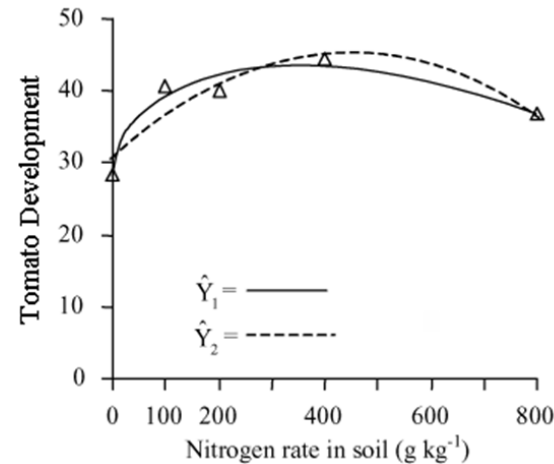
	Reviewer's comment	Author's comment <i>(if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)</i>
<u>Compulsory</u> REVISION comments	There are significant problems with this manuscript. In the Results, Lines 203-206, we are told that a 1% increase in SOC increased wheat yield in the control, inorganic fertilizer, compost, and compost + mycorrhizae treatments. We are also referred to Figure 2 for confirmation of this. There is a major problem with this: the control plot shows decreasing yield with increasing SOC, a result that contradicts the author's statements. This problem continues. In lines 206-208 we are again given increases in yield of maize grain for all treatments, yet on Figure 3 I see decreasing trend lines showing decreasing yield with increased SOC for the control, compost, and compost+mycorrhizae treatments. And in lines 208-211 the authors claim increases in pepper yield with increased SOC for all treatments, yet I see trend lines showing decreasing yields with increasing SOC for the animal manure and compost+mycorrhizae treatments. In short, the author's statements don't match their data. Now, let's talk about the trend lines. Some of these R^2 values are really low. On Figure 4 I see an R^2 of 0.001 for the control and 0.17 for compost+mycorrhizae. On Figure 3 I see R^2 values of 0.016, 0.067, 0.130, 0.165, and 0.048. These aren't trends, these are random data. They don't show any relationships. Finally, in this section, the authors talk about crop increases given a 1%	



SDI Review Form 1.6

	increase in SOC. However, in the 15 treatment graphs shown in Figures 2, 3, and 4, I only find three places where SOC increased by 1% or more. Those are the animal manure treatments graphed on Figures 2 and 3 and the compost treatment on Figure 2. Some of these other graphs show SOC differences of as little as 0.1%. It simply isn't statistically sound to take these treatments where there was less than 1% change in SOC and project that out to a 1% change. Think of graphs of yield given changes in N fertilizer application, for example. I've provided one below. Most nutrients have a range over which they increase yields, then a range of diminishing returns, and then a range above which they actually hurt yields. I realize SOC isn't a nutrient (although it does supply nutrients when it decomposes), but the graph does show how you can't assume a linear relationship beyond the limits of what has been tested. In the graph below, a linear regression would describe the relationship between N rate and tomato development pretty well from N rates of 0 to about 400 g kg⁻¹. However, if that same linear regression equation was used to project tomato development out given N rates of 800 g kg⁻¹, the predicted response would be much different than the actual response. This is why it is unsound to project a regression beyond the values for which you have actual data, and in many cases you are projecting out 2 or more times beyond the range of data you have.	
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There is usable data in this manuscript that could make for a publishable paper. For example, Figure 2 has a strong animal manure regression equation over a wide range of SOC values, you can really say something about the response of wheat to SOC increases based on animal manure treatments. The regression for compost+mycorrhizae on Figure 2 isn't bad, and the fertilizer regression is fair. The control needs to be kept because it is the control, and the compost data shows no response to SOC, it is basically a flat line. A publishable paper could be made out of the data that is presented on Figure 2. Crop yields given SOC changes of 0.5% could be discussed, because every graph on Figure 2 shows a SOC range of at least 0.5% (the control and fertilizer treatments each show about 0.5% ranges). Obviously the manuscript would need to be significantly rewritten to address this, but I would be willing to do a review of such a rewritten manuscript.

I don't see anything but random data on Figure 3, and only the fertilizer treatment really shows anything on Figure 4, but that is based on only 3



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	data points. I would set aside the maize and pepper data and take it out of the manuscript. I would focus on the wheat data.	
Minor REVISION comments	There are some minor English issues in the paper, the authors might want to have a native English speaker review a revised version before it is submitted.	
Optional/General comments	A couple of possible additional references: Line 51 – Add Brevik, 2013 (and/or another relevant reference(s)) to the references [4, 5] (Brevik, 2013, would become reference #6). Both 4 and 5 are papers by Lal. Lal is certainly a leading expert, but given the number of papers that have been published that would work here at least one or two references from other authors would be good. This demonstrates it is an idea held by more than one individual. Line 74 – Add Fenton et al., 1999 to [13]. References Brevik, E.C. 2013. The Potential Impact of Climate Change on Soil Properties and Processes and Corresponding Influence on Food Security. Agriculture 3:398-417. This is an open access article that can be downloaded at http://www.mdpi.com/2077-0472/3/3/398. Fenton, T.E., Brown, J.R., & Mausbach, M.J. (1999). Effects of long-term cropping on organic matter content of soils: Implications for soil quality. In R.L. Lal (Ed.), Soil quality and soil erosion (pp. 95–124). Boca Raton, FL: CRC Press.	

Note: Anonymous Reviewer