



SDI Review Form 1.6

PART 1:

Journal Name:	<u>American Journal of Experimental Agriculture</u>
Manuscript Number:	2013_AJEA-4733
Title of the Manuscript:	Use of organic inputs in management of Alfisols and Ultisols for sustainable maize production in western Kenya
Type of the Article	Research paper

General guideline for Peer Review process is available in this link:

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- This form has total 7 parts. Kindly note that you should use all the parts of this review form.



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PART 2: Review Comments

	Reviewer's comment	Author's comment (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)
Compulsory REVISION comments		
Minor REVISION comments	- To rewrite <i>line 17</i> as following: ...to test effects of various organic inputs (farmyard manure, Tithonia biomass, Desmodium cover crop) in combination which inorganic fertilizers (N, P, K, B, Mg, Zn). - To modify <i>lines 22-23</i> as following: In Alfisols, organic inputs in combination with 30 kg N.ha⁻¹ gave... <i>Lines 266</i>: Phosphates are less prone to leaching (lixiviation). It moves very little into soil. Its deficiency results rather from retrogression process in clay layers. <i>Line 270</i>: Phosphate is very little present in soil solution	- Line 17 rewritten as suggested - Lines 22-23 modified by deleting "Farmyard manure, Tithonia biomass and Desmodium cover crop" - Line 266: Modified as suggested - Line 270: Very little P in the soil but soil analysis indicated that it is more in Alfisols compared to Ultisols (Table 2).
Optional/General comments	I read the manuscript with a real pleasure. Because it was easier to read (well written) and the research question is very relevant (How to improve maize production on acid soils characterized by low levels of N, P C, etc.). To alleviate these soil constraints it has been tested various organic inputs (farmyard manure, Lithonia biomass, Desmodium cover crop) combined with inorganic fertilizers (N, P, K), in order to increase maize yield. The reviewing of this manuscript gives rise to the following comments: The effects of the tested fertilisation packages are not evaluated in order to show if they could induce suitable changes on soil fertility. This missing information negatively affects the quality of the study (It is to note that soil analysis carried out before planting revealed the very low fertility status).	- Soil analysis carried before planting gave the general status of both soils. The crop yield was compared under two management systems: farmer's practice (without/little inorganic inputs) and improved practice (with organic and combinations of inorganic inputs) - The experiment was conducted during the long rains season (February-September) of 2007. This has now been inserted into the manuscript. - Desmodium cover crop was pruned two times in the season and its leaves left to decompose on the soil surface, hence



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	• There is no information on the experiment duration. Otherwise, how long is the experiment when it is evaluated? Is it a limited study? • Why Desmodium planted in intercropping with maize could be considered as organic matter source? This plant is known as nitrogen-fixing shrub legume. But the manuscript doesn't show how Desmodium could contribute as C (organic matter) supplier, as it did for Lithonia. Is Desmodium biomass incorporated in the soil after harvesting? Is it used as mulch? • There is certainly no significant difference between the tested fertilization packages (inorganic fertilizers combined or not with organic matter inputs) on maize yield. Perhaps, soil analysis could show more sound differences and serve as relevant decision making tool. For example, the input of "Optimal Fertilizer" (only inorganic) which leads to the maximum yield could not sustain, for a long time, the soil productivity. Because soil fertility will inexorably decline if soils are not limed. (This assertion is clearly pointed out by the manuscript <u>at line 59</u>) In short, this study through the recorded results is not able to address properly the relevant research question pointed out by the manuscript. Otherwise, there is <u>a real need to carry out soil analysis in order to assess the impact of tested fertilization packages on the evolution of soil fertility.</u>	increasing the organic matter. (This sentence has been inserted in the manuscript). • There are significant differences in maize yield as demonstrated by DMRT on Tables 3 and 4.
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