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PART 1:

Journal Name:	American Journal of Experimental Agriculture
Manuscript Number:	MS: 2012/AJEA/2628
Title of the Manuscript:	Assessing biological efficiency and economic advantages of intercropping and integrated soil fertility management in maize (Zea mays L.) and soybean (Glycine max L.) crops in a Sub-Saharan Africa Region.

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

(<http://www.sciencedomain.org/page.php?id=sdi-general-editorial-policy#Peer-Review-Guideline>)

- This form has total 9 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)
<u>Compulsory</u> REVISION comments	The manuscript presented an in-depth study concerning the evaluation of the biological efficiency and economic advantages of intercropping and integrated soil fertility management in maize and soybean crops. The research should contribute new information to the field of intercropping systems. In particular, what makes this study interesting is the objective to experimentally assess the effects of integrated soil practices management on crop competition, yields components and economics advantage in maize-soybean intercropping system. However, the manuscript at the present form is not ready for publication. The main problem with the manuscript is Experimental design and trial implementation section. Significant improvement will have to be	The Reviewer overall made very useful comments in the hard copy that were addressed when possible. We thank him for the time he spent on the manuscript. The manuscript is certainly better because of several of his comments. The experiment was undertaken in the main season at two locations. Each treatment was replicated several times in each location. Considering the distance and the ecological differences between the two sites, the experiment was done in one year. The other option was to conduct the experiment in one location but in two years. We did adopt the first option as it provides better assessment of the treatments. Although a split plot design could have been adopted, we opted of randomized complete block design since the main effects were not our overall objectives, but differences among treatments. We acknowledge that a slip plot could have provided more detailed information on main effects, but this would have been at agronomic levels rather than economic analysis. The reviewer is requesting details of physic-



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	made by addressing some key issues identified below: - In page 4, line 16 of this section, the authors reported that "The study was undertaken during the long rain season in 2010-2011". It is not reported if the experiment was repeated in time; The results could not be conclusive with only one growing season. - In page 4, line 16-26 of this section, the authors reported that "In each site, three trials were conducted. The first trial consisted of maize alone, the second with soybean alone and the third was an association of maize and soybean. The experiment design for each trial was randomized complete block with six treatments and four replications. Each plot measured 3 x 4 meters. The treatments included a control (traditional method) or Without Fertilizer (WF); Conventional method or Mineral Fertilizer (MF) at 115-63-0; Biological method consisting of the application of <i>Entada abyssinica</i> biomasses (EAB) alone at 8 t ha-122; <i>Tithonia diversifolia</i>	chemical analysis of the sites. The chemical analysis has been discussed in other paper that has been published in Chemistry and Ecology Journal. We have added additional references for the chemical analysis that we performed. The title has been changed as per his suggestion.
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	biomasses (TDB) alone at 8 t ha⁻¹ 23 and integrated soil fertility management (ISFM) method consisting of the application of MF at 57,5-31,5-0 combined with <i>E. abyssinica</i> at 4 t ha⁻¹ 24 ½ (MF+EAB) and MF at 57,5-31,5-0 combined with <i>T. diversifolia</i> at 4 t ha⁻¹ 25 ½ (MF+TDB). The experiment design for each site may be or should be: split plot where the following three trials, i.e. maize alone, soybean alone, association of maize and soybean constitute the main plots, while the six treatments constitute the subplots: {1. Without Fertilizer (WF); 2. Conventional method or Mineral Fertilizer (MF) at 115-63-0; 3. Biological method consisting of the application of <i>Entada abyssinica</i> biomasses (EAB) alone at 8 t ha⁻¹ 122; 4. <i>Tithonia diversifolia</i> biomasses (TDB) alone at 8 t ha⁻¹; 5. Integrated soil fertility management (ISFM) method consisting of the application of MF at 57,5-31,5-0 combined with <i>E. abyssinica</i> at 4 t ha⁻¹ 24 ½ (MF+EAB) and 6. MF at 57,5-31,5-0 combined	
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	with <i>T. diversifolia</i> at 4 t ha⁻¹ 25 ½ (MF +TDB)}. If the experiment design for each site was split plot, the analysis of variance (ANOVA), would change the tables and the results and discussion sections. If the experiment design in two sites was randomized complete block with six treatments separately for each trial (3 experiments), it would be like comparing results (yield components, yield components, competition indices and economic intercropping advantage parameters) from different experiments. - In addition, in page 4, line 16-18 the authors reported that “In each site, three trials were conducted. The first trial consisted of maize alone, the second with soybean alone and the third was an association of maize and soybean”. It is not reported in which proportion there was an association of maize and soybean and why only one proportion ??. In page 4, line 10-12 the authors reported that “Typically, Gandajika soils consist of a	
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	collection of sandy on clay sediment more often based on a shallow lateritic old slab. The adsorption complex is fairly well saturated and there are still some weatherable minerals (Muyayabantu et al., 2012a)". The soil physicochemical characteristics and the initial nitrate content are not presented before established of experiments. The authors should be reported that experiments were established on a soil whose physicochemical characteristics were sand g kg⁻¹, silt ... g kg⁻¹, clay g kg⁻¹, organic C content g kg⁻¹ and pH (1:2 H₂O) Preplant soil analysis conducted in the (time)..... showed that initial nitrate content ranged from-to mg kg⁻¹ of soil. The title 'Assessing biological efficiency and economic advantages of intercropping and integrated soil fertility management in maize (<i>Zea mays L.</i>) and soybean (<i>Glycine max L.</i>) crops in a Sub-Saharan Africa Region' it should be changed	
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	because it does not correspond in the content of this work. Overall, I recommend a "major revision".	
<u>Minor</u> REVISION comments		
<u>Optional/General</u> comments		