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Title of the Manuscript:	Rice Response to Phosphorus and Potassium in Fluvisol of Second Order Lowland in a Guinea Savanna Zone of Sub-Saharan Africa	
Type of the Article	Research Paper	

Comments per Section of Manuscript

	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>
General comment	<p>Uniform fertilizer recommendation over large and highly variable areas (known as blanket fertilizer recommendation) is a common practice across the subsistence-oriented lowland rice production systems in many African countries, including Cote d'Ivoire. This practice however, does not consider variability and location-specific needs, and therefore can be very inefficient and at the same time expensive for the farmer. Farmers should apply only as much nutrient as needed for a realistic yield increase for their specific locality (site-specific fertilizer application).</p> <p>The present study intends to contribute to the development of suitable management options for nitrogen (N), phosphorus (P) and potassium (K) fertilizers applied in Fluvisol of second order lowland in the Guinea Savanna Zone of Cote d'Ivoire.</p> <p>The manuscript addresses a relevant topic that will certainly be of interest to the readers of the International Journal of Plant and Soil Science (IJPSS), and also to whosoever has a stake in agricultural research and development in lowland rice production systems in Africa.</p> <p>However, the manuscript (MS) has some serious weaknesses that are outlined below.</p>	<p>There is invariable recommended rate of ternary fertilizers NPK (with different concentration of N, P and K) for lowland rice production in Cote d'Ivoire with no respect to ecological difference.</p> <p>The manuscript proposed an approach of SSNM study by investigation in different ecological zones according to lowland order (1st, 2nd, third and plain).</p> <p>This study is an investigation in 2nd order lowland (because of its importance) of Guinea savanna ecology.</p>
Introduction	<p>The problem statement was clearly set forth. But the authors have failed to adequately summarize previous investigations on options for site-specific nutrient management (SSNM) strategies that include site- and season specific knowledge of crop and nutrient management.</p>	<p>We recall the study done by Haefel and Wopereis (2004) in Senegal River valley which is related to a plain in Sahel zone. Hence, cannot be extrapolated in the 2nd order lowland in savanna ecology (L47-48) considering SSFM principles.</p> <p>Therefore, we have done a stock of knowledge related to soil</p>

	<p>These strategies have been developed and tested under similar conditions elsewhere.</p> <p>Likewise, the authors have failed to address the knowledge gap and to indicate how the present research is filling the gap?</p>	<p>fertility and fertilization for the studied site: There was shortage of knowledge for P-fertilization (L49 – 56) and lack of SSNM existing strategy.</p> <p>Site × Season is now mentioned in the discussion as well as model use for maximum yield prediction referring to K-fertilization.</p> <p>I miss sound SSNM in second order lowland of Guinea savanna in West Africa except the study in Sahael zone which is related to a plain. Meanwhile, Sahel and Savanna are different likewise, plain and 2nd lowland are different agro-ecosystems (Raunet, 1985).</p> <p>As SSNM investigation is missing in Lowland of Guinea ecology in West Africa, the actual study is filling partially the knowledge gap which is almost entire. This analyse is exposed in the introduction (L42 -56).</p> <p>However, we agree to discuss our results using the finding from elsewhere (Asia and Sahael zone of Africa) (L296-297).</p>
Materials & methods	<p>As a consequence of the inadequate and insufficient review of previous investigations relevant to the research hypothesis, the authors have failed to design relevant methods that would rigorously generate data to provide scientific answers to the questions brought about in the problem statement.</p> <p>A considerable amount of scientific knowledge is now available for packaging into appropriate decision tools for the farmers, including the principles of site-specific nutrient management (SSNM).</p> <p>However, no hints were suggested as to the principles of SSNM..</p> <p>Below is a suggestion of a list of publications, which can be of interest to the authors in their attempt to re-design their research.</p> <ul style="list-style-type: none"> • Development and delivery of nutrient management innovations for lowland rice farmers (RJ Buresh, et al., 2001); 	<p>The specific problem in the studied agro-ecosystem is the lack of reliable recommendation of P and K rates for increasing rice production for lowland rice in Guinea Savanna, especially when cultivated in 2nd order lowland which is greater potential land for the improvement of rice production in this ecology.</p> <p>We thank reviewer for giving us relevant literatures. We used them to strength the discussion.</p> <p>Basically, the main factors studied in Dobermann et al (2004) were Site, Season, and fertilizers often combined to model yield prediction.</p> <p>In the current study, the season and site were not considered as factors because they were fixed as 2nd order lowland regardless to the seasons because we were interested of yield obtained in field for the use of Surface Response curve analysis.</p> <p>Only fertilizer was the source of variation and this factor was</p>

	<ul style="list-style-type: none"> • Dobermann A, Witt C, Dawe D (eds). 2004. Increasing the productivity of intensive rice systems through site-specific nutrient management. Enfield, NH (USA) and Los Baños (Philippines): Science Publishers, Inc., and International Rice Research Institute (IRRI). • International Rice Research Institute (IRRI). 2006. Site-specific nutrient management. http://www.irri.org/irrc/ssnm 	<p>studied as designed in most of the SSNM study: Farmers Fertilizer Practice (T_F) recommended in Forest zone was compared with the tested fertilizer rates (T_0.....T_7). The site and season study should be necessary to assess the effect of lowland variability (1^{st}, 2^{nd}, 3^{rd} and plain) as well as nutrient use efficiencies in a specific season for predicting the maximum yield according to fertiliser rates when using a model.</p> <p>These literatures are use to reinforce the introduction and the discussion. Essentially, it is proposed to improve knowledge of K-fertilization by using QUEFT model in site \times season interation study in the lowland of Guinea savanna in Sub-sahara Africa during future study (L296-297).</p>
Results & Discussion	Failure to design a rigorous scientific method to attempt to provide answers to questions brought about in the problem statement has made irrelevant data reported in the 'Results and Discussion' sections, and regrettably weakened the scientific quality of an otherwise relevant topic	<p>The main output of this study in relation to SSNM for rice production in Cote d'Ivoire was discussed from L227 to 234 (comparison between fertilizer recommendation in forest ecology vs. savanna ecology) : There was difference between optimum rates of fertilizers.</p> <p>The subsection of "sustainability of rice production" in the text provided further fertilizer management strategy in the studied agro-ecology (L276-297).</p>
Conclusion	The authors' conclusions were irrelevant as a result the inappropriateness of the research data on which they were based.	<p>The recommended rates of P and K –fertilizers for the studied ecology were different to that of the forest zone as actual practice of fermers.</p> <p>Fertilizer practice must change for improving rice production in the 2^{nd} order lowland of Guinea savanna.</p>