

**Review Form 3**

Journal Name:	<b>International Journal of Plant &amp; Soil Science</b>
Manuscript Number:	<b>Ms_IJPSS_122826</b>
Title of the Manuscript:	<b>CAN SOIL SPECTROSCOPY BE A STRONG ALTERNATIVE TO THE CONVENTIONAL METHODS OF ANALYSIS?</b>
Type of the Article	<b>Review Article</b>

### Review Form 3

#### **PART 1:** Review Comments

<b>Compulsory</b> REVISION comments	Reviewer's comment	Author's Feedback <i>(Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)</i>
Please write a few sentences regarding the importance of this manuscript for the scientific community. Why do you like (or dislike) this manuscript? A minimum of 3-4 sentences may be required for this part.		
Is the title of the article suitable? (If not please suggest an alternative title)		
Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here.		
Are subsections and structure of the manuscript appropriate?		
Please write a few sentences regarding the scientific correctness of this manuscript. Why do you think that this manuscript is scientifically robust and technically sound? A minimum of 3-4 sentences may be required for this part.		
Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form. =		

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<p>Minor REVISION comments</p> <p><b>Is the language/English quality of the article suitable for scholarly communications?</b></p>		
<p><b>Optional/General</b> comments</p>	<p><b>ABSTRACT</b>  1. "Although these advanced techniques able to predict the majority of soil properties, there are some of these properties require more experiments " - <b>What do you mean by these properties? Explain.</b></p> <p><b>INTRODUCTION:</b>  1. <b>Line 6</b>, " Moreover, these soil properties differ spatiotemporally as described by (Lehmann et al., 2020)".- <b>Described by is not needed</b></p> <p><b>SOIL Sensors</b>  1. <b>Line 8</b> "ASTER spacecraft sensor areproduced by NASA and utilized for the thermal imaging and mineral identifying" - <b>Give the expiation of abbreviation while using for the first time.</b>  2. "Over more than three decades, the spectral range of 350 to 2500 nm in the vis-NIR region is widely used for studying soil" - <b>Give the expiation of abbreviation while using for the first time.</b></p> <p><b>Types of soil sensor</b>  1. <b>Topic may be Soil sensor not Types of soil sensor, as the para analysis soil sensor it is not classifying the types of soil sensor .</b></p> <p>2. <b>Line 1</b> –"Multispectral remote sensing (MSS) typically involves a limited number of spectral bands (ranging from 5 to 10) with wide bandwidths (50 to 400 nm)" - <b>Source of line 1 is not given</b></p> <p>3. <b>Line 1</b> – "Multispectral remote sensing (MSS) " - <b>is MSS is correct.</b></p> <p>4. <b>Line 6, 7</b>–"It provides a direct correlation with surface chemical structures and allowsfor approximate estimations of present materials ", "This capability is particularly valuable for developing spectroscopic instruments aimed at both qualitative and quantitative soil assessments "- <b>It and This has been used in improper way.</b></p> <p><b>Soil sensor Application</b>  1. <b>From Line 7 to Line 13 it does not talk about the soil sensor application it is diverted towards the plant sensors.</b>  2. <b>Line 37</b> "There are also numerous methodologies for processing data obtained fromsensors (soil spectra) and traditional soil laboratory analyses." - <b>what are themethodologies</b></p> <p><b>Soil spectral libraries</b>  1. <b>Line 1</b> - "Despite the significant potential of spatial variability assessment through geostatistical approaches and the quantitative evaluation of soil attributes using spectral reflectance models, substantial knowledge gaps remain"<b>it not clear, what you mean by it.</b>  2. <b>Line 26</b> "Another SSL is created the USGSwhich include a wide variety of clay minerals and helps many researchers to estimate the cay minerals as well as the relation between these minerals and other several soil properties using an automated prediction model "<b>Expansionfor USGS needed.</b></p> <p>3. <b>Line 33</b> "Therefore, using SSL created from pure soil spectra is more helpful for identification and estimation the soil properties " <b>it as to be has – estimation of the soil properties.</b></p> <p><b>APPLICATIONS OF SSLs</b>  1. <b>Line2</b> –"the hyperspectral data collected by the satellites or airborne sensors are not highly accurate and not suitable for estimating the soil parameters except few".  2. <b>But in Line 21 it is told that</b> "can be estimated using hyperspectral remotely sensed data"  <b>With the above 2 lines your recommendation is controversy from one to other</b></p>	

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	<p><b>SOIL CHARACTERISTICS MODELING</b></p> <p>1. Line 11–“For example, <a href="#">Karray et al. (2023)</a> employed PLSR “-the expansion of PLSR has to be given.</p> <p>2. Line 17- “spectroradiometer reflectance data to predict soil properties through PLS multivariate”- <b>mistyped</b></p> <p><b>SSLS Draw Backs</b></p> <p><b>Proper references are not given the reference given also states that SSL’s are effective and important.</b></p> <p><b>FUTURE DIRECTIONS</b></p> <p>1. Line 5 –“ Additionally, diffuse reflectance spectroscopy (DRS) has proven to be an effective method for accurately estimating soil parameters such as pH, organic carbon, clay content, exchangeable cation capacity, and soil mineralogy “ - <b>no proof for the sentence given.</b></p> <p><b>Conclusion</b></p> <p>1. Line 12: “For instance, research indicates that the spectral reflectance of soil is closely related to the presence of organic matter and minerals, making it a valuable tool for soil analysis “ – <b>no mathematical proof have been submitted for this.</b></p>	
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**PART 2:**

	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)
Are there ethical issues in this manuscript?	<i>(If yes, Kindly please write down the ethical issues here in details)</i>	

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