

### Review Form 3

Journal Name:	<a href="#">Asian Journal of Probability and Statistics</a>
Manuscript Number:	Ms_AJPAS_127604
Title of the Manuscript:	<b>Advancing Statistical Methodologies for Composite Phenotype Analysis in Genome-Wide Association Studies</b>
Type of the Article	

#### **General guidelines for the Peer Review process:**

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. To know the complete guidelines for the Peer Review process, reviewers are requested to visit this link:

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#### PART 1: 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>
<b>Please write a few sentences regarding the importance of this manuscript for the scientific community. A minimum of 3-4 sentences may be required for this part.</b>	<ul style="list-style-type: none"> <li>This manuscript introduces a robust approach for analyzing composite phenotypes in GWAS, enhancing the detection of significant SNPs while preserving trait interrelationships. By leveraging compressed linear mixed models, it addresses key challenges in studying complex genetic traits, offering valuable insights for crop improvement. Its scalable methodology holds broad relevance for both agricultural and broader genetic research.</li> </ul>	
<b>Is the title of the article suitable? (If not please suggest an alternative title)</b>	<ul style="list-style-type: none"> <li>Title is suitable as per the manuscript</li> </ul>	
<b>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.</b>	<ul style="list-style-type: none"> <li>Simplify complex sentences for better readability. For instance, break down the explanation of results into separate points, highlighting the key findings.</li> <li>Include specific implications for plant breeding or other practical applications in the conclusion to attract broader readership.</li> </ul>	
<b>Is the manuscript scientifically, correct? Please write here.</b>	<ul style="list-style-type: none"> <li>Yes</li> </ul>	
<b>Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.</b>	<ul style="list-style-type: none"> <li>Include more recent studies (post-2020) to strengthen the literature review.</li> <li>Ensure uniform formatting of references, especially journal titles and DOIs.</li> </ul>	
<b>Is the language/English quality of the article suitable for scholarly communications?</b>	<ul style="list-style-type: none"> <li>Yes</li> </ul>	
<b>Optional/General</b> comments	<ul style="list-style-type: none"> <li>Provide more details about the phenotypic standardization process (Equation 4). Specify the rationale for selecting the traits and how composite phenotypes were prioritized.</li> <li>The conclusion could emphasize how this methodology could transform GWAS for other complex traits beyond agriculture, such as in human genetics.</li> <li>The recommendations section should suggest future research directions, such as exploring non-hierarchical clustering algorithms for CMLM.</li> <li>Eliminate redundant sentences and streamline technical jargon for an interdisciplinary audience.</li> <li>Use subheadings to organize dense sections of the results and discussion for better navigation.</li> </ul>	

#### PART 2:

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

#### Reviewer Details:

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