

Journal Name:	<a href="#">Asian Journal of Agriculture and Allied Sciences</a>
Manuscript Number:	Ms_AJAAS_12644
Title of the Manuscript:	<b>Genotype by Environment Interaction and Grain Yield Stability of Food Barley (<i>Hordeum vulgare</i> L.) Genotypes in East Shewa</b>
Type of the Article	

**PART 1: Comments**

	<b>Reviewer's comment</b>	<b>Author's Feedback</b> <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>	The manuscript, "Genotype by Environment Interaction and Grain Yield Stability of Food Barley ( <i>Hordeum vulgare</i> L.) Genotypes in East Shewa," holds significant value for the scientific community. By addressing the critical need for stable, high-yielding barley genotypes in drought-prone regions, it provides vital insights into the adaptation and performance of genotypes across varying environments. The study's use of AMMI and GGE-Biplot models offers a robust methodology for analyzing genotype-environment interactions and identifying stable candidates like G-5 and G-6 for potential release. These findings contribute to improving food security and agricultural sustainability, particularly in regions facing environmental challenges.	
<b>Is the title of the article suitable? (If not please suggest an alternative title)</b>	Yes, the title of the article, "Genotype by Environment Interaction and Grain Yield Stability of Food Barley ( <i>Hordeum vulgare</i> L.) Genotypes in East Shewa," is suitable. It effectively conveys the main focus of the research, which involves studying genotype-by-environment interactions and assessing yield stability of food barley genotypes in a specific region. The inclusion of the scientific name <i>Hordeum vulgare</i> L. adds clarity and specificity for scientific audiences. Additionally, the title highlights the key elements of the study—genotype interaction,	

	grain yield stability, and the geographical context—making it informative and aligned with the manuscript's content.	
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<p><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></p>	<p>The abstract of the article is comprehensive in summarizing the key aspects of the study, including its objectives, methodology, results, and conclusions. However, there are areas where it could be improved for clarity and completeness. Suggested Revision: "The study aimed to identify stable and high-yielding food barley (<i>Hordeum vulgare L.</i>) genotypes suitable for East Shewa Zone, Ethiopia. Fourteen genotypes were evaluated across six environments using the AMMI and GGE-Biplot models, which revealed that environmental factors contributed 54.55% to yield variation, genotype-environment interaction 16.15%, and genotype 9.08%. Genotypes G-5 and G-6 were the most stable and high-yielding across test sites, making them potential candidates for release. These findings have significant implications for improving food security in drought-prone regions by providing stable barley varieties for diverse agro-ecologies." This revision balances detail with conciseness and highlights the study's broader significance.</p>	
<p><b>Is the manuscript scientifically, correct? Please write here.</b></p>	<p>Based on the provided content, the manuscript appears to be scientifically correct. It demonstrates a robust and systematic approach to analyzing genotype-by-environment interactions and grain yield stability in food barley. The manuscript is scientifically correct and contributes valuable insights to crop science, specifically in barley breeding for drought-prone regions. However, minor refinements in the discussion of broader impacts, statistical methodologies, and integration with prior research could enhance its clarity and impact.</p>	
<p><b>Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.</b></p>	<p>The references in the manuscript are relevant to the study, citing both classic and contemporary works in the fields of genotype-by-environment interaction, barley research, and statistical modeling. However, there are a few observations and suggestions for improvement regarding the references:</p>	

	<p>Areas for Improvement:</p> <ol style="list-style-type: none"><li>1. Recency: Many references are relatively old (e.g., Purchase, 1997; Ceccarelli, 1996; Crossa, 1990). While these are seminal works, integrating more recent studies (from the last 5-10 years) would demonstrate engagement with current advancements in barley research and statistical methods.</li><li>2. Breadth: The reference list could include more international studies on barley breeding and genotype-by-environment interactions in similar agro-ecological zones to enhance the study's broader applicability.</li></ol> <p>It is suggested to update with the newest additional references to strengthen the manuscript by incorporating recent methodologies and findings, thereby situating the research within a broader and more current scientific context.</p>	
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<p><b>Is the language/English quality of the article suitable for scholarly communications?</b></p>	<p>The language and English quality of the article are generally suitable for scholarly communication, but there are areas where the writing can be refined to enhance clarity, conciseness, and professionalism. Below are some observations and suggestions:</p> <p>Strengths:</p> <ol style="list-style-type: none"> <li>1. Technical Terminology: The manuscript effectively uses appropriate scientific terminology, such as "genotype-by-environment interaction," "AMMI model," and "GGE-Biplot," demonstrating its alignment with scholarly standards.</li> <li>2. Logical Flow: The structure of the article, including clear sections (abstract, introduction, methods, results, and discussion), supports easy comprehension.</li> <li>3. Focused Content: The sentences communicate key ideas directly, making it accessible to readers familiar with agricultural and statistical research.</li> </ol> <p>Areas for Improvement:</p> <ol style="list-style-type: none"> <li>1. Grammar and Syntax: <ul style="list-style-type: none"> <li>• Some sentences are long and overly complex, which may hinder readability. For instance, the abstract and introduction could benefit from simpler sentence structures.</li> <li>• Articles (e.g., "a," "an," "the") and prepositions are occasionally misused or missing.</li> </ul> </li> <li>2. Consistency: Ensure consistency in verb tense throughout the manuscript (e.g., use past tense for describing completed experiments and present tense for general findings or interpretations).</li> <li>3. Wordiness: Certain phrases are unnecessarily verbose. For instance, "The AMMI model indicated that the environment contributed 54.55%, GXE 16.15%, and genotype 9.08% to the total variation" could be simplified to "The AMMI model showed that the environment contributed 54.55%, GXE 16.15%, and genotype 9.08% to total variation."</li> <li>4. Scholarly Tone:</li> </ol>	
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	<p>Some sentences could adopt a more formal tone. For example, "Hence, G-5 and G-6 are recommended as potential candidates for release" might be improved as "Thus, genotypes G-5 and G-6 are proposed as potential candidates for release."</p> <p>5. Minor Typos: Occasional typographical errors, such as inconsistent use of "Genotype x Environment" and "Genotype by Environment," should be standardized.</p> <p>Suggestions for Revision:</p> <ol style="list-style-type: none"><li>1. Editing for Clarity:<ul style="list-style-type: none"><li>• Break long sentences into shorter ones to improve readability and precision.</li><li>• Avoid redundant phrases like "potential candidates for release," where "candidates for release" suffices.</li></ul></li><li>2. Professional Tone: Replace casual or conversational terms with formal equivalents (e.g., "results showed" instead of "results indicated").</li><li>3. Proofreading: A final round of proofreading by a native English-speaking editor or a professional editing service would help catch subtle issues and elevate the language quality further.</li></ol>	
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<p><b>Optional/General</b> comments</p>	<p>Here are some sentences from the manuscript that could be revised for clarity, grammar, or conciseness, along with suggested revisions:</p> <p>Abstract</p> <ol style="list-style-type: none"> <li>1. Original: "The study was carried out at Adami Tulu Agricultural Research Center (ATARC) in Lume and Dugda Districts during the 2021 and 2022 main cropping seasons to identify stable, high-yielding food barley genotypes suitable for East Shewa Zone and similar agro-ecologies." Revised: "This study, conducted at the Adami Tulu Agricultural Research Center (ATARC) in Lume and Dugda Districts during the 2021 and 2022 cropping seasons, aimed to identify stable, high-yielding food barley genotypes suitable for the East Shewa Zone and similar agro-ecologies."</li> <li>2. Original: "The AMMI model indicated that the environment contributed 54.55%, GXE 16.15%, and genotype 9.08% to the total variation." Revised: "The AMMI model showed that the environment accounted for 54.55%, genotype-environment interaction (GxE) for 16.15%, and genotype for 9.08% of the total variation."</li> <li>3. Original: "Hence, G-5 and G-6 are recommended as potential candidates for release." Revised: "Thus, genotypes G-5 and G-6 are proposed as candidates for release."</li> </ol> <p>Introduction</p> <ol style="list-style-type: none"> <li>4. Original: "Ethiopia is a key player, accounting for about a</li> </ol>	
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	<p>quarter of the total barley production in Africa (FAO, 2021)." Revised: "Ethiopia contributes approximately 25% of Africa's total barley production (FAO, 2021)."</p> <p>5. Original: "In Ethiopia, numerous food barley varieties have been introduced in Bale Highland and parts of Eastern Arsi in recent decades. However, there remains a scarcity of barley types suitable for low moisture stress regions like the mid Rift Valley." Revised: "Although many food barley varieties have been introduced in Ethiopia's Bale Highlands and parts of Eastern Arsi, there remains a lack of varieties adapted to low-moisture stress regions such as the mid Rift Valley."</p> <p>Results and Discussion</p> <p>6. Original: "Statistically significant differences (<math>P &lt; 0.01</math>) were observed among food barley genotypes, environments, and their interaction for grain yield (Table 2). This suggests the existence of genetic variation among the food barley genotypes and the potential to select high-yielding and stable genotype(s)." Revised: "Significant differences (<math>P &lt; 0.01</math>) were observed among food barley genotypes, environments, and their interactions for grain yield (Table 2), indicating genetic variation and the potential for selecting high-yielding and stable genotypes."</p> <p>7. Original: "The environments were diverse, and the responses of food barley genotypes across environments were also varied." Revised: "The environments were diverse, leading to varied</p>	
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	<p>responses among the food barley genotypes."</p> <p>8. Original: "The higher influence of the environment suggests its crucial role in determining food barley yields." Revised: "The significant influence of the environment underscores its critical role in determining food barley yields."</p> <p>Conclusion</p> <p>9. Original: "G-5 and G-6 genotypes had the least AMMI stability and genotypic selection index value and were widely adaptable and stable high-yielding genotypes." Revised: "Genotypes G-5 and G-6 exhibited the lowest AMMI stability values and genotypic selection indices, demonstrating wide adaptability and stable high yields."</p> <p>10. Original: "Therefore, these two genotypes were selected as candidate varieties for possible release." Revised: "Thus, these two genotypes are recommended as candidates for potential release."</p>	
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**PART 2:**

	<b>Reviewer's comment</b>	<b>Author's comment</b> <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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