

Review Form 1.7

Journal Name:	Journal of Advances in Biology & Biotechnology
Manuscript Number:	Ms_JABB_119086
Title of the Manuscript:	Advancing Integrated Weed Management Strategies in Sustainable Agriculture: Synergizing Cultural, Mechanical, Biological, and Precision Farming Approaches for Effective Weed Control and Environmental Stewardship
Type of the Article	Review Article

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PART 1: 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)
<p>Compulsory REVISION comments</p> <ol style="list-style-type: none"> 1. Is the manuscript important for scientific community? (Please write few sentences on this manuscript) 2. Is the title of the article suitable? (If not please suggest an alternative title) 3. Is the abstract of the article comprehensive? 4. Are subsections and structure of the manuscript appropriate? 5. Do you think the manuscript is scientifically correct? 6. Are the references sufficient and recent? If you have suggestion of additional references, please mention in the review form. <p><u>(Apart from above mentioned 6 points, reviewers are free to provide additional suggestions/comments)</u></p>	<ol style="list-style-type: none"> 1. The manuscript addresses a critical topic in agriculture: weed management, which is vital for maintaining crop yields and ensuring sustainable farming practices. Given the increasing challenges posed by herbicide resistance, environmental concerns, and the need for sustainable agriculture, the manuscript's focus on integrated weed management (IWM) is highly relevant. The discussion of both conventional and emerging technologies, as well as the emphasis on sustainability and innovation, makes this manuscript a valuable contribution to the scientific community. It provides a comprehensive overview of current strategies and suggests a paradigm shift towards more holistic and sustainable weed management practices, which is crucial for future agricultural resilience. 2. The current title, "Integrated Weed Management: Evaluating Conventional and Emerging Strategies for Sustainable Agriculture," is informative but could be more specific to highlight the comprehensive nature of the review. A suggested alternative could be: "Integrated Weed Management: A Comprehensive Review of Conventional, Non-Conventional, and Emerging Strategies for Sustainable Agriculture." This title more accurately reflects the depth and breadth of the manuscript, indicating that it covers a wide range of strategies and emphasizes the integration of various approaches for sustainability. 3. The Abstract provides a general overview of the manuscript's content, covering the importance of weed management, the range of strategies discussed, and the need for a shift towards sustainable practices. However, it could be improved by including more specific details about the key points discussed in each section. For instance, mentioning the five pillars of IWM, highlighting some of the emerging technologies reviewed, and summarizing the environmental and socioeconomic impacts addressed in the manuscript would provide a more transparent snapshot of the comprehensive coverage. Here is a revised version: Revised Abstract: "This manuscript comprehensively reviews integrated weed management (IWM) strategies, emphasizing the need for sustainable agricultural practices. It explores conventional methods, such as herbicide and mechanical control, and non-conventional techniques, including mulching, cover crops, and thermal methods. The review also delves into emerging technologies like precision agriculture, genomic approaches, and robotic weed control. The discussion is framed around five pillars of IWM: diverse cropping systems, cultivar selection, field and soil management, direct control, and monitoring and evaluation. Environmental and socioeconomic impacts of weed management are considered, highlighting the need for a new paradigm that integrates diverse control tactics to enhance agricultural resilience and sustainability." 4. The manuscript is well-structured and logically organized into clear subsections that cover different aspects of weed management. Each section builds on the previous one, starting from an overview of IWM, through detailed discussions of conventional, non-conventional, and traditional strategies, to the exploration of emerging technologies. The five pillars framework provides a coherent structure for discussing IWM strategies. However, there could be improvements in the following areas: Enhanced Integration: More explicit connections between sections could be made to highlight how different strategies complement each other within the IWM framework. Visual Aids: Including more diagrams, tables, or figures to illustrate the concepts and strategies discussed would aid comprehension and retention. Summary and Recommendations: Each major section could conclude with a brief summary or key takeaways to reinforce the main points before moving to the next topic. 	

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	<p>5. The manuscript appears to be scientifically accurate and well-researched. It references a broad range of studies and covers the key concepts and strategies in weed management comprehensively. The discussion on herbicide resistance, environmental impacts, and the integration of various weed management techniques is particularly robust. However, a few areas could be strengthened:</p> <p>Recent Research: While the manuscript references recent studies, ensuring the inclusion of the latest research and technological advancements in weed management will enhance its relevance.</p> <p>Balanced View: Providing a more balanced discussion of the advantages and limitations of each method, including potential negative impacts and practical challenges, would give a more nuanced understanding.</p> <p>Methodological Details: Where possible, adding more detail about the methodologies used in referenced studies would strengthen the scientific rigor of the review.</p> <p>6. The references are generally recent and relevant, covering a broad spectrum of weed management research. However, there are opportunities to enrich the manuscript with additional, up-to-date references, particularly in areas such as emerging technologies and the latest advancements in precision agriculture and robotic weed control.</p> <p>Additional Suggestions/Comments:</p> <p>Practical Recommendations: Providing practical recommendations for farmers on how to implement IWM strategies, possibly through case studies or best practices, would enhance the manuscript's applicability.</p> <p>Policy Implications: Discussing the implications for policy and how supportive policies can promote the adoption of IWM practices would be beneficial.</p> <p>Glossary: Including a glossary of key terms used throughout the manuscript could help readers unfamiliar with specific concepts in weed management.</p> <p>Future Research Directions: A dedicated section on future research needs and potential areas for innovation in weed management could provide valuable insights for researchers and policymakers.</p>	
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Minor REVISION comments

1. Is language/English quality of the article suitable for scholarly communications?

The language and English quality of the manuscript are generally suitable for scholarly communication. The manuscript is written in a clear and professional tone, appropriate for an academic audience. However, there are several areas where the language could be refined to enhance clarity, coherence, and readability. Here are some specific suggestions for improving the language quality:

Consistency and Precision:
Ensure consistency in terminology throughout the manuscript. For instance, use either "IWM" or "integrated weed management" consistently after the initial introduction of the acronym.
Be precise with technical terms and avoid unnecessary repetition. For example, instead of frequently stating "conventional, non-conventional, and emerging strategies," consider using these terms where relevant and summarizing them as "various weed management strategies" in sections where the distinction is not necessary.

Sentence Structure and Flow:
Some sentences are long and complex, which can make them difficult to follow. Breaking them into shorter, more straightforward sentences can improve readability.
Use transition words and phrases to enhance the flow between sentences and paragraphs. This will help in guiding the reader through the arguments and points made in the manuscript.

Grammar and Syntax:
Ensure subject-verb agreement and proper tense usage throughout the manuscript. For example, "Farmer's strategies can be categorized into one of the following five pillars" should be revised to "Farmers' strategies can be categorized into the following five pillars."
Check for minor grammatical errors and awkward phrasings. For instance, "Herbicide use should be as low impact effective as possible" could be revised to "Herbicide use should be as low impact and effective as possible."

Use of Technical Jargon:
While the audience is expected to be familiar with technical terms related to weed management, providing brief explanations or definitions for complex concepts upon first use can help ensure that all readers understand the content.
Avoid excessive use of jargon that might not be immediately accessible to all readers, especially in sections meant to discuss broader implications or provide practical advice.

Clarity in Data Presentation:
Ensure that any data presented, such as figures, statistics, or study results, are clearly explained and contextualized within the text. For example, "An effective application of SSWM led to a 70% decrease in the use of herbicides while maintaining equivalent yields" should include a brief explanation of how this outcome was measured and its significance.

Avoid Redundancy:
Remove redundant phrases or sentences that do not add new information. For instance, repeatedly stating the benefits of IWM in various sections could be streamlined by summarizing them in one place.

Abstract and Conclusion Refinement:
As noted in the compulsory comments, the abstract should succinctly summarize the key points of each section to provide a clear overview of the manuscript. The conclusion should concisely summarize the findings and implications without introducing new information.

Typographical and Formatting Consistency:
Ensure that formatting is consistent, including the use of headings, subheadings, and bullet points. This will enhance the visual organization of the manuscript.
Check for typographical errors and ensure uniformity in font style, size, and spacing.

Sample Language Improvements
Here are a few examples of how sentences can be improved for clarity and readability:

Original: "Integrated weed management (IWM) involves a comprehensive approach that integrates multiple weed control strategies, considering ecological, economic, and sociological aspects to manage weed populations effectively and sustainably."
Revised: "Integrated weed management (IWM) employs a comprehensive approach, combining various weed control strategies with consideration of ecological, economic, and sociological factors to effectively and sustainably manage weed populations."

Original: "Herbicide use should have a low impact and be as effective as possible to reduce adverse effects on the environment and move agriculture toward sustainable practices."

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	<p>Revised: "Herbicide use should be minimized and optimized to reduce adverse environmental impacts and promote sustainable agricultural practices." Original: "Thermal weed control methods include the use of fire, flaming, hot water, steam, and freezing to rapidly kill weeds without leaving chemical residues in the soil or water." Revised: "Thermal weed control employs methods such as fire, flaming, hot water, steam, and freezing to quickly eliminate weeds, avoiding chemical residues in soil or water." Final Note Refining the language to enhance clarity and readability will significantly improve the manuscript's effectiveness in communicating valuable insights to the scientific community. Careful proofreading and a review by a professional editor can further ensure that the manuscript meets high scholarly standards.</p>	
Optional/General comments		

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

Reviewer Details:

Name:	Ahmad Alsaleh
Department, University & Country	Yozgat Bozok University, Türkiye