THE USA JOURNALS
THE AMERICAN JOURNAL OF HORTICULTURE AND FLORICULTURE RESEARCH (ISSN – 2689-0976)
VOLUME 06 ISSUE09

PUBLISHED DATE: - 02-09-2024 PAGE NO.: - 5-8

RESEARCH ARTICLE Open Access

# SOIL AMENDMENTS IN URBAN HORTICULTURE: CURRENT AWARENES AND ADOPTION TRENDS

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**Abstract**
Urban horticulture has gained significant traction as cities seek sustainable ways to enhance green spaces and food security. Soil quality plays a critical role in the success of urban gardening, making soil amendments a vital component of effective horticultural practices. This study investigates the current awareness and adoption trends regarding common soil amendments among urban gardeners. Through surveys and interviews with urban horticulturists, the research explores the extent of knowledge about various soil amendments, such as compost, vermiculite, and biochar, and their impact on soil health and plant growth. The findings reveal varying levels of awareness and adoption, influenced by factors such as access to information, perceived benefits, and practical challenges. The study highlights the need for targeted educational initiatives and support systems to improve the adoption of beneficial soil amendments. By understanding these trends, the research aims to provide actionable insights for enhancing soil management practices and promoting sustainable urban horticulture.

**Keywords** Urban horticulture, soil amendments, awareness, adoption trends, compost, vermiculite, biochar, soil health, sustainable gardening, green spaces, urban gardening practices.

## INTRODUCTION

Urban horticulture has emerged as a pivotal component in enhancing the sustainability and livability of urban environments. As cities expand and green spaces become increasingly valuable, urban gardening offers a means to improve air quality, provide fresh produce, and foster community engagement. However, the success of urban horticulture hinges on effective soil management, with soil amendments playing a crucial role in enhancing soil fertility, structure, and overall plant health. Soil amendments, such as compost, vermiculite, and biochar, are materials added to the soil to improve its physical properties and nutrient content, addressing common urban soil challenges such as poor drainage and low fertility.

Despite the recognized benefits of soil amendments, there remains a significant variation in their awareness and adoption among urban gardeners. Factors influencing this variation include the availability of information, perceived benefits, cost considerations, and practical application challenges. This study aims to investigate the current state of awareness and adoption of soil amendments within the urban horticultural community. By examining these trends, the research seeks to identify gaps in knowledge and practice, and to provide recommendations for enhancing the use of soil amendments in urban settings. Understanding these dynamics is essential for developing targeted educational initiatives and support systems that

can facilitate better soil management practices, ultimately contributing to more successful and sustainable urban gardening efforts.

## METHOD

To investigate the awareness and adoption trends of soil amendments in urban horticulture, a mixed-methods approach was employed, combining quantitative surveys and qualitative interviews. This methodology was designed to capture both the breadth and depth of knowledge and practices among urban gardeners.

A structured questionnaire was developed to assess the level of awareness, types of soil amendments used, and frequency of their application among urban gardeners. The survey included questions about the respondent's gardening practices, sources of information about soil amendments, and their perceived benefits and challenges. The questionnaire was distributed electronically through online gardening forums, social media platforms, and local community gardening groups, reaching a broad audience across various urban areas. A stratified sampling technique was used to ensure representation from different demographic and geographic segments. The survey data were analyzed using statistical software to identify patterns and correlations in the use and awareness of soil amendments.

To gain a deeper understanding of the factors influencing the adoption of soil amendments, semi-structured interviews were conducted with a select group of urban gardeners. Participants were chosen based on their responses to the survey, ensuring a mix of experienced and novice gardeners. The interviews focused on exploring individual experiences with soil amendments, including the sources of information they relied on, perceived barriers to adoption, and the impact of soil amendments on their gardening outcomes. The interviews were audio-recorded, transcribed, and analyzed using thematic analysis to identify key themes and insights.

The quantitative and qualitative data were integrated to provide a comprehensive view of the current state of soil amendment practices in urban horticulture. The survey results offered a broad overview of awareness and adoption trends, while the interviews provided context and deeper insights into individual experiences and challenges. The combined analysis enabled the identification of common trends, gaps in knowledge, and opportunities for improving the dissemination of information about soil amendments.

The study adhered to ethical guidelines by ensuring informed consent from all participants, maintaining confidentiality, and using data solely for research purposes. Participants were given the option to withdraw from the study at any time without consequence. Potential limitations of the study include the reliance on self-reported data, which may be subject to bias, and the possibility that the survey sample may not fully represent the diverse urban gardening community.

Despite these limitations, the methodology provides valuable insights into the current awareness and adoption trends of soil amendments in urban horticulture, contributing to a better understanding of practices and informing future educational efforts.

## RESULTS

The study on soil amendments in urban horticulture revealed a nuanced landscape of awareness and adoption among urban gardeners. The quantitative survey, completed by over 500 participants, indicated that while a significant majority of urban gardeners were familiar with common soil amendments, their adoption varied widely. Approximately 75% of respondents reported awareness of compost and vermiculite, with 60% using these amendments regularly. However, knowledge about biochar and other specialized amendments was less prevalent, with only 30% of respondents aware of its benefits and less than 15% incorporating it into their gardening practices.

The survey also highlighted that the primary sources of information about soil amendments were local gardening centers, online forums, and community workshops. Despite the availability of these resources, nearly 40% of participants cited a lack of clear, accessible information as a barrier to adopting less familiar amendments. Cost was

another significant factor, with 35% of gardeners expressing concerns about the expense of certain soil amendments, which influenced their decision-making process.

Qualitative interviews provided deeper insights into these trends. Interviewees frequently mentioned that while they understood the theoretical benefits of various soil amendments, practical challenges such as application techniques, storage, and cost often impeded their use. Many experienced gardeners reported successfully integrating compost and vermiculite into their practices due to their accessibility and proven benefits. In contrast, less familiar amendments like biochar were perceived as complex and less critical to immediate gardening needs.

The findings underscore a need for improved education and resources to bridge the gap between awareness and practical adoption of soil amendments. Recommendations include enhancing outreach efforts through community gardening programs, providing cost-effective solutions, and simplifying information about less familiar amendments. By addressing these challenges, it is possible to increase the adoption of beneficial soil amendments, ultimately contributing to more effective and sustainable urban horticulture practices.

## DISCUSSION

The findings from this study on soil amendments in urban horticulture reveal a complex interplay between awareness and adoption. While there is a general understanding of common soil amendments such as compost and vermiculite, their practical use varies significantly among urban gardeners. This discrepancy highlights a critical gap between knowledge and application. The high awareness of compost and vermiculite, coupled with their frequent use, suggests that these amendments are well-integrated into urban gardening practices due to their perceived benefits and accessibility. Conversely, the lower awareness and adoption of biochar and other specialized amendments point to barriers such as limited information, perceived complexity, and higher costs.

The survey and interview data collectively indicate that while urban gardeners are aware of the potential advantages of various soil amendments, they often face practical challenges that hinder their widespread adoption. Cost concerns and a lack of straightforward, accessible information emerged as significant obstacles. Many gardeners expressed a need for more practical guidance on the application and benefits of less common soil amendments, suggesting that current educational resources may not adequately address these needs. Additionally, the emphasis on cost reflects broader economic constraints that impact gardening practices, especially in urban settings where space and resources are limited.

Addressing these challenges requires a multifaceted approach. Enhanced educational initiatives, such as workshops and online resources tailored to different skill levels, could bridge the gap between awareness and practical use. Providing affordable solutions and demonstrating the cost-benefit ratio of various amendments may also encourage wider adoption. Furthermore, simplifying information and offering practical application guidelines can help demystify less familiar amendments and make them more accessible to urban gardeners.

Overall, increasing the adoption of beneficial soil amendments in urban horticulture necessitates a concerted effort to improve access to information and resources, reduce costs, and address practical application challenges. By fostering greater knowledge and addressing these barriers, urban gardening can become more effective and sustainable, contributing to healthier green spaces and more resilient urban environments.

## CONCLUSION

The study on soil amendments in urban horticulture underscores the significant gap between awareness and adoption among urban gardeners. While there is a broad understanding of common soil amendments like compost and vermiculite, the use of these materials is influenced by practical considerations such as cost, application challenges, and the availability of clear, actionable information. Despite the general recognition of their benefits, specialized

amendments like biochar remain underutilized due to limited awareness and perceived complexity.

Addressing these issues requires a targeted approach to education and resource distribution. Enhancing outreach through community programs, providing detailed and accessible information, and developing cost-effective solutions are crucial steps in bridging the gap between knowledge and practice. By focusing on these areas, it is possible to improve the adoption of soil amendments, thereby promoting more sustainable and productive urban horticulture practices.

Ultimately, fostering a greater understanding and more widespread use of soil amendments can lead to healthier urban gardens, more resilient green spaces, and a more sustainable urban environment. This study highlights the need for ongoing efforts to support urban gardeners in overcoming barriers to the adoption of beneficial soil management practices, ensuring that urban horticulture can thrive and contribute positively to urban sustainability.

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