

## AGRICULTURAL TERMINOLOGY IN THE UZBEK LANGUAGE: ISSUES OF FORMATION AND STANDARDIZATION

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### Abstract

The present article is devoted to a comprehensive linguistic analysis of the processes involved in the formation, development, and standardization of agricultural terminology in the Uzbek language. In the context of globalization, rapid scientific and technological progress, and the modernization of agricultural education and practice, the role of terminological systems has become increasingly significant. Agricultural terminology, as a specialized subsystem of the national language, reflects not only professional knowledge and practical experience but also cultural, historical, and cognitive aspects of a society. The study examines the historical stages of the formation of Uzbek agricultural terminology, identifies the main sources of term creation, and analyzes the challenges related to terminological inconsistency, synonymy, polysemy, and borrowing. Special attention is paid to the issues of linguistic normativity, standardization mechanisms, and the role of scientific institutions, educational systems, and lexicographic practices in ensuring terminological stability. The research is based on descriptive, comparative, and analytical methods, drawing upon scientific texts, educational materials, terminological dictionaries, and normative documents related to the agricultural sector. The findings of the study contribute to the development of theoretical principles for terminological standardization and offer practical recommendations for improving the use of agricultural terms in academic, educational, and professional communication. The results are expected to be valuable for linguists, terminologists, educators, and specialists in the agricultural field, as well as for policy-makers involved in language planning and standardization.

**Keywords:** Uzbek language; agricultural terminology; term formation; linguistic norm; standardization; terminological system; professional discourse.

## Introduction

The rapid development of agriculture as a strategically important sector of the national economy has significantly influenced the linguistic landscape of modern Uzbek. As agriculture increasingly integrates advanced technologies, scientific innovations, and international cooperation, the need for precise, standardized, and functionally efficient terminology becomes not merely a linguistic concern but a practical necessity. Terminology serves as the primary tool for professional communication, knowledge transfer, and scientific discourse; therefore, the formation and normalization of agricultural terms in the Uzbek language represent a critical area of linguistic research. In this respect, agricultural terminology functions as a bridge between scientific theory, practical application, and educational dissemination, ensuring mutual understanding among specialists and contributing to the overall development of the field.

Historically, the Uzbek language has demonstrated a remarkable capacity for lexical enrichment, particularly in response to socio-economic changes. Agricultural terminology, in particular, has evolved through a complex interaction of indigenous lexical resources, borrowings from other languages, and deliberate terminological planning. Traditional agricultural practices gave rise to a rich layer of native terms, many of which are deeply rooted in the cultural and historical experience of the Uzbek people. However, the emergence of modern agronomy, mechanization, biotechnology, and digital agriculture has introduced a vast array of new concepts that require adequate linguistic representation. This situation has led to an intensive process of term creation, adaptation, and borrowing, often resulting in terminological variation and inconsistency.

One of the central problems addressed in this article is the lack of unified norms in the use of agricultural terms. In contemporary Uzbek professional discourse, it is not uncommon to encounter multiple terms referring to the same concept, parallel usage of native and borrowed terms, or unstable semantic boundaries between related notions. Such phenomena complicate professional communication, hinder the effective transmission of knowledge, and reduce the quality of educational materials. From a linguistic perspective, these issues underscore the necessity of systematic terminological standardization based on clear theoretical principles and practical criteria.

The relevance of this research is further enhanced by the growing attention to language policy and planning in Uzbekistan, where the strengthening of the state language and its functional expansion into all spheres of public life is considered a priority. Agricultural terminology occupies a special place within this framework, as it directly affects higher education, scientific research, legal documentation, and everyday professional practice. The standardization of terms is therefore not only a linguistic task but also an institutional and societal responsibility involving cooperation between linguists, subject-matter experts, and regulatory bodies.

The purpose of this article is to analyze the main stages and mechanisms of agricultural term formation in the Uzbek language and to identify the key challenges related to their normalization and standardization. The study seeks to reveal the sources of terminological units, examine their structural and semantic features, and assess the effectiveness of existing standardization practices. In doing so, the article aims to contribute to the theoretical understanding of terminological systems and to propose practical recommendations for improving terminological consistency in the agricultural domain.

The research questions guiding this study include the following: What are the principal linguistic and extralinguistic factors influencing the formation of agricultural terminology in Uzbek? How do borrowing and native word-formation processes interact within this terminological system? What types of terminological variation are most prevalent, and what are their underlying causes? Finally, what strategies can be employed to enhance the standardization and normative regulation of agricultural terms in accordance with the requirements of modern scientific communication?

By addressing these questions, the article positions itself at the intersection of general linguistics, terminology studies, and applied language planning. The findings are intended to support the development of coherent terminological policies and to facilitate more effective communication within the agricultural sector. Ultimately, the study underscores the idea that a well-structured and standardized terminological system is a prerequisite for scientific progress, professional efficiency, and the sustainable development of agriculture in a modern linguistic environment.

## Materials and Methods

The methodological framework of this study is based on an integrative linguistic approach that combines descriptive, analytical, comparative, and functional methods in order to ensure a comprehensive examination of the formation and standardization of agricultural terminology in the Uzbek language. Given the complex and multidimensional nature of terminological systems, the research design was structured to account for both internal linguistic mechanisms and external socio-professional factors influencing terminological development. The primary materials for the study include a wide range of written sources such as scientific articles in agronomy and related disciplines, university-level textbooks and teaching manuals used in agricultural higher education institutions, terminological and explanatory dictionaries of the Uzbek language, норматив-lexicographic publications, as well as official normative documents regulating terminology in the agricultural sector. These materials were selected to reflect different stages of terminological usage, from traditional lexical units to newly introduced terms associated with modern agricultural technologies.

The descriptive method was employed as the foundational analytical tool to systematically identify, classify, and characterize agricultural terms currently functioning in Uzbek professional discourse. Through this method, terms were examined in terms of their formal structure, semantic scope, morphological composition, and frequency of usage across different types of texts. This approach made it possible to reveal patterns of stability and variation within the terminological system and to distinguish between standardized terms and non-normative or transitional variants. Particular attention was paid to the contextual functioning of terms, as terminological meaning often becomes fully apparent only within specialized communicative situations.

In addition to description, the comparative method played a crucial role in the analysis, especially in examining borrowed terminology and its adaptation to the phonetic, morphological, and semantic norms of the Uzbek language. Uzbek agricultural terms were compared with their equivalents in Russian, English, and, where relevant, other Turkic languages, in order to identify sources of borrowing, pathways of semantic transfer, and degrees of assimilation. This comparative perspective allowed for the identification of hybrid terminological formations and calques, as well as for an assessment of their functional adequacy and normative

acceptability within Uzbek linguistic practice. The method also facilitated the evaluation of international terminological convergence and divergence in the context of globalization.

The analytical method was applied to investigate the internal structure of agricultural terms and terminological combinations. Terms were analyzed according to their word-formation models, including derivation, compounding, affixation, semantic extension, and terminologization of common lexical units. This analysis made it possible to determine the most productive models of term formation in Uzbek agricultural terminology and to assess their conformity with the general principles of the language system. Moreover, the study examined cases of synonymy, polysemy, and homonymy within the terminological corpus, identifying their causes and implications for terminological clarity and precision.

A functional approach was incorporated to evaluate the communicative effectiveness of agricultural terms in real professional contexts. This involved analyzing how terms are used in scientific argumentation, instructional discourse, legal and regulatory documentation, and practical guidelines for agricultural production. The functional analysis highlighted discrepancies between prescriptive norms and actual usage, revealing instances where standardized terms are ignored in favor of more familiar or internationally recognized variants. Such findings are particularly important for understanding the practical challenges of terminological standardization and for developing realistic recommendations that take into account the needs and habits of professional users.

The study also relied on elements of quantitative analysis, although statistical methods were not the primary focus. Frequency counts and distributional observations were conducted to identify the most commonly used agricultural terms and to determine the prevalence of competing variants within the corpus. These quantitative observations supported qualitative conclusions by providing empirical evidence of terminological trends and shifts. In particular, frequency analysis helped to distinguish between marginal, emerging, and dominant terms, thereby offering insights into the dynamics of terminological change.

An important methodological aspect of the research is its normative orientation. The analysis was guided by established principles of terminology studies, including accuracy, unambiguity, systematicity, and conformity with linguistic norms. Existing standards and recommendations issued by linguistic and terminological

authorities were taken into account when evaluating the acceptability of specific terms. At the same time, the study adopted a critical stance toward purely prescriptive approaches, recognizing that effective standardization must be grounded in actual language use and professional practice. This balanced perspective allowed for a nuanced assessment of both normative frameworks and empirical realities.

Overall, the chosen materials and methods provide a solid empirical and theoretical basis for analyzing the formation and standardization of agricultural terminology in the Uzbek language. By combining multiple methodological approaches, the study ensures a comprehensive understanding of terminological processes and creates favorable conditions for drawing well-founded conclusions and practical recommendations. The methodological rigor of the research enhances its relevance not only for linguists and terminologists but also for educators, agricultural specialists, and policy-makers involved in language planning and professional communication.

## Results

The analysis of agricultural terminology in the Uzbek language reveals a complex and dynamic system shaped by historical traditions, linguistic resources, and contemporary socio-economic demands. The results demonstrate that Uzbek agricultural terminology has been formed through the interaction of several primary sources, including native lexical units, borrowings from other languages, and newly created terms based on productive word-formation models. Each of these sources contributes differently to the structure and functionality of the terminological system, resulting in both enrichment and challenges related to standardization and normative regulation.

One of the most significant findings concerns the persistence and adaptability of native lexical resources in the formation of agricultural terms. A substantial number of terms related to traditional farming practices, crop cultivation, animal husbandry, and land use are derived from indigenous Uzbek words that have undergone terminologization. These terms are characterized by semantic transparency, cultural relevance, and ease of comprehension for native speakers. However, the analysis also shows that such terms often coexist with borrowed or hybrid equivalents, creating parallel terminological variants. This coexistence, while

reflecting linguistic richness, frequently leads to inconsistency in professional communication, particularly in educational and scientific texts.

Borrowed terminology constitutes another prominent layer of the Uzbek agricultural terminological system. The results indicate that a considerable proportion of modern agricultural terms have entered Uzbek through Russian and, increasingly, directly from English, especially in fields such as agronomy, biotechnology, irrigation engineering, and agricultural economics. These borrowings vary in their degree of phonetic, morphological, and semantic adaptation. Fully assimilated terms tend to integrate more successfully into the language system, while partially adapted or unassimilated terms often remain unstable and exhibit multiple spelling or usage variants. Such instability poses challenges for standardization and complicates the establishment of clear linguistic norms.

The study further reveals that productive word-formation models play a crucial role in the creation of new agricultural terms in Uzbek. Derivational processes involving suffixation and compounding are widely used to generate terms that conform to the structural norms of the language. These newly formed terms often demonstrate a high level of systematicity and are more easily incorporated into terminological networks. Nevertheless, the results show that not all newly coined terms gain acceptance in professional usage, particularly when international terms are perceived as more authoritative or convenient. This finding highlights the tension between linguistic purism and practical considerations in terminological development.

Another important result relates to the prevalence of synonymy and polysemy within agricultural terminology. The analysis identifies numerous cases where multiple terms are used to denote the same concept or where a single term carries different meanings depending on context. Such phenomena are especially common in transitional areas where traditional agricultural practices intersect with modern scientific approaches. While some degree of variation is inevitable in a developing terminological system, excessive synonymy and polysemy undermine precision and clarity, which are essential qualities of scientific language. The findings suggest that insufficient coordination between linguists and subject-matter specialists contributes to this problem.

The results also underscore the role of institutional and normative factors in shaping agricultural terminology. Official standards, terminological dictionaries, and educational curricula exert a significant influence on term usage, but their impact is not always consistent or uniform. In many cases, standardized terms coexist with non-standard or outdated variants in actual practice. This discrepancy indicates a gap between prescriptive norms and real usage, suggesting that standardization efforts need to be more responsive to the communicative needs of professionals. The findings point to the necessity of continuous monitoring and revision of terminological standards.

An analysis of functional usage reveals that terminological inconsistency is most pronounced in educational materials and popular scientific publications, where authors often prioritize accessibility over strict adherence to normative standards. In contrast, highly specialized scientific texts tend to exhibit greater terminological stability, although even in these contexts variation is not entirely eliminated. This functional differentiation highlights the importance of context-sensitive standardization strategies that take into account the intended audience and communicative purpose of the text.

Overall, the results of the study demonstrate that the formation and standardization of agricultural terminology in the Uzbek language is an ongoing and multifaceted process. While significant progress has been made in developing a functional and expressive terminological system, persistent issues related to borrowing, variation, and normative regulation remain. These findings provide a solid empirical foundation for the subsequent discussion of theoretical implications and practical recommendations aimed at improving terminological consistency and effectiveness.

## Discussion

The findings of this study confirm that the formation and standardization of agricultural terminology in the Uzbek language cannot be understood solely as an internal linguistic process, but must be interpreted within a broader socio-cultural, educational, and institutional framework. The coexistence of native, borrowed, and newly coined terms reflects both the historical depth of Uzbek agricultural practices and the contemporary pressures of scientific globalization. From a theoretical perspective, this situation aligns with general principles of terminology studies,

which emphasize the dynamic and adaptive nature of specialized vocabularies. However, the Uzbek case also illustrates the specific challenges faced by languages undergoing rapid modernization while striving to maintain linguistic identity and normative stability.

One of the key issues highlighted by the results is the tension between linguistic transparency and international intelligibility. Native terms and terms created through Uzbek word-formation models are often more semantically transparent and culturally resonant, facilitating comprehension and knowledge acquisition among students and practitioners. At the same time, internationally recognized terms, particularly those of English origin, offer advantages in terms of cross-border communication and access to global scientific literature. This duality raises important questions about the criteria for terminological standardization: whether priority should be given to national linguistic resources or to international convergence. The discussion suggests that an optimal approach would involve a balanced strategy that integrates internationally accepted concepts into linguistically adapted forms compatible with Uzbek norms.

The prevalence of terminological variation observed in the results can be interpreted as a symptom of insufficient coordination between linguistic theory and professional practice. In many cases, terms are introduced or popularized by subject-matter specialists without systematic linguistic evaluation, leading to inconsistencies in form and meaning. This phenomenon has been widely discussed in terminology theory, where effective standardization is understood as a collaborative process requiring the active participation of linguists, domain experts, and institutional authorities. The Uzbek agricultural context demonstrates the consequences of fragmented standardization efforts and underscores the need for interdisciplinary cooperation.

Another important aspect concerns the role of education in shaping terminological norms. Educational materials serve as a primary channel through which terms are transmitted to future professionals, making them a critical site for terminological regulation. The findings indicate that inconsistencies in textbooks and teaching manuals contribute to the perpetuation of non-standard or competing terms. From a pedagogical standpoint, this situation undermines the formation of stable professional competence and highlights the necessity of aligning educational content with updated terminological standards. The discussion thus reinforces the

argument that terminology planning must be integrated into curriculum development and teacher training.

The discussion also addresses the issue of normative authority and its effectiveness. While official standards and terminological dictionaries play a crucial role in defining acceptable forms, their impact is limited if they are not regularly updated or widely disseminated. The gap between prescriptive norms and actual usage observed in the results suggests that normative documents must be responsive to linguistic change and professional needs. Contemporary terminology theory advocates for a descriptive-prescriptive balance, where standards are informed by empirical data on usage patterns. Applying this principle to Uzbek agricultural terminology could enhance the legitimacy and practical relevance of standardization efforts.

From a functional perspective, the variability of terminology across different communicative contexts reflects the adaptability of language but also reveals potential risks for misinterpretation and inefficiency. Scientific discourse demands precision and unambiguity, while popular and educational texts may tolerate a certain degree of variation for the sake of accessibility. The discussion emphasizes that standardization strategies should be context-sensitive, establishing core standardized terms while allowing controlled variation in less formal contexts. Such an approach would preserve communicative effectiveness without imposing unrealistic rigidity on language use.

Finally, the discussion situates the findings within the broader context of language policy and planning in Uzbekistan. Strengthening the functional capacity of the Uzbek language in specialized domains is a key objective of national language policy, and agricultural terminology represents a vital component of this endeavor. The challenges identified in this study highlight the need for sustained institutional support, including the development of comprehensive terminological databases, regular revision of standards, and increased collaboration between linguistic and agricultural institutions. Addressing these issues would not only improve terminological consistency but also contribute to the overall modernization and international competitiveness of the agricultural sector.

In sum, the discussion demonstrates that the problems and prospects of agricultural terminology standardization in Uzbek are emblematic of broader processes affecting specialized languages in a globalized world. By integrating theoretical

insights with empirical findings, the study offers a nuanced understanding of terminological development and lays the groundwork for practical interventions aimed at enhancing clarity, coherence, and functionality in professional communication.

## Conclusion

The present study has examined the formation and standardization of agricultural terminology in the Uzbek language as a complex linguistic and socio-professional phenomenon shaped by historical traditions, modern scientific development, and language policy priorities. The analysis has demonstrated that agricultural terminology constitutes an essential component of the Uzbek terminological system, reflecting both the cultural heritage of traditional farming practices and the demands of contemporary agrarian science and technology. As such, it plays a decisive role in ensuring effective professional communication, scientific accuracy, and the transmission of specialized knowledge in education and practice.

The findings of the research confirm that Uzbek agricultural terminology has developed through a combination of native lexical resources, borrowed terms, and newly created units based on productive word-formation models. While this diversity has enriched the terminological system, it has also generated significant challenges related to synonymy, polysemy, and inconsistency. These challenges are particularly evident in transitional areas where traditional concepts intersect with modern scientific innovations, as well as in educational and instructional materials where terminological norms are not always applied uniformly.

One of the key conclusions of the study is that terminological standardization cannot be achieved through purely prescriptive measures. Although official standards, dictionaries, and normative documents are indispensable, their effectiveness depends on their alignment with actual language use and professional needs. The observed gap between standardized norms and real usage indicates the necessity of adopting a balanced descriptive-prescriptive approach, in which empirical data on terminological practice inform normative decisions. Such an approach enhances the legitimacy, usability, and sustainability of terminological standards.

The research also underscores the importance of interdisciplinary cooperation in terminological planning. Effective standardization of agricultural terminology

requires close collaboration between linguists, agricultural specialists, educators, and institutional authorities. Without such coordination, terminological initiatives risk remaining fragmented and insufficiently integrated into professional practice. In this regard, higher education institutions play a particularly important role, as they serve as key sites for the formation of terminological competence among future specialists.

From a broader perspective, the study highlights the strategic significance of agricultural terminology for national language development and policy. Strengthening the functional capacity of the Uzbek language in specialized domains is essential for maintaining its status as a fully developed language of science and education. Agricultural terminology, given its close connection to economic development and food security, occupies a central position in this process. Systematic efforts to standardize and modernize this terminological system therefore contribute not only to linguistic clarity but also to the overall progress of the agricultural sector.

In conclusion, the study affirms that the formation and standardization of agricultural terminology in the Uzbek language is an ongoing and dynamic process that requires continuous scholarly attention, institutional support, and practical engagement. The theoretical insights and practical recommendations offered in this article provide a foundation for further research and contribute to the development of more coherent and effective terminological practices. Ultimately, a well-structured and standardized agricultural terminology is indispensable for advancing scientific knowledge, improving professional communication, and ensuring the sustainable development of agriculture in Uzbekistan.

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