

# Vitamin E in Animal Nutrition: Past Achievements and Future Frontiers

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## Introduction

For a century, Vitamin E has been at the forefront of animal nutrition, playing a pivotal role in the health and performance of various species. Initially recognized for its essentiality in preventing reproductive disorders in rats, the understanding of Vitamin E's diverse benefits has expanded across the animal kingdom [1]. As we celebrate a century of advancements in Vitamin E research, it is imperative to reflect on the early milestones and contemplate the future frontiers that hold promise for enhancing animal nutrition, health and productivity. Vitamin E plays a crucial role in animal nutrition, serving as a potent antioxidant that protects cell membranes from oxidative damage. In animal metabolism, Vitamin E, encompassing a group of compounds called tocopherols and tocotrienols, functions as a fat-soluble antioxidant that helps maintain cellular integrity [2].

## Description

The journey of Vitamin E in animal nutrition began with its discovery in 1922, attributed to the groundbreaking work of researchers who identified its role in preventing fetal resorption in rats. Since then, Vitamin E has been acknowledged as a potent antioxidant, safeguarding cell membranes from oxidative damage. In animal nutrition, it has proven crucial for reproduction, muscle development and immune function. Livestock, poultry and companion animals alike benefit from Vitamin E supplementation, with observed improvements in fertility, growth rates and disease resistance. Research in recent decades has unveiled the nuanced mechanisms through which Vitamin E operates, delving into its impact on gene expression, cellular signaling and overall metabolic health. Beyond its antioxidant prowess, Vitamin E's influence on immune modulation and inflammatory responses has sparked interest in optimizing its inclusion in animal diets for enhanced resilience and well-being [3].

Animals, particularly those raised for food production, require sufficient Vitamin E in their diets to support overall health and well-being. Beyond its antioxidant properties, Vitamin E is known to contribute to immune function, reproduction and neurological development in animals. Livestock, such as cattle, swine and poultry, rely on adequate Vitamin E intake to mitigate the negative effects of oxidative stress, which can be induced by factors like intense physical activity, exposure to environmental pollutants and certain disease conditions. Moreover, Vitamin E has been associated with improved meat quality, making it a key component in animal nutrition programs aimed at enhancing productivity and the overall health of livestock. Researchers and animal nutritionists continue to explore optimal levels and forms of Vitamin E supplementation to maximize its benefits in different animal species,

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contributing to the development of balanced and nutritionally sound diets for livestock and companion animals alike [4,5].

## Conclusion

As we reflect on a century of Vitamin E in animal nutrition, the future holds exciting prospects. Continued research promises to uncover more about the intricacies of Vitamin E metabolism, enabling precision in dietary recommendations. The potential integration of emerging technologies, such as nanoencapsulation, may further enhance the bioavailability of Vitamin E in animal diets. Additionally, exploring the interactions between Vitamin E and other nutrients opens avenues for formulating synergistic combinations that optimize animal health and production outcomes. In conclusion, Vitamin E has come a long way in shaping animal nutrition over the past century. From its discovery as a safeguard against reproductive disorders to its recognized roles in growth, immunity and beyond, Vitamin E stands as a cornerstone in animal welfare. Looking ahead, ongoing research and innovative approaches hold the promise of unlocking new dimensions in our understanding of Vitamin E's functions and refining its applications in animal nutrition for generations to come.

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## Conflict of Interest

There are no conflicts of interest by author.

## References

- Burton, G. W., Anne Joyce and K. U. Ingold. "First proof that vitamin E is major lipid-soluble, chain-breaking antioxidant in human blood plasma." *Lancet* 320 (1982): 327.
- Traber, Maret G. and Jeffrey Atkinson. "Vitamin E, antioxidant and nothing more." *Free Radic Biol Med* 43 (2007): 4-15.
- Idamokoro, Emrobowansan M., Andrew B. Falowo, Chika E. Oyeagu and Anthony J. Afolayan. "Multifunctional activity of vitamin E in animal and animal products: A review." *Anim Sci J* 91 (2020): e13352.
- Xiao, Jianxin, Muhammad Zahoor Khan, Yulin Ma and Gibson Maswayi Alugongo, et al. "The antioxidant properties of selenium and vitamin E; their role in periparturient dairy cattle health regulation." *Antioxidants* 10 (2021): 1555.
- Hogan, J. S., W. P. Weiss and K. L. Smith. "Role of vitamin E and selenium in host defense against mastitis." *J Dairy Sci* 76 (1993): 2795-2803.

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