

# CALCIUM SOURCES FOR SUSTAINABLE POULTRY NUTRITION: A REVIEW

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## **Abstract**

Calcium plays a central role in poultry nutrition, particularly for skeletal development, bone strength and eggshell quality. In view of the growing demands for both performance and sustainability in poultry production, a better understanding of the various sources of calcium available is becoming increasingly essential. This systematic review offers a critical analysis of traditional sources (such as limestone and phosphates), sources of animal origin (oyster shells, recycled eggshells) and alternative sources derived from agro-industrial by-products. The aim is to compare their bioavailability, digestibility, and effects on the zootechnical performance of broilers and laying hens. Beyond chemical composition, factors such as particle size and interaction with digestive physiology, notably the role of the gizzard, strongly influence calcium absorption efficiency. By cross-referencing recent data from scientific literature, this review provides insight into the comparative evaluation of calcium sources and underscores the need for more precise and tailored dietary formulations. The aim is to provide researchers and poultry professionals with concrete elements for optimizing calcium supplementation strategies, in a perspective that is both efficient, sustainable and economically viable.

**Keywords:** dietary calcium sources, broilers, laying hens, calcium bioavailability, mineral and organic sources