



Organi-C in Poultry Nutrition: Technical Review for Broiler and Layer Feeds

EXECUTIVE SUMMARY

Organi-C (Sodium Ascorbyl Phosphate (SAP)) is a stabilized phosphorylated vitamin C source used to improve delivery of biologically active ascorbic acid in feed and water systems. Poultry can synthesize vitamin C endogenously, primarily through renal biosynthesis, so SAP should not be positioned as correcting a classical vitamin C deficiency. Its value is best framed as stress-support nutrition, especially during heat stress, immune challenge, high metabolic demand, rapid growth, peak lay, older layer shell decline, transport stress, vaccination stress, and oxidative pressure.

Compared with conventional ascorbic acid, Organi-C offers superior stability because phosphorylation protects the ascorbic acid molecule from oxidative destruction. EFSA recognizes sodium ascorbyl phosphate and related vitamin C forms as vitamin C sources for animal nutrition and notes that phosphorylation protects ascorbic acid from oxidation.

Synonyms: Vitamin C, L-Ascorbic Acid, L-Ascorbate.

Salts include: Calcium ascorbate, Sodium ascorbate, Ascorbyl palmitate

WHY SAP INSTEAD OF STANDARD ASCORBIC ACID?

Standard crystalline vitamin C is vulnerable to heat, moisture, pelleting, oxidation, copper and iron interactions, and premix storage losses. Feed-processing literature notes that crystalline vitamin C is easily destroyed by moisture, pelleting, and exposure to trace minerals such as copper and iron, while phosphate esterification protects ascorbic acid from oxidation.

That makes SAP especially relevant in poultry feeds where premixes are stored before use, broiler diets are pelleted, trace mineral density is high, feeds contain oxidizable fats, and heat stress programs require reliable antioxidant delivery.

	STANDARD VITAMIN C	SAP TECHNOLOGY
Storage Stability	Low	High
Pellet Durability	Low	High
Mineral Compatibility	Low	High
Oxidative Protection	Moderate	High
Feed Mill Reliability	Moderate	High
Delivered Vitamin C Activity	Variable	Consistent

Bottom Headline: Same biological function. Superior stability. More consistent vitamin C delivery from feed mill to animal.

TECHNICAL SUPPORT TEAM

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STANDARD VITAMIN C

Activity declines at each step

ORGANI-C (SAP)

Protected until consumed

Stage	STANDARD VITAMIN C	ORGANI-C (SAP)
1. FEED MILL		
2. STORAGE		
3. MIXING		
4. CONDITIONING		
5. PELLETING		
6. TRANSPORT		
7. FEED BIN		
8. BIRD		



BROILER FEED APPLICATIONS

Heat Stress Resilience: Broilers are highly vulnerable to heat stress because they have high metabolic heat production, rapid growth, feather insulation, and limited evaporative cooling capacity. Vitamin C supplementation has been repeatedly evaluated as a nutritional tool to mitigate heat stress in poultry. Reviews report that vitamin C can improve growth performance, immune function, antioxidant status, and stress resilience in heat-stressed birds.

Organi-C may be especially valuable in broilers because heat stress increases reactive oxygen species, corticosterone response, panting and respiratory alkalosis, intestinal permeability, feed intake depression, immune suppression, and mortality risk.

Antioxidant Protection and Meat Quality: Vitamin C contributes to antioxidant defense by scavenging reactive oxygen species and supporting regeneration of vitamin E. In broilers, this has practical implications for reduced oxidative tissue damage, improved immune competence, improved livability under stress, potential meat quality support, and reduced lipid oxidation.

Gut Barrier and Immune Support: Heat stress and inflammatory challenge impair intestinal barrier function in broilers. Vitamin C may help support epithelial integrity indirectly through antioxidant and anti-inflammatory mechanisms. For broilers, Organi-C is best positioned as a tool to support feed intake stability, FCR resilience, livability, antioxidant reserve, and immune response during challenge periods.

PRACTICAL POSITIONING

Organi-C should not be sold as a replacement for good poultry nutrition. It should be positioned as a stable vitamin C delivery technology for conditions where endogenous synthesis may not keep pace with physiological demand.

Best-fit use cases for broilers include summer heat stress programs, high-density housing, vaccination or immune challenge periods, rapid-growth programs, poor livability periods, and oxidative fat or mycotoxin pressure.

Best-fit use cases for layers include heat stress, older flocks, shell quality decline, peak lay metabolic pressure, reduced feed intake periods, and immune stress or vaccination windows.

LAYER FEED APPLICATIONS

Egg Production Under Heat Stress: Layers are highly sensitive to heat stress because reduced feed intake directly reduces calcium intake, energy intake, amino acid intake, egg output, and shell quality. Vitamin C supplementation has been studied extensively in laying hens, especially under thermal stress. Benefits are most likely under heat stress or high oxidative load rather than under ideal thermoneutral conditions.

Eggshell Quality and Calcium Metabolism Support: Vitamin C is involved in collagen synthesis and organic matrix formation. The eggshell is not only mineral calcium carbonate; it also depends on an organic matrix that influences shell structure, strength, and deposition. Under heat stress, respiratory alkalosis and reduced feed intake impair calcium utilization and shell formation.

Organi-C may support shell quality by helping maintain antioxidant status, collagen-dependent matrix function, vascular integrity, calcium transport resilience, and reduced oxidative stress in shell gland tissue.

Vitamin C Deposition and Endogenous Regulation: A 2021 study in laying hens found that dietary vitamin C supplementation affected vitamin C synthesis, transport, and egg deposition, confirming that supplemental vitamin C can influence vitamin C handling and deposition biology in layers.

TAKE HOME MESSAGE

Organi-C provides a stable, feed-compatible vitamin C source designed to support poultry during periods of oxidative, thermal, immune, and production stress. In broilers, SAP supports antioxidant resilience, immune response, livability, and growth performance consistency under heat and challenge conditions. In layers, SAP supports oxidative balance, shell gland resilience, calcium-related shell formation, and egg production stability during heat stress and late-cycle shell quality decline.

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