

PRODUCTION
EFFICIENCY

HEAT
STRESS



Selko[®] AOmix

Nutritional antioxidants

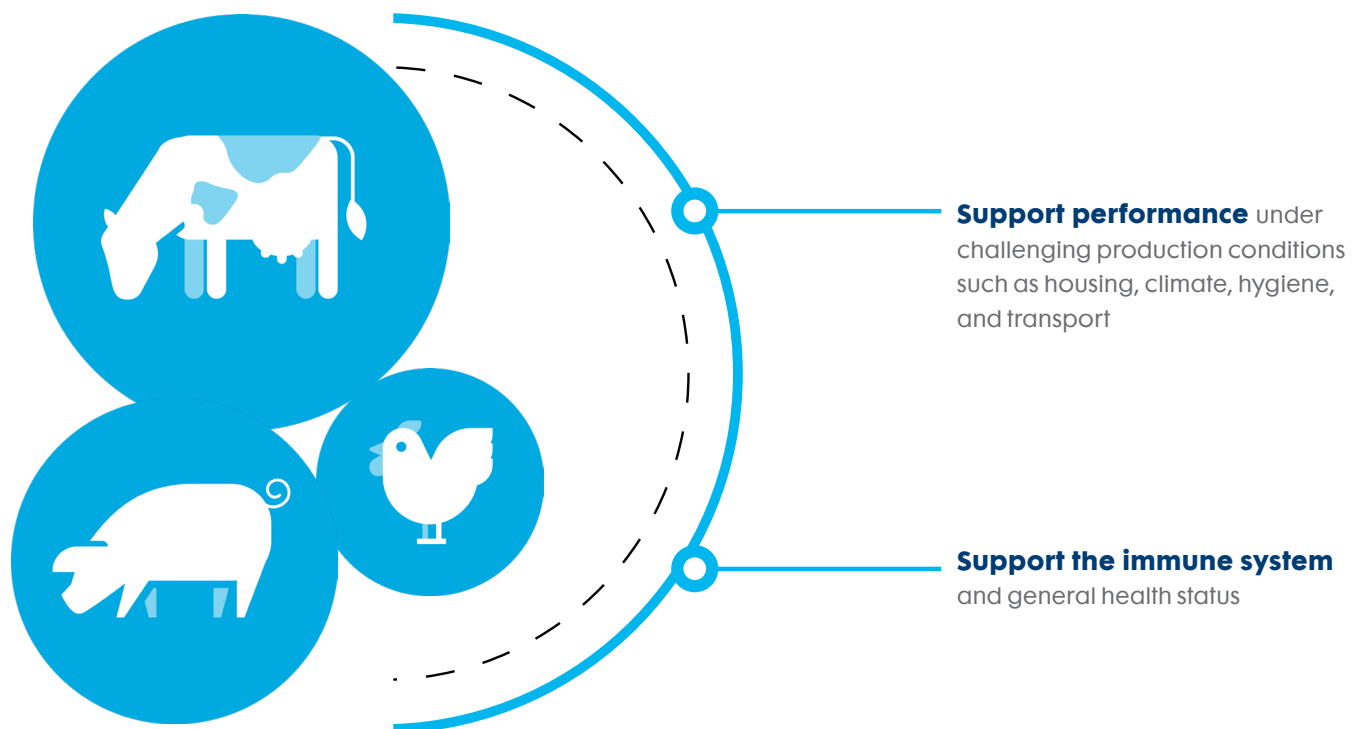
Support animal oxidative status with potent natural antioxidants

Vitamin E is an effective antioxidant that helps to stave off ageing and disease. However, it is also costly, especially considering its low bioavailability. Utilizing natural polyphenols is a beneficial solution to dealing with the problem of oxidative stress. When carefully combined, these can partially replace vitamin E in animal feed. In addition, they also make it possible to boost antioxidant defences beyond the capabilities of vitamin E alone.

Antioxidants prevent damage by free radicals

All living organisms produce free radicals as a normal by-product of daily metabolism. However, produced in excess, these unstable molecules can cause damage to cells. Periods of rapid growth, which go hand in hand with a more intense metabolic activity, health challenges and heat stress increase the production of free radicals and as such oxidative stress. Vital body functions can be impaired and result in poor performance, health and vitality. Antioxidants neutralise free radicals by 'donating' a hydrogen atom; supplying antioxidants through the animal's diet help reduce the detrimental effects of oxidative stress and minimise performance losses. A commonly used dietary antioxidant is Vitamin E.

Antioxidants help protect your animal



Good bioavailability is key for successful antioxidant functions

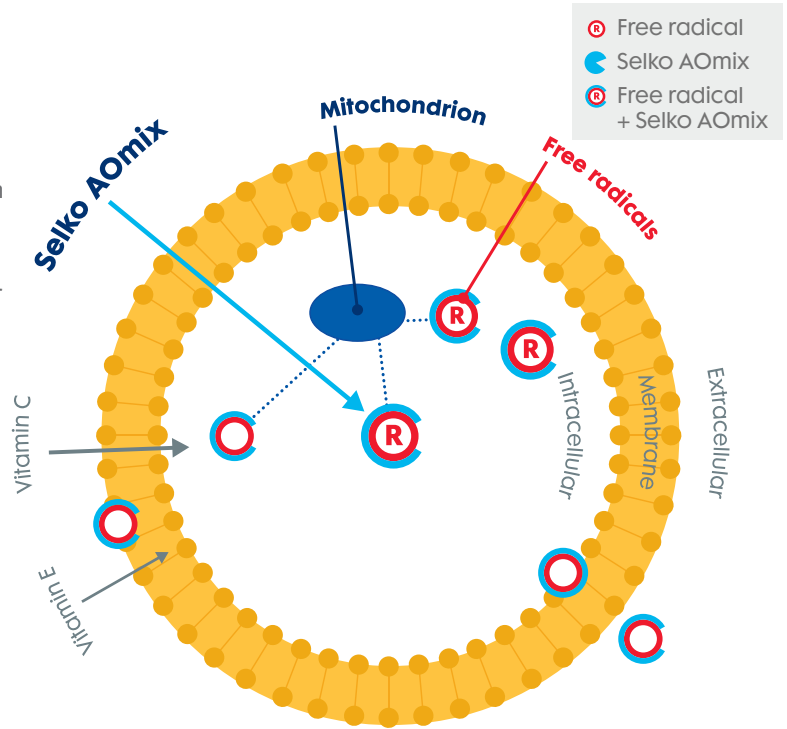
The bioavailability of antioxidants depends on the absorption from the intestinal tract and the distribution in the cells. Synthetic Vitamin E, the type customarily used in animal nutrition, has its limitations in this respect. It has a relatively low bioavailability and what's more, it also depends on fat absorption, so in diets low in fat or in situations where fat digestion and absorption may be compromised, vitamin E absorption will also be impacted. Polyphenols, natural antioxidants, carefully selected for optimal bioavailability, can replace and supplement the antioxidative capacity of vitamin E. Because of the different digestive systems and their specific requirements, Selko AOMix is available in two specific blends tailored to monogastrics and ruminants, respectively.

Optimal distribution in the body makes the difference

The second crucial factor in antioxidant effectiveness is its distribution within the cell. One element that influences this distribution is water versus fat solubility. This differs for each antioxidant and determines the cellular areas where the antioxidant can act. Fat-soluble vitamin E, for example, can only deliver its antioxidant effect at the (fat-soluble) cellular membranes.

Selko AOMix can partially replace the antioxidant function of vitamin E

The natural polyphenols in Selko AOMix range from water-soluble, biphasic (soluble in both water and fat) to fat-soluble, ensuring antioxidant support throughout the cellular environment. In a feed formulation, Selko AOMix can replace more expensive antioxidant ingredients such as vitamin E. Due to the optimal bioavailability and distribution characteristics, the carefully selected and combined polyphenols in Selko AOMix can provide additional support to the immune system, fertility, and antioxidant status in the animal.



Antioxidants in Selko® AOMix function throughout the cell

Polyphenols can meet two main functions of vitamin E

When considering vitamin E's role in nutrition, its antioxidant function is usually seen as the most important. This, however, is not the case: its function as a gene regulator is even more crucial – nothing can replace vitamin E in this role, which is why the basal requirements need to be fulfilled through Vitamin E itself. But in preventing and fighting free-radical damage, selected polyphenols can act as a vitamin E substitute – and sometimes even more effectively.

Vitamin E

Gene expression

Enzymatic activity regulation

Neurological functions

Functions in reproductive, muscular and immune systems

Anti-oxidant

Prevent lipid oxidation

Polyphenols

Feed recommendations Selko® AOMix

Selko® AOMix is available in blends formulated for monogastrics and ruminants. The products are designed to deliver antioxidants with high bioavailability and optimal distribution for their specific digestive systems.

The table below gives an example of how Selko AOMix can partially replace vitamin E for swine, poultry and ruminants.

Swine

	Basal vitamin E + antioxidant requirement (IU/kg, NL example)	Basal vitamin E requirement (IU/kg)	Antioxidant function of vitamin E replaceable by Selko AOMix (IU/kg)	Vitamin E antioxidant function replaced by Selko AOMix (mg/kg)
Weaning piglets	65	16*	49	19.6
Baby piglets	40	11*	29	11.6
Starter pigs	30	11*	19	7.6
Fatteners	25	11*	14	5.6
Gestating sows	60	44*	16	6.4
Lactating sows	60	44*	16	6.4

Poultry

	Basal vitamin E + antioxidant requirement (IU/kg, NL example)	Basal vitamin E requirement (IU/kg)	Antioxidant function of vitamin E replaceable by Selko AOMix (IU/kg)	Vitamin E antioxidant function replaced by Selko AOMix (mg/kg)
Broilers phase 1	75	10*	65	26
Broilers phase 2	50	10*	40	16
Broilers phase 3	25	10*	15	6
Layers	25	10*	15	6
Rearing layers start	50	10*	40	16
Rearing layers finishers	40	9	31	12.4
Turkeys (week 1- 4)	150	12	138	55.2
Turkeys (> 4 weeks)	50	10	40	16
Broiler breeders	50	20	30	12

Ruminants

	Basal vitamin E + antioxidant requirement (IU/kg, NL example)	Basal vitamin E requirement (IU/kg)	Antioxidant function of vitamin E replaceable by Selko AOMix (IU/kg)	Vitamin E antioxidant function replaced by Selko AOMix (mg/kg)
Dairy - lactating (650 kg - 22 kg DM)	34	20	14	7
Dairy - close up (650 kg - 12 kg DM)	125	80	45	22.6
Young Stock (300 kg - 7 kg DM)	50	34	16	8

*NRC recommendations



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