

A close-up photograph of a fluffy yellow chick emerging from a cracked brown eggshell. The chick is positioned in the lower half of the frame, facing left. The background is a soft, out-of-focus blue sky with faint, large-scale leaf patterns.

Nuvisol Hatch

Water-soluble supplement

SOLVING SOLUTION

Description

Nuvisol Hatch is a water-soluble supplement for poultry that contains essential and semi-essential nutrients including vitamins, L-carnitine and nucleotides. The nucleotides give the product a characteristic odour. It is administered to poultry through the drinking water in order to optimize their productivity.

Active components

Nuvisol Hatch contains a range of vitamins and nucleotides improving the performance and the general health status of poultry.

FIGURE 1: ACTIVE COMPONENTS	
BIOTIN	NUCLEOTIDES
L-CARNITINE	
NIACIN	VITAMIN B _{1,2,3,6,9,12}

Nucleotides and carnitine are considered semi-essential nutrients which means their synthesis may be inadequate under certain circumstances, for example in young animals, stressed animals or during disease (general or digestive tract).

NUCLEOTIDES



Nucleotides are needed for cell multiplication, they are the building blocks of DNA and RNA. They are also important constituents of enzymes and co-factors such as ATP, NAD, FAD, etc., ...

Nucleotides can be synthesized in the body via "de novo synthesis" (using precursors) or via the salvage pathway (using break-down products or exogenous nucleotides). The synthesis of nucleotides may be limiting in certain conditions. For example, rapidly dividing tissues with high cell turnover such as the intestines, the immune system and the liver may not be able to fulfill the cell's needs for nucleotides at all times. Therefore, nucleotides are preferentially recovered from the blood (salvage pathway) as a more efficient supply.

Dietary nucleotides help reduce the energy cost of de novo synthesis and optimise the function of rapidly dividing tissues.

Drinking Water Supplement | Advantages

- Flexible way of supplementing essential nutrients
→ Quick intervention by the farmer is possible
- In case of stress, sickness,... water consumption remains high for a longer time than feed intake
→ Nutrients are delivered to the animal when they are needed the most
- During the first days of their lives, hatchlings will start drinking water more easily than they start eating
→ Supplementation through the drinking water is the safest and most effective method in young animals

TABLE 1: DESCRIPTION		
	USE	DOSAGE
Nuvisol Hatch L	 	500 ml/1000l water

L-CARNITINE

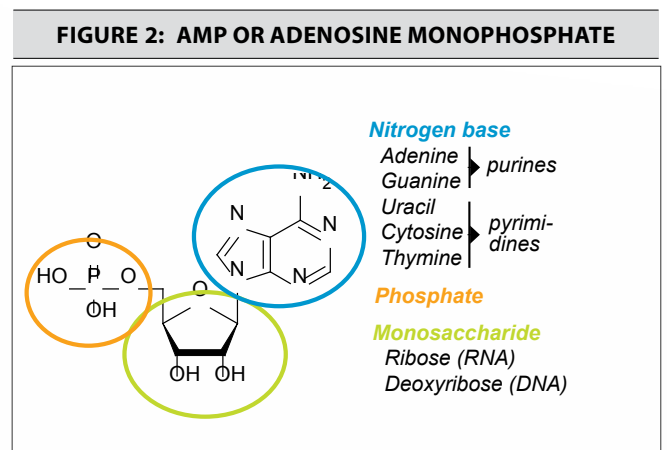
In hatchlings L-carnitine ensures a maximal utilization of the fats in the remains of the yolk sac. In young animals, the endogenous L-carnitine production is insufficient to meet the requirements for optimal health and performance.

Additional exogenous L-carnitine is useful to ensure that the hatchlings take a good start.

RANGE OF VITAMINS

In conditions of stress and/or disease, the animals have an increased nutrient requirement, while at the same time their metabolism experiences increased losses of nutrients such as endogenous L-carnitine. In case of severe stress or disease, feed intake decreases, further lowering the intake of much needed nutrients for direct use or as building blocks of essential nutrients.

In times of stress and disease, feed intake will stop before intake of drinking water, it is therefore advised to supplement the drinking water with nutrients that can help speed up recovery.



Nuvisol Hatch | Optimised Fat Metabolism

L-CARNITINE: TRANSPORT OF LONG CHAIN FATTY ACIDS

Long chain fatty acids cannot migrate through the membrane of mitochondria directly.

L-carnitine transports them into the mitochondria where the fatty acids are oxidised and transformed into energy (ATP).

L-CARNITINE: BUFFERING THE CoA/ACETYLCoA RATIO

In cases of high energy demand, the Krebs cycle can be overcharged. AcetylCoA cannot enter the Krebs cycle and accumulates in the mitochondria. This inhibits the production of AcetylCoA and energy will be produced through the less efficient anaerobic pathway, resulting in formation of lactate. L-carnitine can restore the CoA/ActeylCoA ratio and diminish the accumulation of AcetylCoA.

FIGURE 4: ENERGY UTILISATION FROM FATS

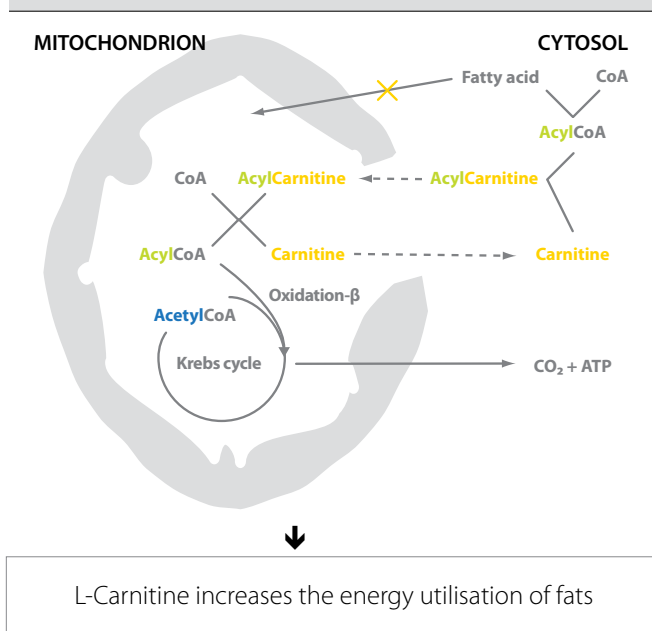
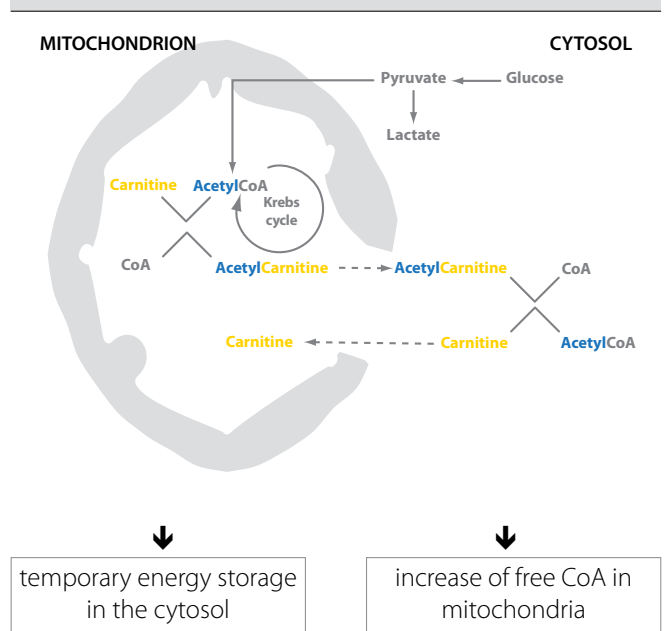


FIGURE 3: BUFFERING CAPACITY OF L-CARNITINE



Nuvisol Hatch | Optimised Function Of The Digestive Tract

EFFECT ON INTESTINAL FUNCTION

Nucleotides promote the intestinal healing and maintenance of intestinal integrity. They enhance gastro-intestinal growth and maturation. Protein content of the intestinal mucosa and the villi height increase when supplementing nucleotides.

EFFECT ON LIVER FUNCTION

Dietary nucleotide or carnitine restriction in animals may result in hepatic lipid accumulation. Supplementing nucleotides improves histological regeneration of an injured liver.

Nuvisol Hatch | Immunonutrition

L-carnitine and nucleotides can be classified under immunonutrition because they exert a positive effect on the immune system.

Studies have shown that dietary nucleotides and L-carnitine stimulate the humoral immune response with an increased production of immunoglobulins and an improved response to vaccines. Lymphocyte maturation, activation and proliferation are influenced by nucleotides.



Nuvisol Hatch | Range Of Vitamins

Nuvisol Hatch contains water-soluble vitamins, namely a range of B-vitamins, biotin and niacin. Exogenous water-soluble vitamins can be readily used during the first days after hatching, contrary to fat-soluble vitamins.

VITAMIN B-COMPLEX

After hatching, a day-old chick has very little reserves of B-vitamins available. For rapidly growing chickens a continuous supply of water-soluble vitamins is essential, because they cannot be stored in the body.

Vitamins of the B-complex are part of many (co)-enzymes and therefore they play an important role in fat, protein and carbohydrate metabolism. Besides this, they are also essential for optimal functioning of the central nervous system and important for haematopoiesis.

NIACIN

Niacin is part of hydrogen transferring co-enzymes such as NAD and NADP, which are involved in numerous metabolic reactions for the synthesis and breakdown of carbohydrates, fats and proteins.

BIOTIN

Biotin is involved in many biochemical reactions, e.g. carboxylation. During an immune response, biotin activates lysosome.

Nuvisol Hatch
Water-soluble
supplement

Applications & Recommendations

TABLE 2: NUVISOL HATCH APPLICATION & RECOMMENDATIONS

ADMINISTRATION	APPLICATION	RESULTS
IMPROVING HATCHLING QUALITY & FERTILITY		
Broiler chicks	Week 1: Every day	<ul style="list-style-type: none"> ↗ Growth of the hatchlings ↘ Feed conversion ↘ Mortality ↗ Homogeneity of the flock ↗ Carcass quality
Broiler breeders	Start of laying period: Every day of week 1 & 2	<ul style="list-style-type: none"> ↗ Carnitine levels in the eggs ↗ Hatchability
	Second half of laying period: Every day of week 1-3 From week 4: 2 x per week	<ul style="list-style-type: none"> ↗ Quality of the hatchlings
IMPROVING LAYING PERFORMANCE		
Laying hens	Start of laying period: Every day of week 1 & 2	<ul style="list-style-type: none"> ↗ Laying percentage ↗ Egg weight
	Second half of laying period: Every day of week 1-3 From week 4: 2 x per week	Delay of decrease in production
TO OVERCOME STRESS OR DISEASE		
Broilers Layers Turkeys	During stress or disease: Every day	Assures the intake of nutrients through the drinking water