

 **Poultry News**



## Dry grape extracts to optimise vitamin E in animal nutrition

11 April 2018

**The vitamin E market is going through a very serious context of stretched supply, possible shortage and price issues.**

The answer may lie in Nor-Grape 80, a dry grape extract feed additive registered in the European Union, able to provide a powerful antioxidant effect to optimise vitamin E utilisation and to control costs

### Vitamin E: a key role in animal nutrition

"Vitamin E" includes a wide range of molecules with non-equivalent properties. They are classified in 2 categories: tocopherols ( $\alpha$ ,  $\beta$ ,  $\gamma$ ,  $\delta$ ) and tocotrienols ( $\alpha$ ,  $\beta$ ,  $\gamma$ ,  $\delta$ ). There are different types of  $\alpha$ -tocopherol: "D- $\alpha$ -tocopherol" for the natural form of vitamin E and "DL- $\alpha$ -tocopheryl acetate" for the synthetic one. Vitamin E50 acetate is the most common commercial form used in animal nutrition.

Vitamin E is considered as a powerful antioxidative vitamin which binds oxygen free radicals that can cause tissue damage. It is an essential component of animals' diets and has effects extensively documented in animal nutrition, in particular:

- Protection of lipids from oxidation, through antioxidant properties against lipid peroxy radicals
- A contribution to a better meat quality
- Reproduction improvement

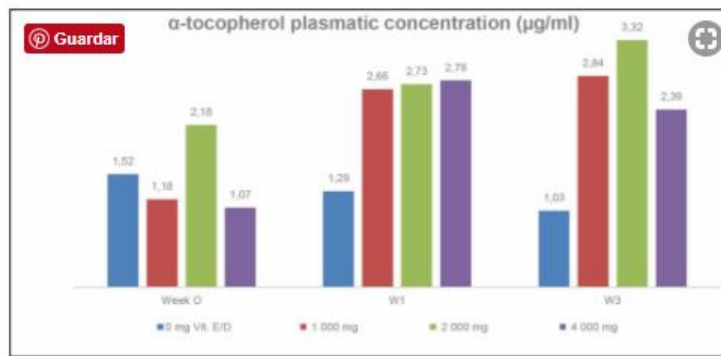
In turn, a vitamin E deficiency leaves the cellular membranes unprotected against oxidative attacks, inducing specific symptoms that endanger animals' health and decrease zootechnical performances.

### Vitamin E restraining factors

However, the use of vitamin E can be complicated by several factors.

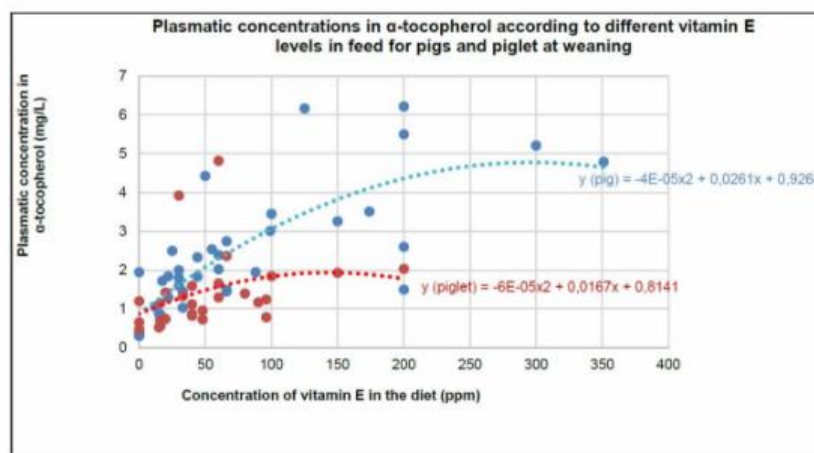
#### ***A variable assimilation***

Animals assimilate synthetic vitamin E, but not always fully and a higher dose of vitamin E does not necessarily translate into a higher concentration of antioxidant markers in the organism. This is true for larger adult animals. The following graph shows the evolution of the  $\alpha$ -tocopherol plasma concentration in dairy cows according to the level of daily vitamin E supplementation.



*In dairy cows, a high dosage of vitamin E in the diet does not necessarily result in a proportional increase of alpha-tocopherol level in the plasma, illustrating the limits of the absorption by the organism.*

This absorption limit is particularly true for young animals, when their enzymatic equipment is still immature:



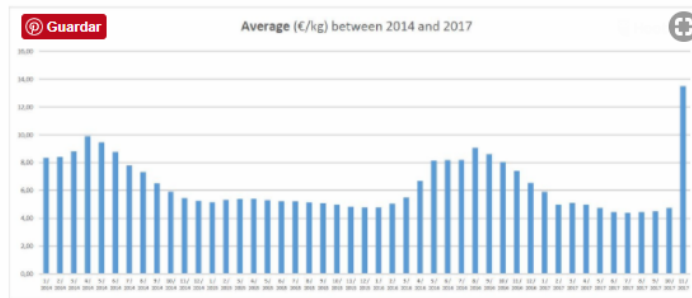
*The graph results from a literature extensive review and shows that for the same level of vitamin E in the diet of adult pigs (blue dotted line) or piglets (red dotted line), the assimilation is not the same, i.e. lower for the young animals. This is explained by the fact that young animals do not have a fully functional carboxyl-ester hydrolase enzyme, necessary to release the activated vitamin E from the acetate form.*

#### **A fluctuating price... on the rise**

Additionally, the price of vitamin E can be very volatile and difficult to foresee: it was lower than 5€/kg in October 2017 and transactions were reported in excess of 14 €/kg in Europe, in November of the same year.

**Media :** The Poultry Site

**Date :** 11 April 18



Source: FeedInfo and internal data

The recent volatility is mainly explained by 2 factors. First, due to the enforcement of new environmental regulations, China vitamin producers had to reduce their production since the summer 2017. On the other hand, the situation was dramatically worsened after October 2017 by a fire incident at a citral plant of one of the main European producers.

### **Nor-Grape 80, a standardised and efficient antioxidant!**

Nor-Grape 80 is a standardised dry grape extract rich in polyphenols, anthocyanins & proanthocyanidins, all very potent natural antioxidants.

Nor-Grape 80 is the first and only dry grape extract that has received an authorisation from the European Union. Its guaranteed content of several types of polyphenols ensures a reliable supply of antioxidants for the industry stakeholders (premixers, food manufacturers and breeders).

#### **1 g of Nor-Grape 80 = 11 g of pure vitamin E**

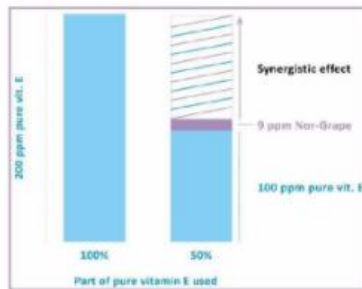
More and more research evidences that vitamin E can be regenerated by polyphenols. In vitro, in vivo and ex vivo trials show that Nor-Grape 80 has a **vitamin E optimisation effect** through the replacement of up to 50 percent of it, with a 1:11 ratio in the complete feed, due to these molecular interactions.

#### **Concrete savings**

In this calculation made with Nor-Feed's "e-calculator", Nor-Grape is used on broilers in order to potentiate the use of vitamin E:

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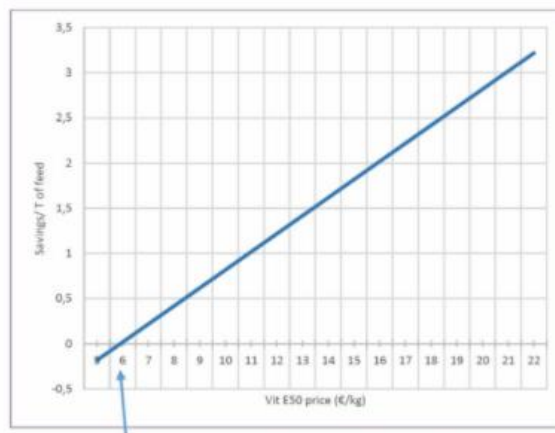


<b>Nor-Grape quantity</b> (substitution of 100 ppm of pure vitamin E)	<b>9 ppm (ratio 1:11)</b>
Price for vitamin E (50%)	17 €/kg
Nor-Grape Price	130 €/kg
<b>Savings per ton of feed</b>	<b>2.2 €/t</b>

Calculation made with Nor-Feed "e-calculator", a tool that evaluates Nor-Grape 80 return on investment.

> In this case, using 9 ppm of Nor-Grape 80 generates savings of 2.2 €/T of feed

Calculations also show that the higher the price of Vitamin E, the greater the profit per T of feed generated by the use of Nor-Grape 80.



> According to our calculation, using Nor-Grape 80 in the diet generates interesting savings / T of feed with a Vitamin E price as low as 6 €/kg.

For more information, [click here](#). References available upon request.