

Strategic application of feed additives during times of high feed prices

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Feed prices have been rising worldwide over the past months (Table 1). With regard to raw materials, the increase was around 3 to 5% at the end of 2021 (cereals +5,54%; fats and oils +5,04%; legumes +3,04%; and oilseeds and their by-products +5,25%).

In order to cope with such high prices, several strategies can be adopted to use resources in a more efficient way, among them feed management and the use of feed additives, which provide an elegant solution. Feed additives can be included in the formula to reduce the inclusion levels of energy and protein, without affecting performance, or to improve the feed conversion ratio (FCR).

Reduction of energy level

A nutritional emulsifier, such as Excential Energy Plus, can improve fat and energy digestion and absorption, therefore

allowing for a lower level of fat in the diet. This emulsifier can be used in one of two ways: on top of the normal feed, which increases available metabolisable energy; or it can be added to a diet with a reduced fat or energy content, resulting in the same available metabolisable energy level while reducing feed costs.

Diets can be diluted up to 50 to 75kcal when Excential Energy Plus is used. It is efficient in various diets containing different fat sources, such as soybean oil or other vegetable oil, animal fat or acidulated fat.

Figure 1 shows the benefit of using Excential Energy Plus when viewed against the high raw material prices of October 2021 (cost saving of 1,83%). The benefit is higher at higher raw material prices when comparing October 2021 to January 2021, when the cost saving was also significant, but to a lesser extent (1,46%). The calculations in Figure 1 are based on a

diet with a 4,5% crude fat (CF) content and a matrix value of 128 500kcal/kg product.

Reduction in protein levels

Protein is an expensive part of feed. Reducing the protein content can therefore be appealing when looking to reduce feed costs. Feed additives can replace part of the protein fraction while maintaining the levels of amino acids that each animal species require.

Formulations with low levels of protein, but balanced levels of amino acids, maintain animal health and performance, while also saving on feed costs without negatively affecting the environment. Figure 2 shows the limiting amino acid (barrel) theory, which states that through selective use of amino acid supplements, the amount and profile of absorbed amino acids to meet the animal's requirements is achieved without wasting amino acids or protein.

Table 1: Price increases of feeds.

	Ruminants	Swine		Poultry	
	Dairy cows	Sows	Grower finisher	Broilers	Layers
Price	+3,03%	+6,07%	+5,81%	+1,80%	+0,41%

Price increases are based on raw material and compound feed in the Netherlands, but the same trend is observed on a global scale. (Source: Schothorst Feed Research update Q4, 2021)

Figure 1: The use of Excential Energy Plus reduces feed costs. Average (January 2021) and high (October 2021) raw material prices – Excential Energy Plus (128 500kcal/kg @ 4,5% CF).



Orffa offers a wide range of amino acids which allow for reduced protein levels in feed.

Replacing methionine: From total dietary methionine, a part will function as methyl donor. Betaine, a very efficient methyl donor, can replace methionine (up to 10% of digestible methionine). Since added methionine has only 90% bioavailability compared to betaine, the inclusion level of betaine is lower. Therefore, when methionine prices exceed betaine prices, a betaine replacement such as Excential Beta-Key can help to reduce feed costs.

Nutritional emulsifiers: Another way of reducing the protein level in feed is by using nutritional emulsifiers. Besides the

effects on fat and energy digestibility, Excential Energy Plus is known to improve crude protein digestibility and therefore allows for a reduction of the protein level in feed.

Effect on feed conversion ratio

Reducing the FCR means the animal is more efficient at transforming the feed consumed into bodyweight. It supports increased production from the same feed intake, which allows for the more efficient use of resources.

A nutritional emulsifier can improve the digestibility of nutrients and therefore improve the FCR. As mentioned, Excential Energy Plus can improve protein, fat, energy and dry matter digestibility.

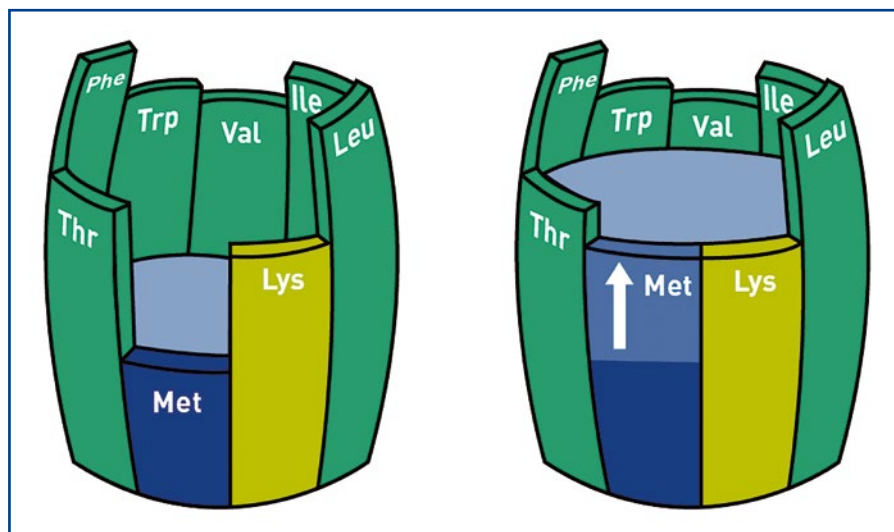
Multiple trials in a wide variety of animal species demonstrated a reduction in FCR upon the addition of Excential Energy Plus.

Gut health is the key to optimal nutrient absorption, which in turn leads to an improvement in FCR. A healthy microbiota composition, with abundant growth of beneficial bacteria and low numbers of pathogenic bacteria, contributes to a healthy gut.

There are several feed additives that have an effect on gut health. For instance, Excential Alliin Plus, which contains a mixture of freeze-dried garlic and cinnamon, is a feed additive with proven significant effects on FCR.

In addition, butyrate can be used as an energy source by epithelial cells and exerts multiple effects on intestinal health. Excential Butycoat and Excential Buty90 improve gut health and therefore FCR.

Figure 2: Limiting amino acid theory (barrel theory).



In conclusion

High feed prices pose a problem to all stakeholders involved in animal production. Orffa offers an elegant solution to reduce feed costs in the form of its Excential Energy Plus, amino acids, Excential Beta-Key, Excential Alliin Plus, Excential Butycoat and Excential Buty90 product offering. The economic effect of improved FCR will be bigger at high raw material and compound feed prices.

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