FEED ADDITIVES:
What are their functions?

Today's European farmers expect feed they buy to be safe as well as healthy and sustainable. This requires specialty ingredients that can provide a nutritional value, texturise, flavour, emulsify and preserve feed. An example are preservatives, which prevent feed from deteriorating too rapidly whilst adding a healthy and nutritious dimension for poultry, pigs, cattle, calves, fish and rabbits.

In general, a specialty feed ingredient is a product which provides a particular effect/function in the appropriate concentrated form. The Feed Additives Regulation currently recognises the following functions:

Technological When it influences the technological aspects ofthe feed. This does not directly influence the nutritional value of the feed but may do indirectly by improving its handling or hygiene characteristics. An example of such an additivewould be an organic acid for preservation of feed.	• Preservatives: substances or, when applicable, micro-organisms which protect feed against deterioration caused by micro-organisms or their metabolites; • Antioxidants: substances prolonging the storage life of feedingstuffs and feed materials by protecting them against deterioration caused by oxidation; • Emulsifiers: substances that make it possible to form or maintain a homogeneous mixture of two or more immiscible phases in feedingstuffs; • Stabilisers: substances which make it possible to maintain the physicochemical state of feedingstuffs; • Thickeners: substances which increase the viscosity of feedingstuffs; • Gelling agents: substances which give a feedingstuff texture through the formation of a gel; • Binders: substances which increase the tendency of particles of feedingstuffs to adhere; • Substances for control of radionucleide contamination: substances that suppress absorption of radionucleides or

	promote their excretion; • Anticaking agents: substances that reduce the tendency of individual particles of a feedingstuff to adhere; • Acidity regulators: substances which adjust the pH of feedingstuffs; • Silage additives: substances, including enzymes or micro-organisms, intended to be incorporated into feed to improve the production of silage; • Denaturants: substances which, when used for the manufacture of processed feedingstuffs, allow the identification of the origin of specific food or feed materials. • Substances for reduction of the contamination of feed by mycotoxins: substances that can suppress or reduce the absorption, promote the excretion of mycotoxins or modify their mode of action; • Hygiene condition enhancers: substances or, when applicable, microorganisms which favourably affect the hygienic characteristics of feed by reducing a specific microbiological contamination; • Other technological additives: substances or, when applicable, microorganisms added to feed for a technological purpose and which favourably affect the characteristics of the feed.
Nutritional When it supplies specific nutrient(s) required by the animal for optimal growth. Examples would be essential products for the animal such as vitamins, amino acids or trace minerals.	• Vitamins, pro-vitamins and chemically well-defined substances having similar effect; • Compounds of trace elements; • Amino acids, their salts and analogues;

	• Urea and its derivatives.
Sensory When it improves the palatability of a diet by stimulating appetite. This is due to an effect on the flavour or colour of the feed. For example, a vanilla extract may well encourage piglets to eat a ration.	• Colourants: – Substances that add or restore colour in feedingstuffs; – Substances which, when fed to animals, add colours to food of animal origin; – Substances which favourably affect the colour of ornamental fish or birds; • Flavouring compounds: substances the inclusion of which in feedingstuffs increases feed smell or palatability.
Zootechnical When it improves the animal's performance, not by providing specific nutrients, but by enabling a more efficient use of the nutrients present in the diet. An example would be an enzyme or a microorganism, both of which enhance the conditions of the intestinal tract, thus enabling a more effective assimilation of essential elements. In this respect they are often referred to as pro-nutrients or probiotics. Specialty feed ingredients can also be used to perform other zootechnical uses, as environmental benefits and specific physiological functions.	• Digestibility enhancers: substances which, when fed to animals, increase the digestibility of the diet, through action on target feed materials; • Gut flora stabilisers: micro-organisms or other chemically defined substances, which, when fed to animals, have a positive effect on the gut flora; • Substances which favourably affect the environment; • Other zootechnical additives; • Physiological condition stabilisers: substances or, when applicable microorganisms, which, when fed to animals in good health, favourably affect their physiological condition, including their resilience to stress factors.