

A balanced feed additives portfolio provides solutions

by the technical team, DSM Nutritional Products, CH-4002 Basel, Switzerland.

DSM Nutritional Products has a strong tradition as a pioneer in the discovery of new products, formulations and attractive applications for all industry segments and, supported by carefully targeted research and development, the company is able to respond actively to the current and future trends in the market place.

The product portfolio

The company offers a comprehensive range of products and technical/market-ing support to all sectors of the animal feed industry.

All of their products are specifically developed and formulated in terms of stability, bio-availability, handling properties, traceability and safety, to meet the requirements of modern day animal feed production.

Included in the product portfolio is a full range of vitamins and premixes (the Rovimix products), feed enzymes (the Ronozyme and Roxazyme products), organic acid (VevoVital), probiotics (Cylactin), trace minerals (the Microgran products) and a number of other impor-

tant product groups including amino acids.

A full range of both fat soluble and water soluble vitamin products is available, including a number of important specialty products such as STAY-C, a heat stable product form of vitamin C which has been specifically developed to allow the successful use of this important vitamin in aggressive feed processing conditions.

Moreover, their guidelines for Optimum Vitamin Nutrition (OVN) have been developed and kept up to date with recent advances in nutrition research, modern genetics and production systems.

Those shown in Table 1 give a defined range of vitamin supplementation rates covering different farm conditions. The use of the Rovimix products according to the OVN levels can help pigs perform to their genetic potential.

Feed enzymes

Due to their proven economic and environmental benefits, the use of supplementary feed enzymes has increased

significantly in the swine sector in recent years.

DSM Nutritional Products (together with their Alliance partner Novozymes A/S), supply a comprehensive range of feed enzyme products (the Ronozyme/Roxazyme range) which help to degrade some of the main anti-nutritional factors (for example phytates and non-starch polysaccharides) present in swine feeds.

In addition, the Ronozyme CT granular product forms are the most heat stable dry enzyme products available in the market, this being of particular importance given the more aggressive feed processing conditions used today in many swine feed mills.

Ammonia plays a relevant role in both the atmospheric pollution (acid rain) and the eutrophication of water. Ammonia can affect pig health and it has also been identified as one of the risk factors for chronic bronchitis, a work related disease in pig farmers.

The effect of ammonia on animal performance is controversial, but most of the studies show a numerically negative influence with the typical ammonia levels found in the commercial pig farms

Continued on page 13

Table 1. Optimum Vitamin Nutrition (OVN) supplementation guidelines for swine (DSM Nutritional Products, 2004).

Swine ¹⁾	A	D ₃	E ¹	K ₁	B ₁	B ₂	B ₆	B ₁₂	Niacin	D-Panto- thenic acid	Folic acid	Biotin	C ⁶⁾	Choline	Beta- Carotene
	IU	IU	mg	mg	mg	mg	mg	mg	mg	mg	mg	mg	mg	mg	mg
Prestarter, up to 10 kg	10000- 20000	1800- 2000	60- 100 ²⁾	2.0- 4.0	3.0- 5.0	6- 10	4.0- 8.0	0.040- 0.070	40- 60	20- 40	1.5- 2.5	0.15- 0.40	100- 200 ³⁾	500- 800	
Starter, 10-20 kg	10000- 15000	1800- 2000	60- 100	2.0- 4.0	2.0- 4.0	6- 10	4.0- 8.0	0.030- 0.050	30- 50	20- 40	1.0- 2.0	0.15- 0.40	100- 200 ³⁾	200- 400	
Growing, 20-50 kg	7000- 10000	1500- 2000	40- 80	1.5- 3.0	1.0- 2.0	5- 10	2.0- 4.0	0.020- 0.040	20- 30	20- 40	0.6- 1.0	0.15- 0.25		150- 300	
Finisher, 50 kg - market	5000- 8000	1000- 1500	30- 50 ⁴⁾	1.0- 1.5	0.5- 1.5	3- 8	1.5- 3.0	0.015- 0.030	20- 30	20- 40	0.5- 1.0	0.10- 0.20		100- 200	
Sows	10000- 15000	1500- 2000	60- 80 ⁵⁾	1.0- 2.0	1.0- 2.0	5- 9	3.0- 5.0	0.020- 0.040	25- 45	18- 25	3.0- 5.0	0.30- 0.50	200- 300	500- 800	300 ⁶⁾
Boars	10000- 15000	1500- 2000	60- 80	1.0- 2.0	1.0- 2.0	5- 9	3.0- 5.0	0.020- 0.040	25- 45	18- 25	3.0- 5.0	0.30- 0.50	200- 500	500- 800	

¹⁾ Added per kg air-dry feed
²⁾ Dietary fat higher than 3%; additional 5 mg/kg feed for each 1% dietary fat
³⁾ For optimum piglet health; additional 150 mg/kg feed
⁴⁾ For optimum meat quality; additional 150 mg/kg feed
⁵⁾ For optimum piglet health; during late pregnancy and lactation; total 250 mg/kg feed (maternal transfer through colostrum/milk)
⁶⁾ Recommended in stress conditions
⁷⁾ Vitamin C activity in phosphorylated form
⁸⁾ For improved sow fertility; to be fed per animal per day immediately after weaning until confirmed conception

Continued from page 11

(10-25ppm). A reduction in ammonia emission can be achieved by reducing the pH of the urine. VevoVital (99% benzoic acid) has been recently authorised by the European Union for this purpose.

Several studies have demonstrated that benzoic acid fed to growing fattening pigs reduces up to 33% the ammonia emission and improves the pig performances thus providing a significant economic benefit for pig breeders and a relevant help in protecting the environment.

Heat stable live bacteria

Probiotic additives are a regular component of feed formulations today. Their positive effects on the growth performance and health of young animals, with resultant economic and safety benefits of livestock production, are now generally considered proven.

One of the most striking representatives of the lactic acid bacteria with bioregulatory properties is Cylactin based on the strain *Enterococcus faecium* NCIMB 10415. The micro-encapsulated product formulation Cylactin LBC ME10 was specially developed for use in pelleted feeds.

Micro-encapsulation protects the lactic acid bacteria from high temperature, pressure and steam during the pelleting process withstanding pelleting conditions up to a total energy input of 35kWh/t and a maximum pellet temperature before cooling of 85°C without loss of activity.

The specific lactic acid bacteria in Cylactin helps to establish and maintain a physiological balance amongst the resident intestinal micro flora. This stabilisa-

tion of gut microbes prevents functional and infectious intestinal disorders.

Given their performance enhancing potential and high level of acceptance by consumers, probiotics are increasingly being regarded as an effective solution in modern pig production.

Premix

With its global network of premix dedicated to animal nutrition and health, DSM Nutritional Products is the largest feed premix manufacturer in the world.

This network enables them to provide customers with value added premixes characterised by certified high standards of quality and safety and fully traceable.

Their ability to supply their customers with such products and premixes allows them to partner them in the food chain.

Their 'feed for food' focus as well as their 'Foodchain project' is the concrete demonstration of their commitment.

Summary

The company has a long tradition as a supplier of high quality products, services and value added solutions to the swine industry.

These have been specifically developed to help producers to optimise swine health and productivity, to meet the expectations of consumers with regards to product quality, to reduce the environmental impact of swine farming and thereby optimise the profitability of their operations.

Through its ongoing R&D programme, the company will continue to develop new products, new product forms and new solutions to further help the swine industry to progress in the future. ■

The recently inaugurated premix plant of DSM Nutritional Products in Thailand.

