Animal health and nutrition symposium

The 24th Alltech International Animal Health and Nutrition Symposium was recently held in Lexington, Kentucky in the USA and some 2,000 delegates from over 85 countries attended.

International Pig Topics was present and in this review we will focus on the papers that are of interest to pig producers. These papers tended to look at green issues and effective, efficient production.

Foodborne salmonellosis

Salmonella and whether a zero level was a practical possibility for the pig sector was considered by Colm Moran from Alltech France. He cited the fact that in the USA alone there are some 1.4 million human cases and 500 deaths arising from salmonellosis each year and, of these, 95% are foodborne.

In addition, some salmonella serotypes (S. derby, S. choleraesuis and S. typhimurium) cause illness in pigs. He also highlighted European salmonella control schemes and concluded that salmonella control was a major issue that the pig sector could not ignore.

However, all was not doom and gloom because he shared the results from a recent Danish study with attendees.

In this study Bio-Mos had been included in finisher diets at a level of 1kg per tonne and in three months the level of salmonella positive meat juice samples had reduced from 23.8 to 2.8%.

As part of its continued expansion and commitment to excellence in research Alltech has opened its new Centre for Animal Nutrigenomics and Applied Animal Nutrition. The centre is dedicated to the study of the effect of nutrition on gene expression and represents a 20,000ft² expansion of the company's existing research facility. The nutrigenomics laboratory employs the latest technologies to generate databases detailing the effects of nutrition on gene expression profiles in the tissues of various species. The databases will be analysed to determine the health and performance status of livestock and the best nutritional interventions for peak production potential. Pictured, above, is the Governor of Kentucky, centre, and to his left Pearse Lyons of Alltech.

At the Symposium Dr Ronan Power (centre) received the 2008 Scientific Medal of Excellence for his work in advancing the use of nutrigenomics and gene profiling as tools for improving animal and human nutritional strategies.

In a pilot study in the UK, where a strict cleaning and hygiene programme had failed to counter salmonella, the use of the same product at the same inclusion level reduced meat juice test results from 28% positive to zero over a five month period.

Don Mahan, from Ohio State University in the USA reflected on the iron status of piglets and he reviewed a study in which sows fed organic iron (Bioplex) produced more piglets of greater weight.

However, these piglets had lower haemoglobin concentrations at birth and throughout the lactation period. In addition, in sows of advanced parities that produce more milk and have lower body stores of iron there may be a greater need to provide the sow with iron.

In essence, what he was saying was that feeding or increasing the levels of Bioplex, while giving benefits in terms of litter size and piglet weight, did not replace the need for iron injections for the piglets and there could well be a case for arguing that these larger piglets, especially in long lactations, may benefit from receiving 300 rather than 200mg of iron injection.

The complexities of trace mineral nutrition were considered by Gretchen Hill from Michigan State University in the USA. What he basically said was that when organic and inorganic minerals were fed at 100% of NRC recommendations copper/zinc SOD activity was higher when supplied in the organic form indicating a greater bioavailability to assist the pig with antioxidant protection.

Protect against aflatoxins

Guylaine Messionier from INRA in France spoke on the use of a glucomannan polymer (MTB-100) to protect pigs against the toxic properties of aflatoxin B1 and T-2 toxin.

It was shown that for both these mycotoxins dietary supplementation with MTB-100 gave protective effects against the toxic properties of these feed contaminating mycotoxins.

Jim Pettigrew, also from the USA, reflected on a greener future. He felt that this would be possible if pigs were reared where crops are produced.

This should be coupled to the rigorous application of sophisticated nutritional technologies and common sense and technologically advanced manure management practices as this would allow the pig industry to move forward productively and sustainably.

The Growth Gap

The Growth Gap is the difference in performance between the potential and what is typically seen in practice commercially. The costs associated with the Growth Gap have been estimated to be as much as US$5-17 per pig marketed in America and Asia. Paul Groenwegen from Alltech Canada then highlighted the role for NuPro in lessening the Growth Gap.

Using NuPro in sows improves piglet growth rate and weaning

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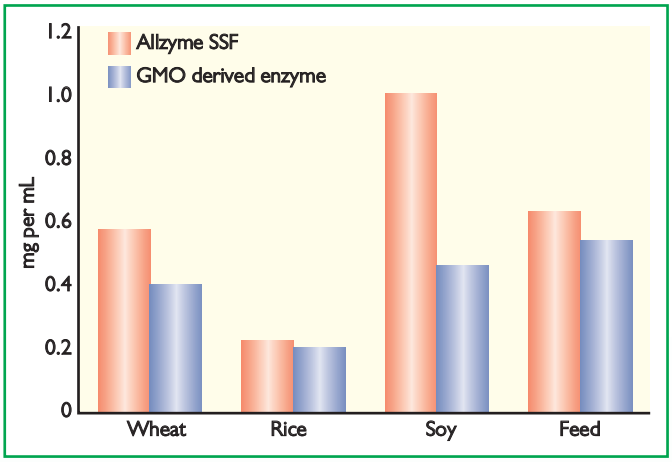

Fig. 1. The release of carbohydrate by Allzyme SSF.

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weights and in piglet feeds it improves average daily gain and FCR by 3.9 and 3.1% respectively, thereby lessening the post-natal Growth Gap.

Peter Best, the holder of the 2006 International Pig Topics/VIV European Pig Personality of the Year Award, spoke about green pork.

He highlighted that livestock production was responsible for 18% of greenhouse gas emissions but that commercial indoor pig production compares favourably with non-food industries and other livestock sectors in terms of environmental impact. For example, indoor pigs produce 1.11 million tonnes a year of methane compared to the 66 million tonnes per year produced by cattle.

He highlighted that systems to treat manure and reduce odours should be viewed as investments rather than costs because it is these that give pig units the potential to start and grow in the face of ever more environmentally sensitive consumers.

Another Peter – this time Peter Spring from the Swiss College of Agriculture – then considered how to get the most from low cost feed ingredients while preventing excess waste. Allzyme SSF has been shown to give greater digestibility improvements when compared to GMO derived enzymes (see Fig. 1).

This same enzyme has also been shown to provide improvements in phosphorus digestibility (see Fig. 2).

Reducing mineral excretion

Understanding organic mineral absorption mechanisms was addressed by J. S. Ratcliffe and B. E. Aldridge from Purdue University in the USA. Their work is trying to gain a better insight into this subject so that mineral excretion by pigs can be further reduced.

American Tommy Shipp then considered producing heavier pigs at weaning by enhancing sow productivity with Sel-Plex. He cited an American study in which sows receiving Sel-Plex produced heavier pigs at weaning (plus 1.14lb per pig).

In addition, Sel-Plex sows, especially in later parities, tended to have a lower cull rate. ■

Fig. 2. Effect of Allzyme on the ileal phosphorus digestibility in pigs.