Holo-analysis aids in

Holo-analysis may facilitate the choice of an effective pro-nutrient and its dosage for the progressive improvement of animal production efficiency under defined current conditions.

By G.D. ROSEN*

A PRO-NUTRIENT is a feed ingredient or additive that improves the value of a limiting nutrient in animal nutrition. When it comes to decision-making in purchasing a pro-nutrient in a world of so many choices, the feed formulator first needs to ask two pertinent questions: “What do I want to achieve?” and “How do I best get there?”

A good starting point in any discussion with product suppliers is to use the seven-question test (Rosen, 2004): (1) How many controlled feeding tests do you have on the efficacy of your product? Products with fewer than 20 such tests should be treated with reserve. (2) How many of these tests have only positive controls? The absence of a negative control fails to measure the efficacy of any tested product. Discard all positive control tests. (3) Can you supply a comprehensive bibliography of references to publications on these tests? A negative response is good grounds for rejection. (4) How many times out of 10 does your product improve live weight gain and/or feed conversion? Ten out of 10 is always questionable. Six to eight out of 10 is an acceptable norm. (5) What are the coefficients of variation for your live weight gain and feed conversion improvements? Coefficients of variation of 100-200% are satisfactory. (6) What dosage of your product will maximize the return on investment? This is very important because the mean conditions of historic tests may or may not be relevant to one’s current needs. (7) Can you supply me with software based on holo-analytical empirical models to predict nutritional responses with confidence limits to your product for my current conditions? A positive response will provide a do-it-yourself kit to optimize decisions.

The fruits of the holo-analysis of alternatives to antibiotics for each relevant species are illustrated herein with the results of recent preliminary holo-analyses of the efficacy of a saccharide product, Bio-Mos (MOS: Alltech Inc.), an outer-cell wall derivative of a strain of Saccharomyces cerevisiae. This product is as yet the most extensively researched saccharide in broiler, turkey and pig nutrition (Rosen, 2007a and 2007b; Rosen, 2006a). In this context, it should be noted that legislative approval alone may provide very little guidance on the efficacy of a product. For example, the European Union requires only three efficacy tests. It also goes without saying that efficacy in a given species is no guarantee of efficacy in others. Legislative- and consumer-inspired precclusion of the use of veterinary prescription-free antibiotics in animal production has enhanced interest in the use of alternative feed additives and/or supplements.

The calculation alone of average responses is somewhat trivial because average circumstances are most unlikely to be relevant to any given situation. Holo-analysis, as against meta-analysis, requires the use of all available — not just selected — data to quantify efficacy in terms of all available environmental, management and nutritional independent variables (Rosen, 2006a). In this study, it was found that legislative approval alone may provide very little guidance on the efficacy of a product. For example, the European Union requires only three efficacy tests. It also goes without saying that efficacy in a given species is no guarantee of efficacy in others. Legislative- and consumer-inspired precclusion of the use of veterinary prescription-free antibiotics in animal production has enhanced interest in the use of alternative feed additives and/or supplements.

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