Do pigs benefit from enzymes as chickens do?

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This is an old question that deserves an updated explanation based on fresh data and current practices. In fact, it is in the segment of pig nutrition that we are currently seeing a marked increase in the use of enzymes as a response to the recent price spikes in the cereal market. In this article, we are primarily concerned with carbohydrases, as phytases are nowadays commonplace in most pig and poultry diets.

When commercial enzymes first appeared in the early 90s, their use was focused mainly on broiler diets. But, since then, not only do we have more scientific trials showing the benefits of carbohydrases in pigs, but also, we have new variables that have resulted in a greater use of enzymes in pig diets:

1. Modern pig genetics exhibit limited feed intake patterns and as such, they benefit from any measure that improves nutrient digestibility, such as fine grinding of cereals (which, unfortunately, also promotes ulcers in certain cases). Thus, there is scope in adding enzymes in their feed to enhance digestibility as a measure against expected low feed intake. Indeed, adding a carbohydrase in most cereal-based diets can improve energy digestibility by as much as 8%.

2. New generation enzymes are more stable (e.g., during pelleting) and more efficient (e.g., in the gut) thus allowing for increased benefits for pigs, even if feed retention time is longer than in broilers. This is most evident in cases of cereals with high levels of non-starch polysaccharides (the main components against which carbohydrases are effective), such as barley and wheat.

3. An enhanced understanding on how to use these enzymes has enabled nutritionists to incorporate them in specific formulas where the cost:benefit ratio is maximized. For example, a beta-glucanase enzyme added in a barley-based diet is expected to give a high return on investment compared to a xylanase, which is more suitable for a wheat-based diet.

4. As cereal prices are expected to remain high for the foreseeable future, any improvement in feed cost savings, no matter how small, will continue to remain important. Thus, even if the expected result is less compelling than in poultry, enzymes can still offer a significant cost reduction, if used appropriately.

5. Globablization of cereal commerce has increased the uncertainty of cereal quality as each batch (usually in terms of shiploads!) can originate from a myriad of sources, all of differing quality. Thus, even though nutritionists realize enzymes in pig diets work best when used in conjunction with cereals of low quality (read, high in non-starch polysaccharides), using a low-inclusion level enzyme offers a low-cost security against cereal quality variability that has become commonplace, especially for large-scale pig operations.

In conclusion, based on recent scientific evidence, advances in the manufacturing of enzymes, and current global practices in the commerce of cereals, ignoring the many benefits of carbohydrases can no longer be afforded by modern pig operations.

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