



Interview: Chr. Hansen Predicts Probiotic Efficacy for Customers

23 September 2014 - In May this year, Chr. Hansen unveiled its Reducing-Sugar Release Analysis service. The assay enables Chr. Hansen customers to maximize feed utilization and profitability when using the probiotic BioPlus® YC in grower-finisher diets by quantifying the effect of NSP enzyme production from BioPlus® YC on the conversion of biomass with high fiber content into reducing-sugar bioavailable to pigs. As a result, pig production costs can be reduced.

Feedinfo News Service touched base with Bob Lantz (Chr. Hansen's Monogastric Business Manager for North America) and Jack Egelund Madsen (Strategic Product Manager at Chr. Hansen) to find out if Reducing-Sugar Release Analysis is living up to its potential, and what the company's expectations are for BioPlus® YC moving forward.

[Feedinfo News Service] Mr. Lantz, since the launch in May, Chr. Hansen has been attending industry events to promote Reducing-Sugar Release Analysis. How have your customers reacted so far?



Bob Lantz, Monogastric Business Manager, North America

[Bob Lantz] Response from customers has been tremendous. We have had a steady flow of samples to our lab in Milwaukee requesting the service. Producers and nutritionists recognize the value in being able to adjust their formulations based on the results of the testing.

Testing has allowed many producers to take advantage of the Reducing-Sugar Release associated with BioPlus® YC.

With this information in hand, producers have the option of utilizing the energy release in one of two ways.

First, if they are tight on space, or want to maximize gain, they can simply add BioPlus® YC on top of their standard diets. The energy release associated with BioPlus® YC can be translated into improved gain. If the concern is related more to feed cost than to gain, the producer can then incorporate the energy release into their formulation in the form of a matrix value. This allows the producer or nutritionist to lower their feed cost per ton and per pig, getting an improved cash flow upfront, and not sacrifice any performance.

The best part of the service is that there is no added cost to the producer.

[Feedinfo News Service] Dr. Madsen, Reducing-Sugar Release Analysis quantifies the impact of BioPlus® YC dual strain Bacillus on bioavailable-sugar content in grower finisher diets. Can you explain the significance of this finding?

[Jack Egelund Madsen] The bottom line is that the RSR-analysis enables us to prove the efficacy directly to individual customer before they commit to using BioPlus® YC dual Bacillus strains in their feed. And, return on investment per ton of feed treated with BioPlus® YC has been

estimated at 61,7lbs of additional live weight produced, on top of saving 19lbs of feed, based on farm trials.



Jack Egelund Madsen, Strategic Product Manager

[Feedinfo News Service] Reducing-Sugar Release Analysis accurately quantifies the effect of NSP enzyme production from BioPlus® YC. Does this mean that your customers can only benefit from the Reducing-Sugar Release Analysis if they also purchase BioPlus® YC? Can't the analytical service be used in tandem with other Chr. Hansen probiotic products, or probiotics from other suppliers?

[Bob Lantz] The Reducing Sugar Release Analysis service can be applied to our other primary swine probiotic, BioPlus® 2B. In this case, the results can be used to help the nutritionist or producer better understand the "how" and "why" of BioPlus® 2B and its impact on nursery pigs (or sows for that matter). We have used the analysis to evaluate our products compared to competitive products, and quite frankly, I have not found one that I would recommend over either BioPlus® 2B or BioPlus® YC.

Chr. Hansen swine products are dual strain; that is to say that we have two unrelated strains of bacillus in each product. Their enzymatic profiles are unique, and because of this, we believe that our dual strain approach

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provides a wider range of enzyme capabilities, thus making it difficult for a single strain to compete. It is one thing to offer two or even three strains in a single product. Anyone can do that. The bigger question is, do the strains complement each other? Our strains do just that.

[Feedinfo News Service] BioPlus® YC on its own stimulates enzyme excretion to improve feed degradation, thus improving digestibility and availability of feed nutrients. Given that Reducing-Sugar Release Analysis accurately quantifies the effect of NSP enzyme production from BioPlus® YC, does this mean the company wasn't exactly sure what some of BioPlus® YC's effects were prior to the release of the analytical service?

[Jack Egelund Madsen] In the days before the Reducing-Sugar Release Analysis we would have had to use an old school digestibility study to provide evidence supporting the benefit of adding BioPlus® YC to feed in terms of utilization of nutrients and energy in the feed. However, it is both very time-consuming and expensive. The alternative to the old school digestibility study would be to measure in vitro NSP enzyme activity ex. edo-cellulase or xylanase, that is produced by the BioPlus® YC dual strain Bacillus. This again is a timely affair, and more importantly the breakdown of the NSP fraction requires the action of multiple en-

zymes working in a coordinated manner and is dependent on the specific feed source; information regarding the quantity of individual enzymes is of less importance. The key is the end-products of the enhanced NSP digestion: the reducing-sugars that can be utilized by the pig.

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Bacillus strains’ ability to release reducing-sugars from the NSP fraction in the feed that would otherwise be undigested by the pig - a process that requires the action of multiple enzymes working in a coordinated manner and is dependent on the individual feed source.

[Bob Lantz] Adding on to that, one of the interesting things about using a bacillus-based probiotic is the multiple modes of action that they possess which can positively impact sows, pigs and hogs.

The challenge that we faced with defining the “enzyme secretion” mode of action was to be able to explain to nutritionists why they were seeing improved efficiency or gain in their hogs which were being fed BioPlus® YC. We spent over a year trying to identify each of the enzymes that our bacillus strains are capable of producing. As you might imagine there are dozens, if not hundreds, of enzymes that our strains can potentially produce.

The challenge was actually the availability of “test kits” to evaluate the enzymatic secretion is actually quite limited, at least in respect the enzymes that we believed our strains produced. Eventually, our researchers realized that what’s really important, is not the enzymes that are present, but more so the enzymes that are missing.

With this concept in mind, the realization became that as long as you can measure the end product, you know that all of the necessary enzymes must have been present, in the appropriate concentration, in order to achieve the end result; in this case, reducing sugar release.

[Feedinfo News Service] Do you see demand for BioPlus® YC increasing thanks to customer integration of the new analytical service?

[Bob Lantz] The future for BioPlus® YC is extremely bright. Each month we see more and more grow-finish hogs being placed on BioPlus® YC as producers realize that BioPlus® YC provides them an opportunity to “feed NSP enzymes” and to begin to see predictable and repeatable results much like what the broiler industry is accustomed to when they feed enzymes. Of course the difference here is that the enzymes are being delivered by a vehicle, BioPlus® YC, which can make it through the harsh acidic environment of the pig’s stomach. Exogenous NSP enzymes are challenged in being able to get to the small intestine due to this low pH. This limits their effectiveness and certainly their predictability and repeatability.

I like to tell producers that adding BioPlus® YC to the diet is like having an enzyme factory in the digestive tract of the pig. When you can deliver enzymes to the small intestine of the pig, allow the pig to benefit from those enzymes, and the producer can see the results, then yes, I see the demand for BioPlus® YC continuing to grow.

[Feedinfo News Service] What is your outlook for the global use of probiotics for swine moving forward?

[Jack Egelund Madsen] Globally, several trends are driving the demand for probiotics. Global annual gross income per capita is expected to grow, with the Asia Pacific, Eastern Europe, Latin America, and the Middle East & Africa being the main contributors. This rising income not only drives up per capita meat consumption, it also puts pressure on the current production systems which will look to probiotic products to enhance performance parameters and maximize output. We also expect to see more consolidation in the agricultural value chain, meaning that the total number of pig producers will be significantly reduced, but at the same time the producers left on the market will be very large operations. This will mean that there will be a stronger focus on investment in enhanced performance parameters to maximize output, improved cash flow and higher earnings. Probiotics will be part of the solution.

Another strong market pull is coming from the demand to replace or reduce antibiotics in feed. The FDA is following the EU’s lead and has clearly indicated that it no longer supports antibiotic use in livestock for growth promotion and feed efficiency. Given APAC’s and WHO’s growing concern for the use of antibiotics in animal production, there will be an even stronger focus on reducing the use of AGPs moving forward. In addition, Chr. Hansen’s probiotic product offerings are all in line with the increasing emphasis on all-natural products. All these factors contribute towards probiotic demand.

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Chr. Hansen is currently the world’s leading supplier of high quality probiotic products for swine - a position we see “cemented” in the coming years thanks to the trends which support the further expansion of our market shares along with the massive efforts that have been invested in Chr. Hansen’s probiotic value chain.