NUTRITION NOTES
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USE OF A NEWER PHYTASE SOURCE (HIPHOS M AND HIPHOS GT) IN KENT SWINE PRODUCTS

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The use of newer technologies to manufacture more effective phytase sources has been rapidly emerging in recent years. HiPhos M (for meal feeds) and HiPhos GT (for pelleted feeds) are two newer phytase sources from DSM Nutritional Products. Compared to previous phytase products, these newer sources not only provide a greater release of phosphorus and calcium, but are supposed to release more amino acids and energy levels which can further enhance pig performance and economics.

We conducted a research trial to compare the newer phytase product (HiPhos M) to a Kent-recommended grow-finish program without phytase. We fed grow-finish pigs a six-phase program from a starting weight of 44 lb to a market weight of 285 lb. Diets consisted of corn and soybean meal along with 200 lb/ton of Distillers Dried Grains with Solubles, plus minerals, vitamins and amino acids. The data for these two treatments are shown below:

Table 1: Kent Research Trial[1]

Days 0-118	Control	Phytase	Adv. Phytase
Avg. Daily Gain, lb	2.05	2.06	0.5%
Avg. Daily Feed, lb	5.67	5.59	-1.4%
Feed/Gain	2.77	2.71	-2.2%
Cost/lb gain, ¢	30.56	29.33	-1.23¢
Net Return, $/pig @ $65/cwt live price	82.80	86.39	+$3.59

[1]*162 pigs/trt; 18 reps*

The results show a numerical decrease in feed efficiency with the added phytase along with very favorable economics in which cost of gain was lowered and net return was improved by $3.59/pig compared to pigs fed the control diets. What is remarkable about the data is the 2.2% improvement in feed efficiency from the added phytase. The reason we know this is we also evaluated an additional treatment (data not shown) involving added energy from animal fat. By comparing the added phytase treatment to our treatment with added fat (which did significantly improve feed efficiency), we determined that the added phytase treatment was releasing an additional 8 Kcal/lb of metabolizable energy which provides a lot of value in the diet compared to the cost of animal fat. We also formulated the above treatments with similar digestible amino acid levels, by providing a small release of amino acid levels via the added phytase. In addition, our research also showed that we can safely provide a calcium release of 0.11 units and a phosphorus and digestible phosphorus release of 0.13 units from the added phytase level of 2,200 FYT/lb.

continued

Based on the data in table 1, we are updating our NexGen products with this new phytase source. This includes starters, premixes, supplements and complete feeds. The feed savings on a ton of complete feed will be about $1/ton with the NexGen and NexGen 60/50 PT products. Inclusion levels of NexGen Premixes have also changed (effective by November 17, 2014) as shown below:

Changes in NexGen Premix Inclusion Levels in Grow-Finish Pigs

Premix	Previous Inclusion Levels/ton[1]	New Inclusion Levels/ton[1]
2090 NexGen Premix	40/32	35/28
2091 NexGen Premix LYS	43/35	40/32
2092 NexGen Premix LYS DDG200	42/34	36/29
2093 NexGen Premix LYS DDG400	42/34	41/33
2094 NexGen Premix LYS DDG600	42/34	43/35
2105 NexGen AA Pak[2]	6	9

[1] *The first number refers to the inclusion level/ton in grower diets while the second number refers to the inclusion level/ton in finisher diets; note that the newer phytase is providing a substantial release of phosphorus and calcium which lowers our inclusion levels by several lb/ton with the NexGen 2090, 2091 and 2092 products.*

[2] *Reducing soybean meal by 125 lb/ton results in less phosphorus, so monocalcium phosphate has been added to the AA Pak to meet the calcium and phosphorus requirements*

The reason that Product 2094 has a 1-lb increase in inclusion level/ton is due to the fact that the newer phytase releases more phosphorus and requires that we add in a slight increase in calcium in order to maintain a proper calcium-to-phosphorus ratio in our diets.

In summary, the newer phytase source provides not only greater releases of calcium and phosphorus than previous sources, but also releases more amino acids and energy levels which results in substantial improvements in economics to producers.