NUTRITION NOTES
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INNOVATIVE NEW PIG STARTER FORMULATIONS FOR NEXGEN® 12-17

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The use of animal plasma in early wean pig starters in 1990 resulted in significant improvements in performance. In early 2014, a new ingredient called betaGRO® (a concentrated source of immunoglobulins from animal plasma) became incorporated into pig starters as a replacement for animal plasma. At the Kent Nutrition Group, we have been evaluating many specialized ingredients during the last 20 years that can help with growth and the immune status of pigs. Based on extensive research during this time span, we now utilize within our nursery feed program:

- **Micro-Aid®**
- Proprietary hydrolyzed yeast cell wall that is a source of Mannan Oligosaccharides (**MOS**) that provides a source of prebiotics
- **Egg Proteins** that provide a source of antibodies that may help with various stressors
- **Selenium Yeast** as a highly bioavailable form of selenium that can help the immune system.
- Proprietary source of **fresh water reed sedge peat** that is a natural chelator which has reduced inflammation in laboratory animals via a patent.
- A protected source of **butyric acid** which provides energy to intestinal cells
- **Vitamin C** which is a key antioxidant in the body.
- **VevoVitall®**, an ultra-pure source of food-grade quality benzoic acid which lowers gut pH and may help with reductions in scours besides a significant improvement in feed efficiency.
- **Cibenza®**, an enzyme that can help improve amino acid digestion.

Based on the numerous specialized ingredients that we have researched and observed positive responses to, we decided to re-evaluate the use of animal plasma in our pig starter program to determine whether it still provided the performance responses we observed years ago. In the plasma-free diets we utilized more cheese protein, higher whey permeate or lactose levels, higher egg antibodies, increased levels of a quality poultry meal and lower levels of soybean meal along with the incorporation of a highly digestible soy protein from Hamlet. We compared these to our formulations that contained animal plasma to again determine whether we could develop a new line of pig starters that would replace the immunoglobulins from animal plasma and betaGRO®. The purpose of our trial was to compare a new set of pig starter formulations to pig starter formulations that contained animal plasma.

Table 1.
Evaluation of Two Formulations for NexGen 12-17 (Days 0-9)

Plasma	√	
Avg. Daily Gain, lb	.43	.43
Avg. Daily Feed, lb	.62	.60
Feed/Gain	1.56	1.45
Cost/lb of gain[1], cents	51.56	48.01
Net Return, $/Pig @ 80 cents/lb	1.23	1.39

KNG; 224 pigs/trt; 32 pens; Avg. Initial Wt., 15.7 lb
[1]Treatment effect (P ≤ .05)

continued

In Table 1 are the data comparing the formulations with animal plasma to those with new ingredients replacing the animal plasma. Gains and feed intakes were similar between these two treatments. Feed efficiency was numerically improved with the formula without the added plasma. In addition, the new diets had a significantly lower cost of gain and a greater net return. Net return is defined as the value of gain (valued at 80 cents/lb) minus the feed cost to put on that much gain so having a return of $0.16 in favor of the new formulations was positive. Note that we had a large number of replications (32) per treatment provides confidence to us that these new formulas perform well.

After the 9-day test period with the two formulations of NexGen 12-17, we fed the same NexGen 17-25 and NexGen 25-40 to both groups of pigs. The NexGen 17-25 was fed from Days 9-21 and the NexGen 25-40 was fed from Days 21-35. The overall data are shown in Table 2.

Table 2. Evaluation of Two Formulations for NexGen 12-17 (Days 0-9) Followed by NexGen 17-25 (Days 9-21) and NexGen 25-40 (Days 21-35)

Plasma (Days 0-9)	√	
Common Diets (Days 9-35)	√	√
Avg. Daily Gain, lb	.85	.89
Avg. Daily Feed, lb	1.20	1.22
Feed/Gain[1]	1.41	1.37
Cost/lb of gain[1], cents	23.86	22.94
Net Return2, $/Pig @ 60 cents/lb	10.84	11.49

KNG; 224 pigs/trt; 32 pens; Avg. Initial Wt., 15.7 lb
[1]Treatment effect (P ≤ .05); [2]Treatment effect (P ≤ .10)

Pigs previously on the new formulation (without plasma) during Days 0-9, grew faster during the next two stages compared to those previously on the formulation with plasma. Overall, pigs previously on diets without plasma had numerical improvements in gain 4.7% with significantly better (1.37 vs. 1.41) feed efficiencies which resulted in markedly lower cost of gains compared to those previously on diets with plasma. Moreover, net return was improved by $0.65/pig (Days 0-34) for those pigs fed diets without plasma compared to those with plasma during Days 0-9.

Based on these results, we are introducing a new set of early wean starters that do not contain plasma or betaGRO. These new formulations contain several high quality ingredients along with all the specialty ingredients we have researched over the years that can enhance performance and the immune status in the pig. This in turn can help producers raise more efficient and profitable pork to feed a growing world.