Soybean Meal (SBM) Levels in Nursery Diets – How High Can It Go?

Soybean meal is a common ingredient in swine nursery feed diets. The level fed depends on a variety of factors such as its cost, price, availability of alternative proteins, production practices and performance expectations. The trend is to feed higher levels to younger pigs which causes some nutritionists and producers to wonder why these higher levels can be fed and pigs still achieve acceptable performance?

SBM – The Past

Anti-nutritional factors have long been associated with soybean meal. The quality of SBM is often determined by urease activity which detects under-heating. The level of urease activity is correlated to the level of trypsin inhibitors and other anti-nutritional factors. If properly heat treated, the value should be 0 to 0.2. Trypsin inhibitor levels can also be tested and values should fall within the range of 1 to 4 mgTI/g of SBM. Potassium hydroxide (KOH) solubility is used to detect overheating of soybeans during processing. The level of KOH solubility determines the nitrogen solubility and levels below 80% could indicate overheating and decreased amino acid availability.

In the past there may have been greater variability in soybean meal quality due to the number of ways it could be processed and the effectiveness of that processing. Feeding higher levels of a SBM that had not been processed properly and having higher levels of trypsin inhibitor and urease would have led to performance lag.

SBM – The Present

Hubbard research has repeatedly shown pigs fed higher levels of SBM did not experience adverse performance. Below is a summary of 4 trials over a period of 2 years that show no adverse effects when feeding high levels of soybean meal up to pigs weighing 25 lbs.
Has SBM changed and if so what contributed to those changes? Perhaps a better understanding of processing and how it affects nutrient digestibility has led to a more consistent, high quality meal with high protein and lysine and high amino acid digestibility. The use of more rapidly available wet chemistry and NIR has been an aid in formulation and allowed for greater accuracy.

Certainly, understanding the role of other proteins in gut health in conjunction with enhanced emphasis on gut health and products that can positively influence health, (GutCIE, DFM’s, phytase, essential oils and acidifiers) has allowed the use of higher levels of SBM without adverse effects.

Finally as weaning age has increased what role does this play in how pigs respond to higher soybean meal levels?

**SBM – The Future**

Historically we’ve adapted to critical events regarding the availability and acceptability of proteins fed in nursery feed diets.

- Fishmeal was a popular option until the BP Gulf oil spill and availability was scare.
- Pork proteins were relied upon to replace fishmeal and they were very successful.
- PEDv led to the removal of pork and/or animal proteins with the desire to go animal protein free. This lead to increased use of enzymatically or fermented soy products.

It truly is a tale of two stories. Hubbard research has consistently shown that high levels of SBM can be fed without performance lag. This can result in savings as nursery feed is the most expensive diets. Alternatively, when SBM prices are high relative to synthetic amino acids, the highest levels are not fed due to economics. So while Hubbard Feeds research may support high levels of SBM being fed to nursery pigs, we don’t always recommend high levels. It’s typically a matter of economics. In short we want to help our customers improve their profitability and competitive advantage.

In the future Hubbard Feeds will continue to research higher soybean meal levels in starters to better understand the responses observed. Hubbard research will also examine how the use of our proprietary gut health products affects performance levels on high SBM diets. Will there be more adverse effects without these gut enhancement products?

What does this mean for you? Hubbard Feeds will continue use its expertise and experience to continue to innovate resulting in reducing your risk, increasing profitability and making your life easier.