

to speed growth rate, the higher return may be enough to offset increased costs and, in the process, increase net return.

Conversely, low market prices or high feed costs often increase marginal feed and facility costs so that keeping pigs in the barn for further weight gain is no longer profitable. As this will move market weights to the lower end of the weight discount window, producers are cautioned to not incur hefty weight discounts that exceed the cost of feed and facilities to grow pigs to a given weight.

Sow inventory

When losing money, remove lower productivity sows to reduce feed costs, provide cash flow and maximize the efficiency of the remaining sows. Take care not to lower inventory too much, however, as you may limit your ability to generate income.

During high profit periods (remember those?), maximize herd inventory numbers to elevate production and make the most of the situation.

Diet formulation changes

Levels of most nutrients won't change much with market prices, as any savings in feed cost per ton is offset by poorer feed efficiency. These nutrients include many amino acids (eg. lysine, methionine, threonine), vitamins and most trace minerals.

If necessary, there are some amino acids, such as tryptophan and valine, whose reduction will lower feed intake without altering feed efficiency.

Decisions on including or excluding ingredients will vary with the price relationship among ingredients. If their use lowers feed cost per unit of gain but also lowers growth rate, they may be appropriate when market hog prices are low, whereas during high price periods the savings in feed cost may not compensate for lost revenue from the lower growth rate.

Feed flexibility

Clearly, feed and management decisions are not made in isolation; they must adapt to market conditions. When you're making money, it's best to maximize throughput and weights to reap as much profit as possible. In this scenario, market weights and sow inventory increase, as do diets with the inclusion of nutrients or ingredients to enhance growth rate. In leaner times, efficiency is king, as low efficiency animals are removed, market weights are lowered and diet costs are reduced to obtain the lowest feed cost per unit of gain.

In the pork industry, volatility is a fact of life. Those who survive are the ones that are continually evaluating opportunities and responding to market conditions; because if you try and make decisions in a vacuum, it will suck the life from your business every time.

Part two: Alternative Feedstuffs and Feeding Programs for Nursery Pigs

Eventually, nursery pigs grow up to be the star attraction at your dinner table. In the meantime, feeding them

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is no picnic. That's why academics are always looking for ways to optimize the nursery pig's diet. With 123 published scientific papers on nutrition, Dr. Ruurd Zijlstra – Department Chair for Agricultural, Food & Nutritional Science at the University of Alberta – is well qualified to offer some “feed for thought” in this area.



Ruurd Zijlstra

Feeding of nursery pigs has two key phases, each with its own focus: immediately post-weaning when the goal is getting pigs to eat, and the subsequent phase when you try to raise the pig's capacity to eat by maximizing flexibility in feed formulation while maintaining growth performance.

Focusing on the latter phase, Zijlstra said that dietary feedstuffs directly impact feed costs and competitiveness, while functional characteristics of carbohydrates such as starch, fiber and oligosaccharides are critical to value-added attributes like intestine health. He then summarized the research on flexibility of feed formulation and control of gut health.

Alternative feedstuffs

Zijlstra cited some interesting findings here from relevant studies:

- Young pigs fed diets containing less energy and more fiber boasted the greatest feed intake and gain, but with a reduced feed efficiency.
- While increased dietary acid-detergent fiber consistently reduced energy digestibility, effects on feed intake were inconsistent.
- Barley-based diets may provide an advantage over their wheat-based counterparts.

- While pigs have strong preferences for certain feeds and feedstuffs, diets including alternative protein feedstuffs can produce a growth performance comparable to pigs on a soybean meal-based diet.

Feeding programs

Removal of plasma protein from nursery pig diets caused them stress in the form of increased diarrhea in feeding programs. Dietary carbohydrates may provide a partial solution for this.

Carbohydrates

Starch – Reduced kinetics of starch digestion correlates with increased dietary starch entering the hindgut as resistant starch. Although too much of this resistant starch may hamper growth, there is an optimum starch digestion profile for maintaining gut health and growth in nursery pigs. It should make for great bedtime reading on those cold winter nights.

Fibre – Fibre may play an important role in improving gut health, as in a concentrated form such as oat β -glucan it has a prebiotic effect on nursery pigs.

Oligosaccharides – Enterotoxigenic *Escherichia coli* (spelled just like it sounds), or ETEC, is a leading cause of diarrhea in piglets. The ETEC colonize the intestinal mucosa with adhesins and deliver toxins that cause fluid loss. One solution is to ferment part of the cereal grain in the feed to produce exopolysaccharide, which may reduce the incidence of diarrhea by providing an alternative target for the ETEC to adhere to.

Conclusions

With stiff competition a way of life for modern pork producers, and feed costs comprising the bulk of their expenses, optimizing feed usage and improving efficiency is more important than ever. Research on alternative feedstuffs may ease the monetary burden for producers, while understanding the functionality of carbohydrates can aid in controlling gut health and enhancing growth performance. That way, pork can continue to take centre stage at family meals and the curtain won't fall on producers anytime soon. ■

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