

Feeding Strategies to Reduce Pig Growth

Authors: Chris Hostetler, PhD, Director of Animal Science

Although not a common objective, some specific circumstances call for slowing down pig growth from typical standards. Doing so in a way that is safe and effective is an achievable goal with proper planning and management. As with any change to pig care and management, animal well-being must always remain the overarching objective, which is codified in the pork industry's We CareSM ethical principles.

First, it's good to realize that true limit feeding is extremely difficult for commercial pork producers in the United States. This is simply because the necessary feed delivery methods, proper feeding equipment and use of barns with totally slatted floors make controlling feed intake difficult. Therefore, the single best option for producers is to feed their pigs low-energy, high-fiber diets with an adjusted lysine-to-calorie ratio and to remove any growth-promoting technologies.

Transition to low-energy, high-fiber diets:

Feeding pigs a low-energy, high-fiber diet may be the best option for producers, especially when used with other management practices such as removal of growth-promoting technologies. This may include removing all fat sources from the diet and replacing a portion of the diet with soy hulls, wheat midlings, DDGS or sugar beet pulp. The goal is to increase the neutral detergent fiber (NDF) content of the diet to 20%. Pigs fed diets with NDF content of 10% to 15% will simply eat more to meet their daily energy requirement. As NDF content in the diet approaches 20%, pigs simply get too full to eat enough feed to meet their energy requirement.

Removing other growth-promoting technologies such as, copper sulphate from diets and including phytase only as necessary to meet the pigs phosphorus needs may have additional benefits in slowing pig growth. Adjusting the lysine-to-calorie ratio by up to 15% in these diets can also cause slower-than-normal growth.

One current challenge may be obtaining dried distillers grains with solubles (DDGS). However, as ethanol production slows and corn prices drop, DDGS supply becomes scarce. This shortage compounds the issue since DDGS are higher in fiber content than corn.

Finally, another challenge to consider is that using low-energy, high-fiber diets in the last 30 days of finishing will increase days in the finisher by up to four days. Therefore, the tendency may be for producers to use these diets earlier in the growing



period when barn space is more flexible. As with any of these suggestions, they should only be employed under the expert advisement of a swine nutritionist.

Key Steps:

- Remove all sources of added fat
- Replace high energy feedstuffs with more fibrous feedstuffs
- Adjust lysine-to-calorie ratio
- Remove any growth-promoting technologies from the diet

Limit Feed Intake

European pork producers have been limit-feeding pigs for many years to optimize feed efficiency and take advantage of the availability of lower-energy feedstuffs. Typically, the strategy is to feed pigs smaller quantities of feed three to four times daily on a clean concrete floor or via a trough when using a liquid-feeding system.



Using this model, it is critical that all pigs in the pen are able to eat at the same time. Otherwise, the dominant pigs will over-consume and the more timid pigs will have little left to eat leading to large variation in finishing weights within the pen. Commercial U.S. pork producers likely do not have the necessary equipment such as troughs or feeder spaces or solid flooring to effectively limit feed pigs. Also, limit feeding requires delivering a known quantity of feed to pigs. This may prove difficult on many farms as the majority of feed-delivery systems in many finishing barns are not set up to measure the amount of feed delivered to each pen.

While European-style limit feeding may not be an option for most producers in the United States, decreasing the feeder-gate opening might be. The goal here is to reduce the amount of feed flowing onto the feed pan. This option, however, does require intensive feeder management to achieve the desired results. This likely may add additional labor requirements since barns will need to be walked several times a day especially during the initial period of feeder adjustment.

Finally, animal welfare must be maintained regardless of method of limit feeding. Producers should watch for any pigs showing aggressive behaviors or displaying other animal welfare issues. This may also require increased labor to observe pigs multiple times a day.

Key Steps:

- Adjust feeder gate opening until 20% to 25% of feed-pan coverage is achieved
- Closely monitor pigs and feeders during the initial phase

Other Potential Options

1) Feeding high levels of calcium chloride

This option has limited applicability because it will likely increase diet costs substantially. Additionally, the available information on feeding increased concentrations of CaCl is in sows with very little to no information available on using high levels of CaCl in

finishing pigs. Furthermore, the success of this tactic is based on anion/cation balance in pigs. Therefore, this option requires special expertise when formulating these diets. Finally, feeding high-salt diets requires that pigs always have access to fresh water since a disruption in water supply may result in salt toxicity once water supply is restored.

2) Feeding corn-only diets

Feeding only corn in diets that are balanced for mineral and vitamin requirements may successfully decrease pig growth. However, slower growth will come at the expense of feed efficiency and carcass composition. Because of this, it is unlikely that this will be a viable option for many pork producers.

3) Controlling barn temperatures

In summer heat, pork producers know to expect slower pig growth rates in finishing barns. This seasonal effect may be artificially enhanced by reducing ventilation to increase barn temperatures. When coupled with increased humidity, this is particularly effective. However, pig and worker health may be compromised because of the potential for elevated gas build-up in some barns. Again, labor requirements are likely to increase because of the need to monitor pigs more often throughout the day.

4) Controlling stocking density

This can be most successfully achieved by marketing entire pens of pigs to fill a truck for market rather than pulling a few pigs from multiple pens. Making multiple “pulls” from different pens often results in increased growth rate in the remaining pigs.

Conclusion

Over the past 30 years, American pig farmers have become extremely successful in raising pigs that grow quickly and efficiently. It's likely been a combination of genetics, nutrition, improved pig health, growth-promoting technologies and overall better pig care. Regardless, to reduce pig growth from its 21st century norm, producers should seek professional advice and always keep pig welfare as a priority. They should work closely with swine nutritionists, whether they are part of their farm's staff or are a feed company technical expert, to develop alternative feeding strategies to meet this unique goal.

Previous Checkoff-funded research on feeding low-energy, high-fiber diets to pigs can be found by following these links:

- 1) <https://www.pork.org/research/maximizing-the-utilization-of-lower-energy-higher-fiber-feedstuffs-through-more-focused-and-effective-use-of-xylanase/>
- 2) <https://www.pork.org/research/impact-dietary-fiber-nutrient-utilization-pig-efficiency-phytase-enzyme/>
- 3) <https://www.pork.org/research/preparing-for-the-inevitable-increase-in-fiber-content-in-practical-pig-diets/>
- 4) <https://www.pork.org/research/regulating-feed-intake-of-group-housed-replacement-gilts-by-altering-dietary-cationanion-difference/>