

## Retail Perspective of the Pork Industry

By: Brian Cotton

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Ken Clark of the Overwaitea Food Group, Langley B.C. presented this information at the Saskatchewan Pork Industry Symposium 2002.

Clark said that consumer needs are ever changing. A consumer survey in 1999 and again in 2002 asked the following question: "What do you look for when making your meat buying decisions?"

In 1999 the top three answers were:

- 1) quality
- 2) price and
- 3) variety /selection.

In 2002 the responses were:

- 1) quality
- 2) food safety and
- 3) price.

Clark suggested that a branded product offers the opportunity to improve product consistency, appearance and presentation. "Consumers trust brands and there are opportunities for branded pork products."

Producers can help by marketing a consistent market hog, by weight and genetic makeup, to meet the packers' requirements.

Food safety has also become more of a concern with consumers being bombarded with negative press on E. Coli, Foot and Mouth, BSE and other issues impacting production. The Canadian Quality Assurance Program helps producers with these and other concerns around food safety.

Other issues expected to emerge around food safety include discussions on irradiation of food products and the use of "genetically modified organisms" (GMOs). The issue will definitely be – How we make meat products consistently safe and at what cost? No matter what is done, a huge consumer education process will have to take place.

While retailers have become very aggressive in merchandizing pork and increasing sales volumes, it is clear that consumers are asking for safe, humanely raised food more than just cheap food. Producers will have to adapt to these changing consumer demands to continue to increase and protect our pork markets.

## What Does It Cost to Raise A Pig?

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The table below has been prepared to serve as a guide for calculating total production costs. To more accurately reflect the true cost of your swine operation, values specific to that operation should be substituted

for those provided. All swine production units should attempt to calculate their production costs and subsequently their breakeven price. The breakeven price can be used to assist with risk reduction decisions such as

forward pricing of pigs.

Buildings are valued at new cost and feed is **commercially prepared**.

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# Dietary Manipulation Strategies to Reduce Swine Odours: Part 1

By: Martin Nyachoti, Ph.D., Department of Animal Science, University of Manitoba, James D. House, Ph.D., P.Ag., Department of Animal Science, University of Manitoba & Ian R. Seddon, Ph.D., Manitoba Agriculture and Food

**Odours are a natural part of pig production. Excessive odours can be a major concern to those involved in the industry as well as for neighbours of pig farms. The following review provides a brief look at dietary management strategies producers can use to minimize odours from their farms.**

## Diet Formulation:

### i) Matching nutrient supply with requirements -

Swine producers need to have a good understanding of the nutrient requirements of their pigs, in particular what are the specific needs for their own unique farm conditions. In order to closely match the nutrient supply with the requirements, it is necessary to know:

- the availability of nutrients in pig feed ingredients and
- the requirements for specific nutrients for the genotype of pig on a farm.

Breakdown products of dietary protein are the main compounds associated with swine odours. About 65 to 70% of nitrogen consumed by growing pigs is excreted. Thus a considerable reduction in nitrogen excretion can be met by matching dietary nitrogen supply to the requirements. Sulfur excretion can also be reduced by carefully managing intake levels, either through the diet (sulfur amino acid levels) or by controlling sulfate levels in drinking water.

ii) *Formulation of low-protein amino acid supplemented diets* - Pig diets are usually formulated to meet the minimum

requirements for key amino acids and to allow for desired performance levels. These diets often contain excessive amounts of other amino acids that contribute significantly to nitrogen excretion. Strategies to reduce the amount of nitrogen excreted in pig manure should provide a way to decrease the production of nitrogen-derived odorous compounds in swine manure.

The feeding of low protein diets supplemented with synthetic amino acids can reduce nitrogen excretion in manure. Reducing dietary crude protein content by 1 percentage unit reduces nitrogen excretion by 8-10%. Studies have shown that feeding pigs low protein diets has no negative effect on pig performance provided such diets are well fortified with the essential, limiting amino acids such as lysine, methionine, threonine, and tryptophan.

Developing and using low-protein, amino acid supplemented diets also has the potential to reduce ammonia emissions from pig facilities. This strategy can reduce urinary excretion of nitrogen by as much as 30%. Urinary nitrogen is closely related to aerial ammonia

levels, as it is easily volatilized.

There is a need to establish amino acid availabilities for all ingredients used in pig diets so the diets more closely match the supply of amino acids with the animal's requirements. A new simple technique for estimating amino acid availability in feedstuffs has been developed. Whether it can be used for routine evaluation of different feedstuffs needs to be established. Using true as opposed to apparent ileal amino acid digestibilities to formulate diets will increase precision in dietary amino acid supply since true ileal amino acids are additive in mixtures of feedstuffs.

### iii) *Ingredient selection* -

In practical diets, a mix of ingredients is used to supply the nutrients required for optimal performance. Pigs are able to utilize dietary nutrients more efficiently from some feed ingredients than others. This means the type of feed ingredient can influence the amount of nitrogen excreted by pigs. In general, feedstuffs that induce high levels of endogenous nitrogen secretion will also increase the amount of nitrogen excreted in pig manure.

Selecting feed ingredients that are highly digestible and/or that induce minimal endogenous nitrogen secretion in pigs offer a way to reduce nitrogen excretion in pig manure. This strategy was demonstrated by studies that substituting hulled barley with hullless barley. There is need to further study this technique to determine how effective it could be for Manitoba's swine industry as a tool for managing odors.

**iv) Ingredient processing -** Processing individual ingredients or complete rations can improve the digestibility of amino acids. For every 1% improvement in digestibility, the amount of nitrogen excreted per kg of pork produced decreases by 1.4%. Therefore, strategies that improve feed digestion are also likely to reduce the amount of nitrogen excreted in pig manure. The true benefit of such strategies will only be realized if they are taken into consideration when formulating swine diets.

Finely ground and pelleted feeds are digested to a larger extent than those of coarser particle size. However, if the particle size is reduced too much, stomach ulcers may become a problem.

Micronized peas have been shown to reduce nitrogen excretion and manure volume by growing pigs (Figure 1). Since faecal nitrogen is a major source of odorous compounds, micronization could be an effective in reducing odours from pig facilities. Further research should be completed if this technology is to be widely adopted in pig production.

**Practical Feeding Strategies**

**i) Phase feeding -**

As pigs mature, their requirements for dietary amino acids decline. This means that diets suitable for growing pigs, with high requirements for amino acids, will not be the same as for a finishing pigs who needs less amino acids in the diet. Pigs should be fed diets appropriate to their stage of growth or physiological status.

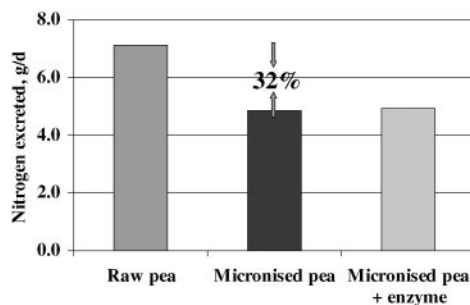


Figure 1. Effect of incorporating micronized peas with or without enzyme supplementation in grower diets on faecal nitrogen excretion.

This has led to the use of more than one diet for pigs in the nursery or during the growing-finishing stage, with the main adjustment in the diet being reduction in protein content. This practice of **Phase Feeding** can result in a 5 to 10% reduction in the total amount of nitrogen excreted in pig manure (Figure 2). The concept of phase feeding can also be applied to the breeding herd. Pregnant and lactating sows are in different physiological states and therefore their nutrient requirements are not the same. Generally, requirements for gestating sows are lower than for lactating sows. The use of separate gestation and lactation diets can reduce nitrogen excretion by as much as 20%.

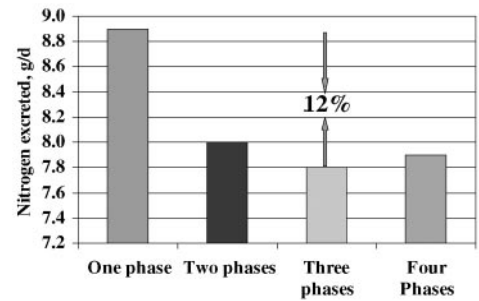


Figure 2. Effect of phase feeding on nitrogen excretion in finishing pigs

**ii) Split sex feeding -**

There are differences in the amino acid requirements between gilts and barrows. Gilts have higher requirements for amino acids than barrows because of their higher capacity for lean tissue deposition. Feeding gilts and barrows separately and feeding barrows lower protein diets is a practical means of reducing nitrogen excretion in pig manure. It is estimated that this strategy can reduce nitrogen excretion by 5 to 8%.

**iii) Minimizing feed wastage -**

Any feed not eaten by the pig and ending up in the manure pit will be broken down and will add to the generation of odor-causing compounds. Minimizing feed wastage will go a long way in reducing odours from swine manure. Proper feeder design, adjusting and cleaning feeders frequently, and using pelleted as opposed to mash diets can reduce feed wastage. Feeders should be adjusted such that only 50% of the bottom part is covered as a general guideline to minimize feed wastage. Poorly designed feeders have been estimated to result in feed losses of 5% or more. However little research has been done to

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determine how this might impact odours from swine manure. The use of wet-dry feeders should be encouraged as they offer an effective means for reducing feed wastage; as much as a 60% reduction in feed

wastage by pigs from 20 to 80 kg.

Part 2 of this review, discussing dietary manipulation with feed additives to modify odours, will appear in the next issue of the Swine Update.

to increase the throughput of the operation. Realistic goals must be set and realized in order to remain competitive.

Other factors to consider are:

- Are you getting the best price for your pigs: are the pigs in the appropriate weight range; are you reducing risk by using forward pricing strategies?

- Have all of your input costs been reviewed for their cost effectiveness?

- Are you willing to become part of a network; either purchasing or production? Is contract rearing of pigs an option you should be considering?

- Do you keep accurate production and financial records that are used in management decisions? If required could you itemize your costs on a per unit basis (i.e. per pig, per kg saleable pork, etc.)?

- Is your farm attaining the highest levels of productivity and efficiency? Is training or upgrading for you or your staff in order?

- Do you have a bio-security protocol and quality assurance program in place?

- Do you use an advisor to discuss with and evaluate all the various aspects of your farming operation?

For more information on these and other topics, contact your nearest Manitoba Agriculture and Food swine specialist.

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**Table 1 Total Cost of Production**

Costs	Farrow/Finish (113 kg)	Farrow/Wean (5 kg)	Nursery (5-23 kg)	Grow/Finish (23-113 kg)
Feed	\$94.43 (61.1%)	\$14.18 (37.6%)	\$12.59 (24.4%)	\$66.84 (46.2%)
Variable	30.57 (19.8%)	12.78 (33.9%)	3.87 (7.5%)	14.35 (9.9%)
Feeder Pig	-	-	31.04 (60.2%)	49.29 (34.1%)
Fixed	19.04 (12.3%)	5.72 (15.2%)	2.83 (5.5%)	10.20 (7.0%)
Labor	10.51 (6.8%)	5.00 (13.3%)	1.25 (2.4%)	4.03 (2.8%)
Total				
(Per pig sold)	\$154.55	\$37.68	\$51.58	\$144.71

As can be seen in Table 1 feed accounts for the largest portion of total production costs comprising 61.1% and 37.6% of the farrow/finish and farrow/wean units respectively. In the nursery units, the feeder pig is the greatest single cost with feed accounting for the next largest cost. Due to depressed market prices and the resultant impact on feeder pig prices, feed is currently the largest single expense in the grow/finish units.

**Table 2 Production Cost Comparison - December (Farrow/finish, per pig sold)**

	1998	2002	%
Feed	\$80.78	\$94.43	+16.9%
Total	\$133.29	\$154.55	

Source: Swine Update Volume 11 No. 1, January 1999

When comparing 2002 to 1998 production costs (Table 2) an increase in feed prices of about 17% is noticed. Although market returns are currently below the cost of production they are still superior to those experienced in December 1998; where market returns were not adequate enough to cover the cost of feed.

The first and short-term approach to reducing production costs is a complete review of feed costs, as this component constitutes a significant portion of variable costs. Controlling feed cost (ration cost and feed efficiency) is the only way to substantially influence variable cost. Improving animal genetics and health, reducing feed wastage, phase feeding, split-sex feeding and cooperative purchasing are some factors that should be employed in a swine operation to reduce feed costs.

The second and long-term approach to improving profitability is