

## Pork Production Contracts and Food Safety Issues

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### ASL-1516

#### Introduction

The pork production industry has been moving toward coordinated efforts where there is an increased linkage between industry participants ranging from input suppliers, to producers, to packers/processors, and the retail or consumer level. Contracts have been used as one of the mechanisms to link the participants. These contracts vary widely, covering such items as production standards or technology that may have food safety associations, inputs to be used in production, market timing, and payments and payment methods, etc.

By linking industry participants, hog purchase/production contracts have been used to develop improved organization and flow of products, enhance industry movement toward improved food safety through reduced residues and/or pathogens, develop more uniform products, and spur the movement toward production of leaner pork. In the movement toward leaner pork, the industry has rapidly moved to carcass pricing and lean premiums rather than pricing of the live hog.

#### Pork Production Contracts and Food Safety

The use of purchasing contracts for hogs has grown rapidly in recent years. To date, contract terms have typically focused on production of leaner hogs and residue reduction. Almost all long-term purchase contracts stipulate that the producer be at Level 3 of the Pork Quality Assurance (PQA) Program. The National Pork Producers Council (NPPC) is currently working on identification of and implementation techniques for on-farm Hazard Analysis and Critical Control Points (HACCP) for pork producers.

Industry personnel are asking the question about what improved food safety attributes in meat and meat products is worth. Or they are attempting to answer the question about what it will cost to improve the food safety attributes, along with what consumers are willing to pay for these attributes. This will provide information on whether it is economical to move in the direction of improving the safety of the supply of meat and meat products.

These discussions are taking place at many levels in the swine industry, including producers, packers, processors, retail outlets that would sell the product to consumers, and consumers. Some packers are looking at the opportunities for developing specialty or niche markets in the pork industry. They are looking at the possibilities of identifying the hogs and/or pork products back through to the genetics and input supply level, on through to the producer, to the packer and processor, and then to the grocery store shelf for purchase by consumers. They are interested in such factors as how large a market would be needed to economically justify a specialty or niche market.

This would include such things as the number of hogs, number of producers and types of arrangements that would be necessary to maintain the identity of the product throughout the marketing stages. Industry personnel indicate that the emphasis will be on two primary items: food quality and food safety. Currently, more is known about the food quality attributes than the food safety attributes. Recent work has focused on consumer willingness to pay for meat and meat products with improved food safety attributes. However, little is known about on-farm pork production systems, etc., and their impact on differing levels of pathogens in hogs at the time they go to market. Much remains to be known about the epidemiology of pathogens such as *Salmonella* and what seems to work and doesn't work in its control or reduction. Additionally, rapid tests for *Salmonella* detection are just now becoming available in the industry. For example, NOBLE Laboratories has a rapid test for *Salmonella*.

Some packers have indicated that they feel there is a set of consumers who would be the base of a niche market for products with improved food safety attributes. This, too, has been verified by research conducted at Iowa State University on consumer willingness to pay for products with enhanced food safety attributes. Still a bigger area may be that of the export market. Packers have indicated that they feel the industry has a good handle on genetics, feed rations, and production systems that will produce a lean and high quality product. However, they indicate that the issue of food safety and pathogens in food products and associated relationships with such things as production systems, handling of hogs, etc., is an area where much remains to be known. On the quality side, many packers indicate that PQA Level 3 is becoming more of a condition for market access than commanding a premium from the market. Producers are expected to be at Level 3.

Some packers are studying the potential for meat and meat products that are guaranteed as drug free. An example is the development of a pork product line that is currently marketed in the eastern United States. Three conditions for the product are :

- the hog has not received antibiotics,
- the hog has not received growth promotants, and
- needles have not been used to provide injections of any type to the hog.

This program is growing, with interest coming from domestic as well as foreign markets. They are verified by producers as drug free. Hog delivery to the packers is coordinated to allow the packer to process these hogs as a group and maintain their identity. The carcasses are loaded onto a truck for transport to the East Coast for further processing. To reduce the chance of mixing carcasses, carcasses from other hogs are not allowed on the truck. This program developed out of an expressed interest from a group of hog producers (all PQA 3), a processor, and a packer.

The pork industry is evaluating opportunities for pork that is labeled as trichinae free. Currently, a limited number

of packers in the United States are cleared for the export of trichinae-free pork. The method used currently is to deep-freeze pork. The procedure of freezing produces a product that doesn't command the premium of fresh pork. It is felt by industry personnel that being able to provide fresh pork with trichinae certification would command a higher premium. However, it will likely be marketed as a product with lower levels of trichinae, as it will be difficult and/or expensive to guarantee it as trichinae free. To be classified as trichinae free, all hogs will need to be tested. Industry personnel indicate that this is not currently practical. However, it will likely be possible for swine herds to be certified through testing, etc., as being essentially trichinae free. These producers will have opportunities for contractual arrangements motivated by food safety attributes.

Another food safety attribute likely to receive attention in the near future is *Toxoplasma gondii*. Like trichinae, it is a parasite that is in the pork product and transferred to consumers of pork, especially fresh pork.

A common attribute of antibiotic residues, trichinae, and *T. gondii* is that its presence or absence in pork is determined by the time the hog reaches the packing plant. It cannot be spread from cross-contamination between carcasses, pork products, or mishandling of products beyond the packer. With these food safety issues, the key point of control is at the producer level. Contamination occurs in the live animal. The animal and resulting meat and meat products can be certified as residue free or with low levels of trichinae or *T. gondii* at the farm or packer level.

The use of clauses in purchase contracts that relate to pathogens such as *Salmonella*, etc., in animals is starting to receive attention. These are in the infancy stages in the swine industry and much remains to be known. Certifying a product as low in *Salmonella* (or any pathogen that can multiply throughout the meat processing and preparation stage) can be high risk. It is quite difficult to claim that a product is low in *Salmonella* when it is on the retail shelf, unlike trichinae or toxo. Being low in *Salmonella* is not directly dependent on what happens before the hog reaches the packer. It is beneficial to start with a hog low in *Salmonella*, but that doesn't guarantee that the meat and/or meat products from that hog will be low in *Salmonella* when it reaches the retail shelf. Contamination can occur at a number of points beyond the producer or packer levels of the market.

### Implications

There are many issues to be studied and resolved with pathogens that have the potential to spread at various points in the food production chain. It is important to know the epidemiology of the pathogen. All stakeholders in the industry will need to be involved, as mishandling in one phase of the industry may offset all the pathogen reduction efforts made prior to that phase. Arrangements throughout the industry will likely be needed that specify how products will be handled, etc.

Consumers have indicated a willingness to pay more for products with improved food safety attributes. However, in many cases, little is known about what would provide a product of improved food safety and what it would cost to

provide such a product. In effect, this is a value-added concept in providing a product that meets the quality, taste, etc., attributes that consumers desire.

In developing such a product, a protocol will need to be developed that will follow the product from the point of origin, such as genetics, feed supply, etc., on through the producer, the packer and processor, and through the retailer to the consumer. This would better enable certification of the product. Given the nature of pork production and the meat and meat product industry, this protocol would necessitate arrangements throughout the industry that maintain identification of the product. There is a need for product identification throughout the food production and marketing channel. This product identification can be accomplished through establishment of contractual arrangements, where the contractual arrangements specify use of production practices, testing methods, etc., that would help maintain the identity and movement of the product, as well as document the quality of the product. A key to the development of such a market and product would be that of consistency of the product over time. As with the development of any product, the industry needs to provide the right products, at the right time and location, and at the right price.

The movement of the pork production industry towards the increased use of purchasing contracts, with those contracts specifying production practices, etc., has led to enhanced quality of pork such as leanness, as well as food safety attributes within the meat and meat products presents some interesting issues. With the use of contracts, the issue of bargaining power of industry participants immediately comes to the forefront. Industry participants with the greatest level of bargaining power will be positioned to reap the greatest benefits from enhanced product quality, be it improved leanness, or food safety attributes, etc. At issue is whether the participants that absorb the cost of enhanced product quality are also the participants that receive the benefits from enhanced food quality. Currently, many packers are indicating that producers are expected to produce pork under conditions that meet the standards for PQA Level 3. This, in effect, becomes a necessary condition for market access. If there are costs borne by the producer to achieve PQA Level 3, the primary benefit to the producer appears to be market access rather than increased price to cover the increased cost. Without equal bargaining power on behalf of the producers, they are vulnerable to bearing a disproportionate share of costs relative to returns from improved product quality. Moreover, those industry participants who have the largest or greatest bargaining power will be positioned to reap benefits that exceed their cost of achieving improved product quality.

Another issue is if the market is set up for price information on improved quality such as food safety attributes to flow freely between all industry participants. This is currently an issue within the pork production industry with the movement towards increased use of contracts. These contracts typically specify payment levels and conditions for hogs, price information that is not now available to all industry participants. With the movement towards increased use of contract production, or the

movement away from the spot market for price establishment, the spot market price that is currently portrayed as reflecting industry prices will become less relevant as an indicator of price movements or product value in the industry. Improved price reporting information will be needed that reflects contract specifications such as production practices or food safety, and risk levels absorbed by the contract participants, etc. Without this information relating to product quality, etc., available to all industry participants, it will provide even more market power to those participants in the industry that have the greatest bargaining power.