

The Trichinae Certification Program and the role of swine veterinarians

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Today we live in a society that has an abundance of food. This has caused a shift from an emphasis on quantity in food production to an increasing emphasis on the quality of the food produced. The quality aspect of a food product may be an intrinsic property of the product itself, such as its wholesomeness, or an extrinsic property that the consuming public deems important¹ (J.D. McKean, written communication, 2000).

Retailers, the food service industry, export markets, and consumers are now asking that production practices, food products, or both, be “certified” or “verified,” meaning that the products are produced under *Good Production Practices* (GPPs).^{2,3} It is not an issue of trust: it is an issue of reassurance or “trust with verification.” These end product users are asking that a credible “third party” assure them that the production practices they see as important are implemented in the production chain for the food product (J.D. McKean, written communication, 2000).

The veterinarian’s role in production agriculture audit systems

Who is better qualified to be the on-farm verifier for production agriculture audit systems than the production agriculture veterinarian? He or she is a highly trusted member of society, with extensive knowledge of animal agriculture, animal health, production, animal husbandry, and food safety. The veterinarian is, at this point, the individual with the highest qualifications to be the on-farm verifier for the production practices that add value to food animal products.⁴

Veterinarians have filled a very vital role in the past as on-farm educators of animal

agriculture GPPs, and will continue to fill this role in the future. Veterinarians are key influencers of producers, able to underscore to the producer his or her role in assuring the safety and quality of the meat product they produce.⁴ Veterinarians have been extremely successful in doing this for the pork industry through the National Pork Board’s Pork Quality Assurance program,⁵ a voluntary program designed to educate producers on the GPPs needed to produce a high quality, safe pork product. This program presently does not certify or verify that producers are actually performing the practices that they have been taught.

With the institution by the Food Safety Inspection Service (FSIS) of Hazard Analysis Critical Control Points as the food safety system in packing plants, and with the demands of today’s consumers, simple education without verification of production practices may no longer be enough^{1,3,5} (J.D. McKean, written communication, 2000). In the worldwide pork industry, the United Kingdom, Denmark, and the Netherlands have seen this occur, and as a result, they have developed national certification programs focused on the specific quality, safety, and production concerns of their consumers. These programs require that producers maintain certain GPPs, and they must be certified as maintaining these practices by a credible, knowledgeable, and trained verifier. Veterinarians have contributed to the success of these programs by filling the roles of on-farm educators and on-farm verifiers (J.D. McKean, written communication, 2000).

In the first role, as the on-farm educator, the veterinarian, armed with information on the established standards for the GPPs required for certification, informs the pro-

ducer of how to implement the required GPPs. In the Trichinae Certification Program, a voluntary pork safety program that is currently being developed by the US pork industry and United States Department of Agriculture (USDA), one of the roles of the “Qualified Accredited Veterinarian” is to ensure that producers enrolling sites in the program are informed of how risk factors of trichinae infection can be minimized on farms. This is done through education and assistance with rodent control procedures, wildlife control procedures, biosecurity practices, and carcass disposal practices at the pork production site. In order to become “qualified” to do this, the veterinarian has been through training concerning the on-farm risk factors for transmission of *T. spiralis* to pigs.⁶

In the second role, that of an on-farm verifier for a certification program, the veterinarian comes to the production site as the “eyes and ears” of the certifying organization. The veterinarian is the auditor of the production practices. The veterinarian makes no judgment as to the suitability of the site for certification; he or she simply reports whether the GPPs exist on the farm or not. This is done by inspecting the management practices in place on the farm and by a review of the farm records within which the prior implementation of these management practices is documented. The veterinarian fills out an official program audit form based on what they see on the farm and in the records. This completed audit form is then sent to the certifying organization (USDA) for a determination of whether the site merits certified status or not. The veterinarian has the responsibility to completely and accurately report what is occurring on the production site in regards to the required program GPPs.⁷

The Trichinae Certification Program for the US pork industry

Trichinella spiralis is a parasitic nematode

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affecting animals and people. The disease, trichinellosis, is acquired by consuming encysted larvae of *T. spiralis* in muscle tissue from an infected animal. Consumption of undercooked pork has traditionally been a common source of trichinellosis in humans worldwide. In the US, the prevalence of this organism in pork has dropped sharply due to changes in swine management practices within the US pork industry.⁶ In 1900, more than 2.5% of the pigs tested were infected with *T. spiralis*. The infection prevalence declined to 0.95% in the 1930's, 0.63% in 1952, 0.16% in 1965, and 0.12% in 1970. The USDA National Animal Health Monitoring System's National Swine Survey in 1995 showed an infection rate of 0.013%.⁸ The same survey in 2000 demonstrated that the infection rate in US swine had fallen to 0.007% (E. Bush, Veterinary Epidemiologist and Swine Specialist, USDA Center for Animal Health Monitoring, oral communication, 2002). Even with this evidence that *T. spiralis* is very rarely found in US swine, US pork still is stigmatized due to public perception and lack of education. In 1994, the meat safety question most frequently asked by consumers on the USDA's Meat and Poultry Hotline was about trichinae in pork. This fear of trichinae causes consumers to either overcook pork or simply avoid eating pork. *Trichinella spiralis* is also an impediment to reaching our full market potential internationally. Many countries require that US fresh pork be further processed or tested before it can be exported into the country.⁸

The Trichinae Certification Program is a developing USDA program based on scientific knowledge of the epidemiology of *T. spiralis* and numerous studies demonstrating how specific GPPs can prevent exposure of pigs to this zoonotic parasite. This program is a model program for on-farm assurance of product safety.⁴ The International Commission on Trichinellosis, in their publication "*Recommendations on Methods for the Control of Trichinella in Domestic and Wild Animals Intended for Human Consumption*,"⁹ states that "Modern swine production systems reduce or eliminate risks of swine infection with *Trichinella* and testing of individual animals raised under these conditions could be eliminated." This publication continues with details of the requirements of such production systems. The Trichinae Certification Program meets these standards in all respects.

The Trichinae Certification Program is regulated by the USDA. Collaborative efforts of the Animal and Plant Health Inspection Service, the FSIS, and the Agricultural Marketing Service verify that certified pork production sites manage and produce pigs according to the requirements of the program's GPPs and verify the identity of pork from the certified production unit through slaughter and processing.⁴ The GPPs that are employed and audited in the currently proceeding pilot of the Trichinae Certification Program⁷ are as follows:

- All non-breeding swine entering the site have either originated from certified pork production sites or, in the case of swine less than 5 weeks old, have originated from either a certified or non-certified pork production site. The source herd Trichinae Identification Number must be documented in an animal movement record.
- Sources of feed or feed ingredients meet Good Manufacturing Practices, as defined in this program, or quality assurance standards recognized by the feed industry, and documentation to this effect is maintained at the site.
- Swine feed supplies at the site must be prepared, maintained, and handled in a manner such that the feed is protected from possible exposure to, or contamination by, rodents or wildlife. Rodent control procedures must be in place and maintained in the interior and around the exterior of the swine feed preparation and storage facilities. An up-to-date rodent control logbook documenting these practices is maintained at the site.
- Exclusion and control of rodents and wildlife at the site are to a level such that fresh signs of activity of these animals are not observed in the swine production or feed preparation and storage areas. Rodent control procedures must be in place and maintained in the interior and around the exterior of the swine housing and feeding facilities. The producer maintains at the site an up-to-date rodent control logbook with a site diagram, or maintains comparable records from a Pest Control Operator. All records are updated on at least a monthly basis. In addition, domesticated animals, including pets such as dogs and cats,

must be excluded from the swine housing and feeding areas and feed preparation and storage areas at the site.

- Wildlife carcasses are not intentionally fed to swine. Swine shall not have access to wildlife harborage or dead or live wildlife at the site. This harborage limitation includes wood lots and other natural wildlife access areas.
- If waste containing meat is fed to swine, the pork production site must hold a state license to feed such waste. Cooking times and temperatures must be consistent with state and federal regulations, and up-to-date records of waste feeding and cooking practices must be maintained at the site. Cooked waste products that are stored prior to feeding must not be contaminated with uncooked material. Uncooked household waste must not be fed to swine.
- Procedures are in place and are carried out that call for the prompt removal and proper disposal of swine carcasses found in pens, in order to eliminate the opportunity for cannibalism, as well as to prevent attraction of rodents or wildlife. These procedures must be documented in an animal disposal plan.
- General hygiene and sanitation of the production site is maintained at all times such that rodents and wildlife are not attracted.
- Solid waste (facility refuse) must be contained in covered receptacles and regularly removed from the site to prevent rodent and wildlife access and attraction.
- Spilled feed must be regularly removed and properly disposed of.
- Animal arrivals and departures from the site must be documented in an animal movement record and must take place in a manner that ensures that swine can be traced to and from that particular certified production site.
- All records required under the Trichinae Certification Program must be up to date and must be readily available for inspection at the enrolled or certified pork production facility.

In the Trichinae Certification Program, certified sites are subject to random audits conducted by the USDA. Random audits

are intended to verify that the program's GPPs are maintained between audits and to assure that the audit process is conducted in a consistent manner across the program.⁷

For pigs originating from certified sites to be sold into commerce, the swine slaughter facility must have in place a procedure by which pigs from certified sites, and edible pork products derived from pigs from certified sites, are segregated from pigs and edible pork products originating from non-certified sites. This process is verified by the USDA FSIS.⁷

Swine slaughter facilities processing pigs from certified sites are responsible for conducting *T spiralis* testing of pigs originating from certified production sites. On a regular basis, statistically valid samples of pigs from certified herds are tested at slaughter to verify that on-farm risk reduction practices for trichinae infection are working. This process verification testing is performed using a USDA approved tissue- or blood-based post mortem test, and is regulated by the USDA Agricultural Marketing Service.⁷

Uniform program standards stating the requirements of this program have been developed. Federal regulations in support of the program are currently being developed. When these regulations are developed and approved, the current pilot of the Trichinae Certification Program will conclude, and the official USDA voluntary Trichinae Certification Program will be launched and available to the pork industry.⁴

The Trichinae Certification Program will document the safety of pork produced under scientifically proven methods for raising pigs free from risk of exposure to *T spiralis*. The safety of pork originating from

pigs not raised under the standards of this program will continue to be assured through the existing methods of carcass testing and cooking, freezing, or both. The Trichinae Certification Program is an approach to food safety that holds the promise of being superior to the individual testing of pigs at slaughter, which is the *T spiralis* inspection process currently being used by countries the US competes with in the international marketplace. Certification will allow the US to better compete in the fresh pork international market and it will help change the perceptions of pork held by domestic consumers. In addition, the implementation of the Trichinae Certification Program will provide an infrastructure for tackling more complex on-farm quality assurance and food safety issues. This program is seen as the model for future animal agriculture certification programs.⁴

Conclusion

In a time when the pork industry is receiving incentives to align the segments of the pork production chain in order to achieve the coordination necessary to meet consumer demands and preferences, the veterinary community is in a position where it can both assist producers with implementation of the desired GPPs and function as the trusted and trained third party verifiers who assure the consuming public that these practices are in place on the pork production sites.¹⁰ Is this the next practice area that veterinarians can develop and offer to their clients? If swine veterinarians do not take on these roles within the pork industry, then who will? Certified and verified production of food products is coming. Someone will need to step up and fill these roles to enable pork industry certification programs to become a reality.

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