

Feed Safety and Quality in the Canadian Quality Assurance Program

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■ Introduction

To address the changing demands on the hog industry with respect to food safety concerns, the Canadian Pork Council (CPC) identified the need to develop an on-farm food safety program that would provide assurances to customers of Canadian pork that producers were taking all of the necessary steps to minimize the introduction of hazards at the farm level. To address this need, a HACCP-based on-farm program, designed to provide producers with information regarding good production practices and the tools to develop their written on-farm protocols for minimizing food safety hazards, was developed. Feed is an integral part of hog production, not only as a production cost and as a tool for efficiency, but also as a potential vector for the introduction of hazards that could impact the safety of pork. Given this important role of feed, it is an integral part of the Canadian Quality Assurance (CQA[®]) program.

■ Program Background

A Canadian pork industry delegation travelling to Japan in the mid-1990s returned with the message that foreign buyers were looking for greater assurances about food safety practices on the farm. At that time, the United Kingdom, the Netherlands, Denmark and the United States all had established on-farm food safety initiatives.

In late 1995, the Canadian Pork Council established a technical committee consisting of producers, veterinarians and food safety specialists. This team worked together to develop the Canadian Quality Assurance (CQA[®]) program for hog producers. One of the first decisions the committee made was to base

the technical structure of the program on HACCP, the internationally recognized food safety system.

True HACCP systems require that each facility develop its own HACCP plan. CQA[®] and all other on-farm food safety programs currently being developed or implemented (with the exception of the Animal Nutrition Association of Canada program) are considered to be HACCP-based. In each case, a generic HACCP model is developed and translated into program materials for use on that commodity's farms for the evaluation and documentation of practices intended to minimize food safety risks.

HACCP considers all areas of the production process that may have an impact on the safety of the final product. While other hazards may exist, only those that impact human food safety are included in the model. The goal of the CQA[®] program is to protect the safety of pork. One of the ways that HACCP works to preserve the safety of the final product is to ensure that any hazards that could be introduced by inputs to the system are identified and controls put in place to minimize the risk.

■ **Feed as Part of the CQA[®] Program**

Feed receiving, mixing and distribution are the three primary feed handling areas addressed by the program. Additionally, producers are asked to consider other production practices that may affect the safety of the feed and feed ingredients being provided to their animals.

Hazards fall into one of three categories: physical, chemical and biological. Physical hazards are a minimal concern due to the use of screens and magnets in feed equipment for their removal. Chemical and biological hazards are the primary foci of the feed section of the program. While these hazards are identified in the HACCP Generic Model, the producer addresses these by documenting their protocols for handling feed on their farm. The On-Farm Quality Assessment Form presents a series of questions to aid producers in the development of their on-farm protocols. These questions ask producers to describe how feed and feed ingredients are received, stored, mixed and distributed to prevent biological and chemical contamination.

■ **Building a Foundation**

To create a solid feed handling system aimed at protecting the safety and integrity of this valuable input, producers must start with some basic steps.

The CQA[®] program requires that producers identify all components of their feed handling and storage equipment. This includes the physical identification of bins, augers, blower pipes, valves and any other components that can affect the potential for cross contamination of feed or feed ingredients during mixing or distribution. The identification of these components can then be used to clearly describe the farm's protocols for receiving, mixing, distribution and storage of feedstuffs. It can also be shared with suppliers of feed and feed ingredients for accurate feed delivery.

A list of all rations used on the farm must be created. Not only must this list name the rations, it must also include information related to the use of premixes, supplements and medication use. All medicated feeds must be described with the name of the medication, the inclusion rate, and withdrawal time and supplier information. Where pulse medicating is practiced, producers must ensure that the medicated and non-medicated versions of the ration are individually identified. Additionally, the program validation process will confirm that prescriptions are in place for prescription feeds.

These two basic steps lay the foundation for the development of the protocols necessary to maintain feed integrity and control food safety hazards.

■ **Constructing the Protocols**

While both chemical and biological hazards have been identified as the areas of concern for feed, chemical hazards, and specifically veterinary drug residues, are those with the greater emphasis in this program. For that reason, a great deal of focus is on the use of medicated feeds.

Producers must identify how they determine that they must use feed medications. This specific question is not a program requirement, but is specifically included in this section to remind producers that veterinarians are the most important source of medication use information and should be consulted in this decision making process.

Plans for receiving, mixing, distribution and storage of feed must be created. Feed handling, storage and mixing equipment can become contaminated with chemical and biological residues and then cross-contaminate feedstuffs moving through them.

These plans must contain significant detail and will rely on the foundation pieces that producers created when they identified equipment components and created their ration list. They must also be clear and producers must keep in mind that this documentation process is not only a record of how procedures are carried out, but also a training tool and reference document for staff.

Mixing times, the sequence of ingredient additions, mill calibration, ration sequencing and procedures for delivery of feed from the mill to storage, or to the feeders, must all be described. Protocols should also include descriptions of paperwork that will be reviewed (delivery slips), records that will be kept (feed mixing and sequencing records), and where these items are located. Non-computerized systems may also indicate the location of ration formulae.

Feed transfer protocols must make reference to the identification of handling equipment. Any actions that need to be taken to ensure that feed is delivered to the intended location (e.g. adjustment to auger or blower pipe attachments, opening or closing valves) should be specified.

Contingency plans must also be developed. What would a producer do if something went wrong? This may include delivery of the wrong feed to the wrong animals, or an erroneous inclusion rate for a medication. Producers must not only determine how animals will be identified and handled in this type of situation but also consider how feed handling equipment (feeders, bins, augers, mill components) will be cleaned if contaminated with a chemical or biological residue. Their plans may include names and contact information for veterinarians or extension specialists who can assist them if a problem does occur. Producers may find it difficult to identify exact steps that they will carry out in the event that something does go wrong within their system. The CQA[®] program encourages the development of relationships between producers, veterinarians and industry specialists to speed the identification of solutions for deviations that increase food safety hazard risks.

■ Supporting Information

In addition to the obvious protocols intended to protect the safety and integrity of the feed going into a swine production facility, producers are asked to develop supporting documentation and protocols.

A list of feed and feed ingredient suppliers, preferably including contact names and information as part of this list is requested as part of the program. This information provides farm employees with the information necessary to obtain feed or feed ingredients and to follow-up in the event that there are problems with product received. In addition, producers are asked to identify which of these suppliers have quality control systems in place. The development of an on-farm food safety program in the hog industry complements in-plant HACCP plans at abattoirs. Similarly, feed and feed ingredient suppliers with quality control systems in place support the HACCP-based on-farm food safety system.

Additionally, producers are asked to consider cleanliness issues. Those who transport several commodities using the same vehicle are reminded that chemical cross-contamination can mean leaving behind chemical residues from fertilizers or other farm chemicals that can be picked up by pigs. Manure and urine from pigs can carry enough residue to contaminate the next batch of pigs. Feed transported in the same vehicle can be contaminated by either of these sources. Biological hazards can be transferred through the manure to pigs or to feed and feed ingredients. Producers are reminded that if they do use the same vehicle to transport different commodities, it should be cleaned between these commodities.

The maintenance of storage and feed mixing areas is also included in the program. This translates into a plan for removal of spilled grain and rodent control program (a separate program requirement), the assurance that feed and feed ingredients are protected from moisture and that no chemicals are stored in these areas.

Another program requirement related to the safety and quality of the feed provided to swine is regulatory in nature. All producers who feed items that fall under the heading “edible residual materials” (ERM) must have a permit from the Canadian Food Inspection Agency (CFIA) to do so. ERM are waste products that come primarily from the food processing industry. No meat, nor products that may have come into contact with raw meat, may be fed to hogs. The goal of this regulation is to minimize the risk of disease, especially foreign animal disease. The Health of Animals Act requires that producers feeding ERM apply for a permit from CFIA. The application process requires an inspection of the facilities to ensure proper storage and, following issue, on-going inspection to ensure that only approved products are being fed and that these products are being stored to protect them from spoilage and contamination from birds and rodents. CQA[®] program validators do not inspect the facilities; however, they do ensure that the producer’s permit is in place and current.

■ Conclusion

The focus of the CQA[®] program is on the safety of the pork obtained from the animals in the production system. An important part of achieving this goal is to assure the safety and quality of the inputs to the system. As a critical factor to the health and productivity of the livestock and a potential vector for the introduction of human food safety hazards at the farm level, feed plays an important role in the CQA[®] program. Within the program, this is accomplished through on-farm protocols and record keeping related to feed handling as well as the development of awareness of the links necessary between the producer community and the feed industry.

The feed component of the CQA[®] program demonstrates the Canadian hog industry's commitment to working in concert with the feed industry to produce safe, high quality Canadian pork.

■ **References**

Canadian Pork Council. 1998. Canadian Quality Assurance Producer Manual.