

Protecting Feed Quality and Safety

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■ Introduction

The concept of 'safe' feed is not a new one to the feed industry. It has always been an integral part of in-house feed manufacturing quality assurance programs. Over the past several years, the feed industry has gained far more visibility with politicians, producers, and consumers. As an industry, it needed to be prepared to effectively deal with the challenges and the opportunities that resulted from this increased visibility. Through initiatives such the national ANAC Feed Safety Program, the feed industry can demonstrate its' ability to manage the risks in the feed manufacturing process that are associated with human food safety. The Feed Safety Program formalizes the industry's approach to food safety. Canada is the North American leader for HACCP implementation in the feed industry.

■ Action Plan for HACCP in the Feed Industry

ANAC began developing the Feed Safety Program in 1996. The objectives were to provide tools to feed manufacturers to assist them in implementing Hazard Analysis Critical Control Point (HACCP) programs within their operations. It is a voluntary, market-driven initiative since there is no regulatory requirement for HACCP certification in the feed industry. In Canada, all of the national livestock and poultry organizations have developed On-Farm HACCP-based programs. These programs require feed suppliers to demonstrate that they are following similar programs within their operations. Certification under the Feed Safety Program meets that requirement.

The Feed Safety Program is modelled after an existing and successful program designed for the Canadian food processing industry, the Food Safety Enhancement Program (FSEP). The FSEP was developed in 1991 by Agriculture Canada in consultation with the food industry, and it is consistent

with the Codex approach to HACCP. As with the FSEP, certification under the Feed Safety Program requires that each feed manufacturing facility implement prerequisite programs and develop a HACCP plan specific to their operation. This approach differs from the On-Farm Food Safety Programs, which are considered to be HACCP-based because the hazard analysis and HACCP plan are developed generically for the entire sector.

As the existing tools and manuals for HACCP plan development were geared towards the food industry, ANAC developed appropriate tools for the feed industry, as follows:

- Good Manufacturing Practices manual (the “Prerequisite Program”)
- Generic HACCP model (for the manufacture of commercial feeds)
- Industry training courses
- 3rd party certification services

■ Prerequisite Programs

“Prerequisite Programs” is a term taken from FSEP, and they are intended to control the operational conditions within an establishment to allow for conditions that are favourable to the production of safe feed. Basically they address all of the food-safety related procedures a feed mill must be following that do not directly involve the manufacturing of feed (i.e. pest control, supplier pre-approval, etc). ANAC’s Good Manufacturing Practices (GMP) manual contains the minimum standards for prerequisite programs under the Feed Safety Program. The first edition of the GMP manual was published in 1997, and has since been updated three times. The second edition is expected to be released early in 2004. The GMP manual includes the six key areas identified under the FSEP program, namely premises, transportation and storage, equipment maintenance and calibration, sanitation and pest control, personnel, and recall procedures. Several different sources of information were used to capture the minimum requirements relevant to the production of feed under these six key areas.

■ Generic HACCP Model

The Generic HACCP Model was developed to serve as a training tool in ANAC’s feed industry HACCP training sessions. The model was originally developed in 1998 in an ANAC member feed mill, with the assistance of the Guelph Food Technology Centre, with two subsequent revisions.

■ Industry Training

Since 1998 ANAC has offered two different industry-training courses on an annual basis. The first is an introductory course on how to implement GMP (prerequisite) programs and how to build a HACCP plan in a feed mill. The second is a more advanced course on how to conduct internal HACCP audits. These courses have been instrumental in the industry's ability to successfully implement HACCP at their facilities.

■ 3rd Party Certification

Certification means that a feed mill has a HACCP system in place to monitor the manufacturing process. The certification applies to the manufacturing process and the controls that are in place to prevent, to the best of the manufacturer's ability, known biological, chemical and physical hazards. ANAC contracted 3rd party (SGS Canada Inc.) GMP and HACCP auditing and certification services for the feed industry in the spring of 1999. Since that time, over 140 facilities across Canada have been certified under the Feed Safety Program (**Figure 1**), which translates to over 60% of the commercial livestock and poultry feed coming from HACCP-certified facilities. The program is based on annual audits (i.e. a full audit every three years, with maintenance audits in between).

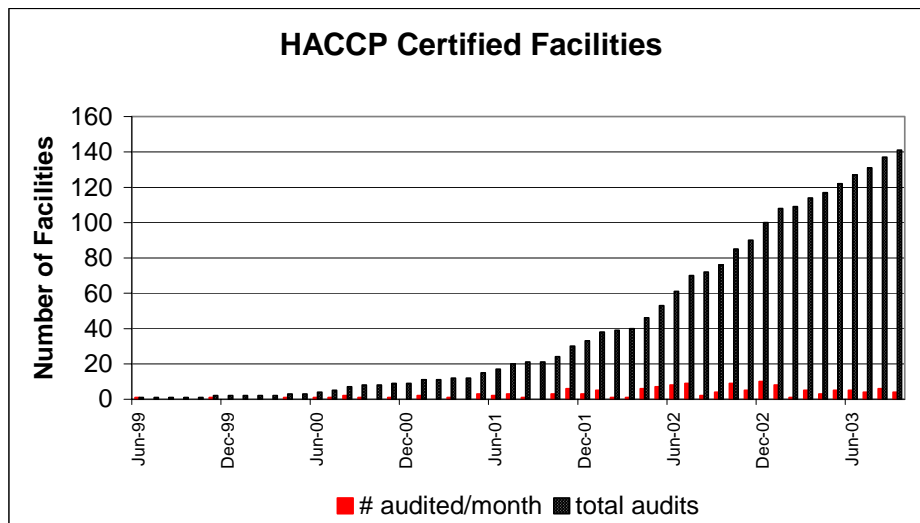


Figure 1. Number of facilities certified under the ANAC Feed Safety Program since the program's inception

■ Potential Critical Control Points in the Feed Manufacturing Process

As part of the industry training courses, participants work in groups and conduct a hazard analysis on each ingredient and process step to identify the critical control points in the feed manufacturing process. The following table (**Table 1**) lists the most common critical control points identified during this exercise.

Table 1. Potential Hazards in Feed Manufacturing

PROCESS STEP	HAZARD DESCRIPTION
calculation of medication inclusion rates from veterinary prescriptions	error in veterinary prescription or incorrect calculation by mill personnel, causing incorrect medication and/or level in feed
weighing medications	wrong medication or wrong amount
flushing & sequencing	unsafe medication residue from a previous batch prohibited material residue in ruminant feed from a previous batch
mixing (manual systems)	mix time too short, causing uneven distribution of medicant and unsafe levels in portion of batch
tagging/labelling	potential medication/prohibited material' exposure to livestock due to incorrect ingredient/finished product identification
bulk finished product storage	potential medication/prohibited material' exposure to livestock due to incorrect finished product storage (wrong bin)
finished product delivery	potential medication/prohibited material' exposure to livestock due to incorrect product delivery (wrong bin/farm)
product returns	Introduction of unsafe contamination (i.e. pathogens, medications) to the mill

When a feed company develops a HACCP plan for a facility, the company HACCP Team must conduct a hazard analysis using the incoming materials and operating conditions specific to that site. The result is a HACCP plan unique to that site. Once the HACCP plan has been developed, the HACCP Team's work is not done. Implementing HACCP programs is a dynamic process and requires ongoing review and updating.

■ HACCP Implementation

ANAC conducted a survey of HACCP certified mills in December 2002. On average, it took from one to over three years for feed companies to develop and implement their HACCP plans. These facilities committed a great deal of effort and resources in order to become HACCP certified. Some companies have made (or plan to make in the future) significant investments in their equipment to better address potential food safety hazards. Respondents to the survey indicated that the implementation of HACCP in their facilities has resulted in:

- personnel that are better trained and are more sensitized towards the safety aspects of feed manufacturing
- much better communication within the mill, leading to less misunderstanding and fewer errors
- the overall condition of the facility is improved due to the emphasis on housekeeping and sanitation
- improved due diligence and better record keeping
- improved product traceability
- a reduction in downtime due to more effective equipment preventative maintenance programs
- tighter controls on medication management
- new business opportunities when HACCP certification was the entry point for further discussions
- processors and producers having greater confidence in our products
- by using a food industry program for feed safety, we have a common language for discussion.

■ Conclusion

The Canadian feed industry shares a common concern for food safety with Canada's livestock and poultry industries, the Canadian Food Inspection Agency, Health Canada and Canadian consumers. This commitment is demonstrated by the feed industry's high degree of participation in the Feed Safety Program.

■ References

- Canadian Food Inspection Agency (2000) FSEP Implementation Manuals,
2nd Edition
- Animal Nutrition Association of Canada (March 2003) Generic HACCP Model
for the Feed Manufacturing Industry