

CHANGES IN CANADIAN FEED LEGISLATION

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SUMMARY

Canadian legislation pertaining to animal feedingstuffs may be traced back to an act of parliament published in 1906. Subsequent acts came into effect in 1909, 1920, 1937 and 1960. Regulations defining the procedures for implementing the acts have appeared more frequently and are under constant review.

Early legislation was concerned with the adulteration of feeds and emphasized registration, labelling, guaranteed analyses and inspection. Subsequent legislation was more detailed and dealt with nutrient, additive, toxin and weed seed concentrations in feeds. The primary objective was the protection of the farmer, his livestock and his land.

A major revision of the regulations comes into effect in 1983. In keeping with a policy of de-regulation, the number of feeds requiring registration is reduced. Regulations concerning customer formula feeds, prescription feeds, and on-farm mixed feeds are clarified as are those concerned with labelling. A compendium of medicating ingredient brochures, which establishes levels of drug usage, is formally recognized as part of the regulations. Recognition that good quality ingredients make good quality feeds has focussed more attention on feed components and less on complete feeds. One manifestation is the compendium of Canadian 'feed ingredients which uses the terminology and nomenclature of the International Network of Feed Information Centres to describe the ingredients permitted in livestock feeds. The 1983 regulations are designed to ensure the safety of animal products entering the human diet while continuing to protect the farmer and his livestock.

INTRODUCTION

Canadian legislation pertaining to feeds for farm livestock appears to have developed from "An act respecting the adulteration of food and other articles" (R.S.G. 1906) in which food is defined as **"every** article used for food or drink by man **or** cattle, and **every** ingredient intended for mixing with the food or drink of man or cattle for any purpose **whatsoever"**.

Acts of parliament are laws which establish government policy while regulations define the procedures by which an act is to be implemented. **Acts** require parliamentary approval and are updated infrequently. Regulations are under **constant** review and are introduced, amended or deleted, as appropriate, usually by orders in council.

The purpose of this paper is to trace the development of Canadian legislation pertaining to livestock feeds. For the period 1909 to 1983 attention is focussed on the intent of the legislation rather than on specific details. The paper concludes with a description and discussion of the regulations which come into effect in 1983.

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1909 TO 1983

"An act respecting commercial feeding stuffs" (S.C. 1909) caused the compositions of many feeds to be registered, confidentially, and required each package to be **labelled** with a guaranteed analysis showing the percentage of protein, fat and fibre. Provision **was made** for purchasers to have samples analyzed in a government laboratory and an inspection system was established which gave authority for the collection of samples from the manufacturers premises. The act refers to **"domestic animals"** and thus extended the legislation beyond **"cattle"**, the only farm animals identified in the preceding act. The feeding stuffs controlled by the act were defined, more clearly than before, and excluded hay, straw, **roots**, cereal grains and some ingredients sold separately rather than as mixtures. The legislation was designed to protect the purchasers of manufactured feeds but it also provided ethical manufacturers with some protection from unscrupulous competitors and unreasonably dissatisfied customers.

Eleven years later "An act to regulate the sale and inspection of commercial feeding stuffs, bran, **shorts**, middlings and chop feeds" (S.C. 1920) received assent. The act specifically mentioned poultry feeds, perhaps reflecting the evolution of the poultry industry from a back-yard enterprise to a significant part of agricultural business. Many feeding stuffs previously excluded, such as milling by-products, were encompassed by the act and provision was made to control contamination with 'vital weed seeds'. The act addressed the problems of low quality, mislabelled or adulterated ingredients and attempted to protect farm land, as well as livestock, by limiting the distribution of weeds.

Regulations made in pursuance of the 1920 act (D.C. 1920) helped to identify several areas of concern. Acceptable limits of weed seed contamination were stated and these, with certain modifications have been part of all subsequent legislation. Mention was made that **'musted'** grain shall not be used as a feed ingredient, a noteworthy regulation in view of current concern with mycotoxins. Permission was given to label feeds in the French language. Particularly significant was the introduction of definitions for a wide array of feed ingredients of plant and animal origin. The definitions, which in modified form continue to be part of feed legislation, reduced confusion resulting from the **use** of local names and sought to prevent the misrepresentation of ingredients. Many feed ingredients were classified as **'commercial feeding stuffs'** and were required to be correctly **labelled** and registered. Finally, the guaranteed analysis was changed from absolute values to minima for crude protein and crude fat and the maximum for crude fibre.

"An act to control and regulate the sale of feedingstuffs" (S.C. 1937) reflected advances in knowledge of nutrition as evidenced by the definition of a feeding stuff which included such terms as proteins, **carbohydrates**, fats, minerals and vitamins. A legislative milestone was the recognition, and exclusion from the act, **of feedingstuffs** prepared according to **"prescriptions"** provided and signed by the purchaser. Subsequently, the use of "prescription" feeds to facilitate the inclusion of unusual levels of **drugs and** nutrients became a contentious issue. The act included a schedule in which feeding stuffs were **classified**, and a guaranteed analysis was specified for each class. A secondary schedule specified the maximum permissible amounts of crude fibre in wheat milling by-products. The two schedules further reduced the opportunities for adulterating and **mislabelling** feeding stuffs.

The 1937 act updated the 1920 act but made few changes in basic policy. The primary objective continued to be the protection of the farmer, his livestock and land, with some protection extended to feed **manufacturers** using purchased ingredients. The inclusion of prescription feeds suggests a change in philosophy and recognized that some farmers were sufficiently knowledgeable to formulate diets for their livestock. In later years potential misuse of feed additives and the possible transfer of harmful materials to human food caused introduction of constraints on what could be prescribed.

A consolidation of regulations, both general and ministerial, in pursuance of the 1937 act was published in 1949 (**S.O.R.C.** 1949). The specifications for an array of mineral and trace mineral feeds were more detailed than those published previously perhaps reflecting increased knowledge of mineral nutrition coupled with increased analytical capability. Specifications for sources of vitamins A and D were in response to the use of those nutrients by the feed industry. For a nutritionist, the most significant change was the inclusion of a table listing the minimum protein levels in complete and supplemental feeds. For example, the minimum protein content of chick starter mash; broiler mash and laying mash were 16, 17 and **14%**, respectively. The introduction of required nutrient levels in registered complete feeds was probably intended to protect farmers but it led to controversy because feed manufacturers, and others, claimed that the specifications were unrealistic for particular situations.

A further consolidation of regulations published in 1954 (**C.G.** 1954) included few nutritional changes. Specific limits on fluorine content were introduced as were definitions for animal fat and **defluorinated** phosphate. The changes reflect the increasing array of ingredients available to, and used by, the feed industry.

A series of amendments to the regulations (**C.G. 1956a**) introduced zinc as a controlled nutrient and added a section dealing with medicated feeds and medicating ingredients. The regulations defined medicating **ingredients** as drugs, hormones and other ingredients which may be potentially harmful to livestock. Thus the emphasis was still directed towards the protection of the farmer and his livestock. In a later set of amendments (**C.G. 1956b**) the description of poultry feeds to be registered was altered and the minimum allowable protein levels of some feeds were adjusted. For example, broiler starter and finisher diets were recognized as separate feeds with minimum protein levels of 20 and **16%**, respectively.

The feeding stuffs act of 1937 was replaced by "An act to control and regulate the sale of feeds" (**S.C.** 1960) and a set of regulations was published two years later (**C.G.** 1962). Among the noteworthy changes was a constraint on the use of medicating ingredients in customer formula, or prescription, feeding stuffs. This was intended to prevent indiscriminate **use** of drugs in livestock feeds and thus served to protect the consumer of animal products as well as the producer thereof. The presence of certain pesticides was also controlled. Adjustments were made to the acceptable analyses of some feeding stuffs, for example the minimum protein levels in broiler starter and finisher **feeds were** raised to 22 and **18%**, respectively. The section containing the names and standards for ingredients was enlarged to include such materials as hydrolyzed poultry feathers and poultry by-product meal. In general, modifications to the nomenclature and definitions, particularly of

animal products, led to greater clarity and **reflected some** of the changes in manufacturing processes.

The 1960 act, and 1962 regulations, provided the first real indication of a concern for the effects of feeding stuffs on the safety of animal products used for human food. The legislation in this area became stronger in later years. Also noteworthy was the discriminatory power given to the Director of the Plant Products Division **who is** responsible for administering the regulations. The legislation had become complex and far reaching and affected so many businesses that it was no longer practical to obtain Privy Council or Ministerial approval for all deviations from published regulations.

A revised set of regulations (**C.G.** 1967) and an office consolidation of the act and regulations (**O.C.** 1967) show a major change of emphasis in the feed legislation. The schedule of minimum allowable protein levels in various classes of mixed feeds was deleted thus allowing manufacturers to exercise **some** discretion; the consumer continued to be protected by the constraints of registration and labelling. A useful addition to the consolidation was a schedule in which the defined Canadian feed ingredients had their **names** matched with **the U.S.** National Research Council nomenclature and numbers. Thus, international organizations doing business with Canada could avoid confusion by use of a single set of terms and definitions,

Subsequent amendments to the act and regulations saw the extension of the metric system to the feed industry. After 17 years (**1956-1973**) **diethylstilbestrol** was banned as a feed ingredient, a response to potential human health problems. Definitions of several feeding stuffs were added or amended. Prior to 1976 the act and regulations **were** concerned with the sale and importation of feeds. However, an important amendment (**S.C.** 1976) brought the manufacture of feeds within the purview of the act.

Between 1909 and 1983 legislation respecting feeding stuffs became increasingly complex. There were many contributing factors including the growth of the feed industry, the introduction of drugs and pesticides, the increased analytical capability, the development of animal agriculture into highly intensive operations, and the **need to** protect the **consumer** of animal products from potentially harmful materials transferred from the feed.

The introduction of a wide spectrum of medicating ingredients posed particular control problems. Not only were the concentrations of additives important but also the various combinations which could be used. To facilitate the control of this area a series of 'medicating ingredient brochures' (**MIB**) was introduced. The brochures which are under constant review provide information with respect to levels of usage, permissible combinations, required labelling and allowable claims regarding efficacy,

THE 1983 REGULATIONS

New regulations in pursuance of the Feeds Act of 1960 come into effect in 1983. **Comparison with** earlier regulations identifies important changes. The number of feeds requiring registration is reduced in keeping with a policy of de-regulation. Recognition that good quality ingredients make good quality feeds has focussed more attention on feed

ingredients and less on complete feeds. The quality and safety of animal products entering the human diet receives increased emphasis and played a **major** role in determining what may be present in feeding stuffs. In attempting to describe the main thrusts of the new regulations it is not practical to cover every detail. Here we describe, in general terms, those areas which have undergone major revision. Those **concerned** with specific aspects of the legislation are advised to consult the act and regulations.

The regulations apply to feeds for livestock which include horses, cattle, goats, swine, foxes, 'fish, mink, rabbits, poultry and such other creatures as may be designated. Feeds include single ingredients, supplements, premixes, mineral feeds, converter feeds, and complete feeds but exclude medicated premixes which are controlled by other legislation. **Pet** foods are excluded.

Feeds may be **divided into** two groups, those which must be registered and those which are exempt from registration. Provision is made for registration of exempted feeds upon request by the manufacturer. In general, feeds which must be registered include: medicated feeds for general sale, mineral feeds, converter feeds, micro-premixes, specialty feeds, milk replacers and substitutes, miscellaneous or minor species feeds, all imported mixed feeds, and non-medicated feeds containing nutrient concentrations outside the ranges listed in Table 1. All single ingredients permitted for use in livestock feeds are named and described in the compendium of Canadian feed ingredients (**CCFI**). The CCFI comprises two parts, the first lists all of the permitted feed ingredients whose use and efficacy is well known and understood; the second lists **feeding-stuffs** which may be very variable in composition or which are unusual. Included in the second part are such items as 'chicken hens manure dehydrated', 'feed grade' minerals and '**feed grade**' vitamins. Feed ingredients listed in the second part of the CCFI must be registered.

An objective of the 1983 regulations is to reduce the number of feeds requiring registration. All non-medicated feeds containing nutrient levels within the ranges listed in Table 1 are exempt from registration. The table lists 13 minerals and 3 vitamins but, unlike some earlier regulations, places no constraint on protein levels. Single ingredients listed in part one of the CCFI are also exempt from registration. Other feeds not requiring registration include: feeds manufactured by a livestock producer providing they are not offered for sale and are free of drugs and substances harmful to human health or the environment; feeds sold by the grower to a livestock producer or feed manufacturer providing they are free of prescribed deleterious substances (**aldrin**, carbaryl, carbathiin, DDT, dieldrin, heptachlor, heptachlor-epoxide, lindane, malathion, mercury compounds, methoxychlor, **toxaphene**); feeds manufactured and **labelled for** export; raw meat providing it is safe; feeds manufactured for experimental purposes; pet foods; any medicating ingredient premix listed in the **MIB**; macro-premixes providing that, **when** used according to label instructions, they provide nutrient levels **conforming** to the provisions of Table 1; and certain formula and prescription feeds.

A consultant formula feed is one which is formulated and manufactured by the vendor to meet the needs of a specific purchaser who may be a livestock producer or another **feed manufacturer**. A customer formula feed is prepared for the manufacturer's own livestock, or is made in response to a written signed order from the purchaser which lists the kind and amount

of each ingredient, or is made in response to a signed order listing the amount of each single ingredient to be added to other mixed feeds that would be acceptable for registration. A veterinary prescription feed is manufactured in response to an order prescribing a medicated feed made in writing by a licensed veterinarian. With certain exceptions these three groups of feeds are exempt from registration; however, specific constraints built into the regulations prevent abuse of the purpose and intent of registration.

The purpose of registration is to protect the livestock producer and to ensure that the consumer receives wholesome meat, milk and eggs. An application for registration, accompanied by such information as the proposed feed label, is sent to the Feed and Fertilizer Division of Agriculture Canada. The label is checked to ensure that levels of medication, claims of efficacy, and warning and caution statements comply with the **approved** usage listed in the MIB. Registration may be refused if: the brand name is misleading, the name may be confused with another, the feed may **be** harmful to livestock or man, the feed is unsuitable for the purpose represented, the feed does not meet the regulations, or, based on current knowledge, the safety and efficacy is no longer acceptable. It is important to note that most feeds, including those exempt from registration, remain subject to the Feeds Act and Regulations.

A subject related to the above and of particular concern is on-farm mixing. A 1976 amendment to the Feeds Act brought on-farm mixing within the control of the Feed and Fertilizer Division and, consequently, the 1983 regulations apply to this form of feed manufacture. Unless the **on-farm** manufacturer has a valid certificate of registration he may not use a medicating ingredient premix designed to supply the approved level of medication at rates lower than 10 kg/tonne of complete feed. Thus, in general, the on-farm manufacturer is not permitted to use highly concentrated medicated ingredients listed in the **MIB** but must use premixes and supplements. Application may be made for a certificate of registration to allow the use of concentrated medicated ingredients but, if granted, the holder is subject to periodic inspection to ensure **mixing** competence.

Labelling is another means of protecting the livestock producer. All feeds falling within the scope of the Feeds Act and Regulations must bear a label. If applicable, the following information must appear on the label: the name and address of the registrant, the approved name of the feed, the brand, the net amount, the guaranteed analysis, directions for use, a list of ingredients or a statement of where such a list may be obtained, the form of the feed if other than mash, and any other information required to convey useful information to the purchaser. Medicated feeds must also list the name and amount of the medicating ingredient, claims applicable to the level of medication, caution statements and warning statements. Micro-premixes must bear an identification code so that each lot can be traced to the manufacturer or distributor. Imported feeds must also bear appropriate information.

The label shall be printed in a conspicuous, legible and indelible manner in either or both English and French and all units shall be metric. The form, colour and printing shall not emphasize or obscure any part of the required information with the exception of warnings and cautions which may be emphasized. There shall be no misleading information and no claims unless they can be supported with satisfactory evidence. Guarantees for nutrients, other than those required, may be

included if the amount is sufficient to meet the generally accepted requirement or if the purpose is approved for conveying useful information.

The naming of mixed feeds is dealt with in the 1983 regulations but the changes from previous legislation are comparatively small. The names of single ingredients are listed in the CCFI together with acceptable synonyms, composition and labelling requirements. The single ingredient names are based on those of the International Network of Feed Information Centres and IFN code numbers are given. The move towards an international nomenclature is important because it avoids the confusion which can accompany the use of local names. As mentioned earlier, the CCFI is divided into the parts with exotic and 'feed grade' materials being allocated to part two. Provision exists to move a feedingstuff from part two to part one as information about its nutritive value and efficacy becomes available. Perhaps it is appropriate to mention here that the MIB is cited within the 1983 regulations and is treated as a part of the regulations.

The basic responsibility for the safety of livestock feeds resides with the manufacturer. Contamination with mycotoxins, chemical residues and drugs, or insufficient amounts of the required nutrients, leaves the manufacturer open to civil litigation and criminal prosecution. The Feed and Fertilizer Division is dedicating an increasing proportion of time and resources to monitoring feeds for drugs, chemical contamination and microbial contamination to help to assure safety and to help manufacturers to detect sources of contamination.

The 1983 regulations reduce the need to register some feeds. In addition, they allow manufacturers and ingredient suppliers greater flexibility to respond to changing production systems, economics and customer needs by de-regulation to the maximum extent consistent with the mandate to assure the safety and efficacy of livestock feeds. Obsolete regulations have been removed and, by simplifying the Application for Registration form, much of the paper work has been reduced. Regulatory officials are placing greater emphasis on health and safety aspects while continuing to protect the purchasers of ingredients and complete feeds.

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Table 1. Range of Nutrient Guarantees for Complete Feeds¹ for Use in the Exemption of Feeds from Registration

| | CHICKENS | | TURKEYS | | SWINE | | DAIRY | | BEEF | | SHEEP | |
|-------------------|--|----------------------|--------------------|--------------------|-----------------------------------|--|-----------------|----------------|-----------------------|----------------|-------------------|----------------|
| | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX |
| Cobalt (mg/kg) | NRS | 5 | NRS | 5 | NRS | 5 | 0.2 | 10 | 0.1 | 10 | 0.1 | 10 |
| Copper (mg/kg) | 4 | 125 | 6 | 125 | 6 | 125 | 20 | 100 | 4 | 50 | NRS | 8 (added) |
| Iodine (mg/kg) | 0.4 | 10 | 0.4 | 10 | 0.2 | 10 | 0.5 | 10 | 0.1 | 10 | 0.1(O) 0.8(LT) | 10 |
| Iron (mg/kg) | 80 | 750 | 60 | 750 | 40(O) 80(B) 150(W) | 750 | 100(S) 50(O) | 750 | 10 | 750 | 30 | 250 |
| Manganese (mg/kg) | 55 | 500 | 55 | 500 | 10 | 200 | 40 | 300 | 20 | 200 | 20 | 200 |
| Selenium (mg/kg) | NRS | 0.1 (added) | NRS | 0.2 (added) | NRS | 0.3(W) (added) 0.1(O) (added) | NRS | 0.2 (added) | NRS | 0.1 (added) | NRS | 0.1 (added) |
| Zinc (mg/kg) | 65 | 500 | 75 | 500 | 100 | 500 | 40 | 500 | 20 | 250 | 35 | 150 |
| Calcium (%) | 0.60(G) 0.90(S) 2.75(B) 3.25(L) | 1.20(O) 4.00(L,B) | 0.80(O) 2.25(B) | 1.20(O) 4.00(B) | 0.50(O) 0.75(LT,B) 0.80(PS) | 1.00 | 0.40 | 2.00 | 0.18 | 2.00 | 0.21 | 2.00 |
| Phosphorus (%) | 0.40(G) 0.50(L,B) 0.70(S) | 0.80(L) 1.00(O) | 0.70(O) 0.80(S) | 0.80(B) 1.00(O) | 0.50(O) 0.60(PS) | 1.50 | 0.30 | 1.00 | 0.18 | 1.00 | 0.16 | 0.60 |
| Magnesium (%) | 0.06 | 0.30 | 0.05 | 0.30 | 0.04 | 0.30 | 0.20 | 1.00 | 0.04(O) 0.18(LT,B) | 0.50 | 0.04 | 0.50 |

Table 1. Range of Nutrient Guarantees for Complete Feeds¹ for Use in the Exemption of Feeds from Registration (continued)

| | CHICKENS | | TURKEYS | | SWINE | | DAIRY | | BEEF | | SHEEP | |
|---------------|--------------------------------------|--|----------------------------|---------------------|--|--------------|--------------------------------------|----------------|---|-------------------|-----------------------------------|-------------------|
| | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX | MIN | MAX |
| Sodium (%) | 0.15 | 0.80 | 0.15 | 0.80(O) 0.40(PS) | 0.10(O) 0.15(B) 0.20(LT) | 0.80 | 0.10(O) 0.18(LT) | 2.40 | 0.06 | 1.20 ² | 0.04 | 1.20 ² |
| Potassium (%) | 0.2 | 2.0 | 0.4 | 2.0 | 0.2 | 2.0 | 0.8 | 3.0 | 0.6 | 3.0 | 0.5 | 3.0 |
| Sulfur (%) | NRS | NRS | NRS | NRS | NRS | NRS | 0.1 | 0.4 | 0.1 | 0.4 | 0.1 | 0.4 |
| Vitamin A | 1,500 IU/kg (O) 4,000 IU/kg (L,B) | 20,000 IU/kg (O) 40,000 IU/kg (L,B) | 4,000 IU/kg | 40,000 IU/kg | 1,300 IU/kg(G) 2,000 IU/kg(O) 4,000 IU/kg(B) | 20,000 IU/kg | 2,200 IU/kg(O) 3,200 IU/kg (LT,B) | 200,000 IU/day | 2,200 IU/kg(O) 2,800 IU/kg(DC) 3,900 IU/kg (B,LT) | 100,000 IU/day | 1,400 IU/kg(O) 3,000 IU/kg(LT) | 75,000 IU/day |
| Vitamin D | 200 ICU/kg (O) 500 ICU/kg (L,B) | 5,000 ICU/kg | 900 ICU/kg | 5,000 ICU/kg | 125 IU/kg(F) 200 IU/kg(O) | 1,500 IU/kg | 300 IU/kg | 33,000 IU/day | 275 IU/day | 33,000 IU/day | 150 IU/kg(O) 300 IU/kg(B,LT) | 7,500 IU/day |
| Vitamin E | 10 IU/kg | NRS | 10 IU/kg(O) 25 IU/kg(B) | NRS | 10 IU/kg | NRS | NRS | NRS | 15 IU/kg | NRS | 10 IU/kg | NRS |

Footnote:

- ¹ For dairy cattle, complete feed refers to the grain ration.
- ² The maximum for sodium does not apply to beef cattle and sheep feeds designed to be used to limit or regulate feed intake. A statement to the effect that adequate water must be provided shall be part of the directions for use.

Abbreviations

- B: breeding
 DC: dry pregnant cow
 F: swine 60-100 kg body weight
 G: chicken 8-20 weeks of age
 turkey 8 weeks of age to market
 swine 20 kg body weight to market
 L: Layers
 LT: lactating
- NRS: no requirement specified
 O: others
 PS: turkeys 0-4 weeks of age
 swine 1-10 kg body weight
 S: chicken and turkey 0-8 weeks of age;
 calf starter
 W: weanling (swine up to 20 kg)