Information Bulletin

NUMBER 91 • APRIL 2006

FOOD SAFETY AND QUALITY IN INTERNATIONAL TRADE: THE ROLE OF CODEX ALIMENTARIUS

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Financial assistance for this paper was received from the Western Centre for Economic Research and the Centre for International Business Studies, School of Business as well as from Genome Canada and the Genome Alberta GE3LS Program.

Western Centre for Economic Research
University of Alberta
Edmonton, Alberta
with support from: The George M. Cormie Endowment

Library and Archives Canada Cataloguing in Publication

Veeman, Michele, 1941-
Food safety and quality in international trade : the role of Codex alimentarius / by Michele Veeman and R. MacKay White.

(Information bulletin ; 91)
Includes bibliographical references and index.
ISBN 1-55195-924-0

Food industry and trade—Standards. 2. Genetically modified foods—Standards. I. White, R. MacKay (Robert MacKay), 1980- II. University of Alberta. Western Centre for Economic Research III. Title. IV. Title: Codex alimentarius. V. Series: Information bulletin (University of Alberta. Western Centre for Economic Research) ; 91

TX37.V33 2006 363.19'262 C2006-901793-X

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Introduction

In the context of a globalizing world in which consumers can choose to buy and consume foods from many different nations, food supplies are increasingly provided from many international sources and the establishment of widely accepted standards of food safety and quality is highly important. Food safety and related food quality dimensions are expected and valued by buyers but unlikely to be discernible before purchase, leading to the need for widely accepted and adopted product and/or process standards that assure that the credence attribute of food safety is achieved for food products, whether these are to be consumed domestically or to enter international trade. The benefits of commerce and trade also lead to interest in avoiding nationally regulated standards that are motivated more by protectionism than food safety. To pursue these purposes, in 1962 two United Nations bodies, the Food and Agricultural Organization (FAO) and the World Health Organization (WHO) jointly organized the Codex Alimentarius to implement an international food standards program.

The Codex Alimentarius Commission (CAC) has operated since 1963 as a government-controlled organization, operating in consultation with industry and of other related institutions, which is focused on issues of food hygiene. The "Codex" is one of several different international standardization institutions for agriculture and food, two other major bodies being the World Organization for Animal Health (formally known as the Office International des Epizooties (OIE)), and the International Plant Protection Convention (IPPC). As described on the Codex Alimentarius website:

> "The Codex Alimentarius is a collection of international food standards that have been adopted by the Codex Alimentarius Commission. Codex standards cover all the main foods, whether processed, semi-processed or raw. In addition, materials used in the further processing of food products are included to the extent necessary for achieving the principal objectives of the code – protecting the health of consumers and facilitating fair practices in the food trade. Codex provisions concern the hygienic and nutritional quality of food, including microbiological norms, food additives, pesticide and veterinary drug residues, contaminants, labelling and presentation, and methods of sampling and risk analysis. As well as individual standards, advisory codes of practice, guidelines and other recommended measures form an important part of the overall food code. The Codex Alimentarius can safely claim to be the most important international reference point in matters concerning food quality. Its creation, moreover, has generated food-related scientific research and greatly increased the world community's awareness of the vital issues at stake – food quality, safety and public health" (Codex, 2005).

Codex standards are viewed to be voluntary, in the sense that although members are encouraged to adopt these standards and guidelines, they do not have a binding effect on nations' legislation. Nonetheless, over time the standards developed by these bodies are moving to have a degree of regulatory force (OECD Joint Working Party, 2003). In particular, standards developed through Codex (food standards), OIE (animal health standards) and the IPPC (phytosanitary standards) are explicitly referred to in the Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement) of the World Trade Organization (WTO). When international trade disputes occur, for example in situations where a nation has adopted standards that differ from or are more stringent than those of Codex, the SPS Agreement requires that government to provide a scientific justification for such food standards embodied in their technical regulations.

Agricultural biotechnology has become an issue of much debate in recent years. The establishment of standards for foods derived from biotechnology has become a Codex issue since the commercialization of genetically modified crops in the mid-1990s. One question of interest is whether the Codex is effective and efficient in achieving its purpose of developing consensus-based standards of safety and quality for food. The objective of this paper is to assess this question, particularly in regards to biotechnological applications to foods.

Technical Barriers to Trade and the Codex Alimentarius

Incompatibilities in food standards can be a source of technical barriers to trade. Different countries individually create regulations that govern the growing, making, processing, and selling of food products. The technical requirements that relate to food safety and quality can reinforce consumer confidence in particular food products, either maintaining or boosting sales of both domestic and foreign products, or undermining market contestability and discouraging imports (OECD, 2003). Standards that constitute technical barriers to trade will protect local production and have negative effects on trade.

Technical barriers to trade can arise from requirements that are easier for domestic producers to fulfill than for foreign producers (OECD, 2003). Developing countries, for example, can have difficulty in exporting food--not necessarily because this is unsafe, but because they lack the monitoring, testing, and certification infrastructure required by import regulations (OECD, 2003). Trade restrictions can also be based on the creation of voluntary standards. Even if such standards are voluntary, if foreign producers do not incur the cost required to meet and be certified under these standards they will find it difficult to sell their goods (Sykes, 1995). Similarly, labelling regulations can increase costs and restrict trade. If requirements differ from market to market, or from country to country, producers must have different labels for the same product and maintain separate inventories for each market (Sykes, 1995). These types of problems are the focus of the WTO Agreement on Technical Barriers to Trade (TBT Agreement).

The TBT Agreement requires that technical regulations be transparent, justified by legitimate objectives, and not unnecessarily obstruct trade (OECD, 2003). This Agreement provides for a WTO TBT Committee which oversees the implementation and operation of the agreement. Governments can submit complaints to the TBT committee about other governments' national regulations. Examples of issues raised are (OECD, 2003): a prohibition by the Czech Republic of poultry meat imports from Thailand; a directive by the European Union (EU) on pesticide residues; measures taken by the EU on food treated with ionizing radiation; maximum levels specified in the EU for certain contaminants in foodstuffs; and requirements by Poland relating to imports of milk and milk products. For the period from 1995 to 2001, five of the specific trade concerns related to agro-food products that were raised with the TBT committee related to genetically modified food (OECD, 2003). The major complainants in this context were the United States, Argentina, and Canada whose complaint to the TBT committee concerns EU regulations on genetically modified food and feed. Thus, relative to the types of complaints received by the TBT Committee, the issue of genetically modified food can be seen as a major recent basis of some countries concerns. Two thirds of all TBT concerns raised during the period from 1995 to 2001 related to questions of labelling (OECD, 2003). In this time period OECD reported a total of 35 TBT issues raised that related to food trade, with these

numbers increasing over time. Concerns based on inconsistencies in standards regarding food trade are a continuing major issue.

The SPS Agreement focuses directly on SPS measures related to trade in agricultural products. A 2002 report of the WTO SPS committee outlines its activities from 1995 to 2001. In this time period a total of 105 specific trade concerns were raised, 27 of which related to food safety, 38 to animal health, 37 to plant health and 3 to other SPS issues. At that point not all countries had complied with the requirement to report on national SPS notification authorities and contact points. Of those that had, more than half of the notified measures were intended to ensure food safety. Examples of WTO disputes invoking the SPS Agreement include the US complaint against Korea's testing and inspection procedures for fresh fruits; Canada's complaint against Australia's import restrictions on fresh, chilled or frozen salmon; Thailand's complaint against Egypt's GMO-related import ban on canned tuna with soybean oil and the EU's complaint against USA's restrictions on imports of poultry products (FAO, 2002).

A major current WTO case based on the SPS Agreement involves the complaint brought by the United States, supported by Canada and Argentina, concerning the policies of the European Union and its member states for genetically modified food, focused on the de facto moratorium of the EU on the approval process for such products that began in 1999 and extended until August 2003. It was argued by the U. S. and its supporters that this moratorium and related safeguard measures and rules applied by the member nations of the E.U. effectively prevented imports of modified maize, cotton and soya, amongst other agricultural products. A preliminary ruling of the WTO dispute panel was made available to the disputants in early February 2006 and is believed to support components of the case put by the complainants, but this is a preliminary report and not yet publicly released.

Food product and process standards are not static but may change, as when new food technologies alter production methods and methods of assessment of quality and safety, or with changes in consumers' consumption patterns, food preferences and food safety and quality expectations. An increasing emphasis on food safety and quality as a means of obtaining a competitive edge in both domestic and export marketing of food can be seen in many countries. This has raised particular concerns about challenges for developing countries to meet such standards (Unnevehr, 2002) and the benefits to such countries from seeking and achieving high levels of food safety and quality (Jaffee and Henson, 2004). There clearly is a need for continuing work on international food standards coordination.

The Codex Alimentarius Commission

The stated purpose of the Codex is to protect consumer health and to ensure fair trade practices (Codex Website, 2005). This is accomplished by developing international standards for foods to be voluntarily adopted by involved governments. The standards are developed in various Codex Committees, under the oversight of the Codex Alimentarius Commission (CAC). Not all of the Codex committees were established at the time of creation of the Codex Alimentarius. New committees have been created as the need became apparent. The CAC, which meets annually, is composed of the large number of delegates from the countries that are members of WHO, FAO or both. Thus the Codex is a government-controlled organization, whose members are governments, represented by government delegates. Because of the large size of the CAC, the smaller Executive Committee of the CAC maintains closer contact with the various Codex committees. In 2005, the CAC was composed of 172 members (FAO, 2005).

Two general types of committees exist within the Codex process, one focusing on particular foods (examples are the committees for Milk and Milk products, Meat Hygiene, and Foods for Special Purposes, which is concerned with standards for foods for infants or for individuals whose medical problems involve particular dietary problems). The other type of Codex committee focuses on specific food standards issues that cut across a variety of individual foods.

Because a major focus of this paper is on challenges that are posed by agricultural biotechnology to the achievement of consensus-based international food standards, we deal mainly with the operations, since 1990, of the General Subject Committees. These committees are:

- The Codex Committee on Food Labelling
- The Codex Committee on Methods of Analysis and Sampling
- The Codex Committee on Food Hygiene
- The Codex Committee on Pesticide Residues
- The Codex Committee on Food Additives and Contaminants
- The Codex Committee on Import/Export Inspection and Certification Systems
- The Codex Committee on Nutrition and Foods for Special Dietary Uses
- The Codex Committee on Residues of Veterinary Drugs in Foods

One additional General Subject Committee, the Codex Committee on General Principles, develops procedures that are applicable to the other General Subject Committees. Examples of its work include the Code of Ethics for International Trade in Foods, which is intended to guide governments, producers, and consumers in judging whether trade practices are acceptable, and development of the Working Principles for Risk Analysis for Food Safety, which provides guidance for applying risk analysis principles in the context of the SPS Agreement of the WTO. Given its broad spectrum of focus, this committee is not

directly included in an analysis of completed committee work that is reported here. The work of specific committees can be augmented by taskforces, as has been the case for foods derived from biotechnology. The work of the first Ad Hoc Intergovernmental Task Force on Food Derived from Biotechnology is considered in the following analysis, as is the work of the eight Codex working committees listed above.

Codex Procedures

Procedures have been specified for the committees and task forces to follow in doing their work. Each is overseen by the Codex Alimentarius Executive Committee. The Codex Procedural Manual indicates that any new proposal for work is initially to be submitted to the Executive Committee which decides whether this is an appropriate topic for the submitting committee and ought to be undertaken. With approval, the general subject committee begins to develop the standard. An eight step procedure for this is laid out in the Codex Procedural Manual (Codex Alimentarius Commission, 2004):

1. The Commission decides to develop an international standard and determines which body should undertake this work.
2. The Secretariat arranges for the preparation by the relevant committee of a proposed draft standard by the specified Committee.
3. The proposed draft standard is sent to members of the Commission and interested international organizations and observers for comment.
4. The Secretariat sends comments to the appropriate Committee for consideration relative to amendments of the proposed draft standard.
5. The proposed draft standard is submitted to the Executive Committee for critical review and to the Commission with a view to its adoption as a draft standard.
6. The draft standard is sent to all members and interested international organizations and observers for comment. (Most nations seek advice from interested stakeholders to inform their member representatives).
7. The comments received in step 6 are considered for amendment to the draft standard.
8. The draft standard is submitted to the Executive Committee for critical review and subsequently to the Codex Commission with a view to its adoption as a Codex standard.

The eight steps of Codex standards development provide a means for tracking the progress of a standard. Steps 5 and 8 are the major markers of progress toward consensus standards. Once a standard is approved at step 5 it ceases to be a "proposed draft standard" and instead becomes a "draft standard". Once adopted at step 8 by the Codex Commission it becomes a Codex standard for voluntary adoption by nations.

Selected Codex Committees

A summary of the terms of reference of each of the selected committees is given in Table 1. As noted above, these constitute the entire list of General Committees except for the Committee on General Principles. There are also eleven Commodity Committees, none of which are directly studied in this analysis.

Table 1: The Selected Codex Committees, their Major Focus and Date of Establishment

Committee	Terms of Reference	Established
Food Labelling	• Draft provisions on labeling applicable to all foods • Study problems associated with the advertising of food	1963
Analysis and Sampling	• Define the criteria appropriate to Codex methods of analysis and sampling • Serve as a coordinating body • Elaborate sampling plans and procedures • Define procedures, protocols, and guidelines for the assessment of food laboratory proficiency	1963
Food Hygiene	• Draft basic provisions on food hygiene • Consider specific hygiene problems assigned to it • Prioritize areas with a need for microbiological risk assessment	1963
Pesticide Residues	• Establish maximum limits for pesticide residues • Prepare priority lists of pesticides • Consider methods of analysis and sampling for the determination of pesticide residues	1963
Additives and Contaminants	• Establish levels for additives and contaminants • Prepare priority lists for toxicological evaluation • Recommend specifications for identity and purity of food additives	1963
Import/Export	• Develop principles and guidelines for food import and export inspection and certification systems • Develop guidelines for the utilization of quality assurance systems to ensure that foodstuffs conform with requirements	1991
Nutrition	• Study specific nutritional problems assigned to it • Draft provisions regarding nutritional aspects of all foods • Develop standards for foods for special dietary uses	1965
Veterinary Drugs	• Determine priorities for the consideration of residues of veterinary drugs in foods • Recommend maximum levels • Develop codes of practice	1985
Task Force on Biotechnology	• Elaborate standards for foods derived from biotechnology	2000

Source: Information provided on the Codex Website

As reflected in Table 1, each committee has its own specified area of work. However, overlaps can occur. Committee reports show that when part of a standard being developed by one committee falls within the terms of reference of another committee, that section of the prospective draft standard is sent to that other committee for assessment and approval. If approved, the relevant section is incorporated into the draft standard for wider circulation and possible approval.

Planning in the Codex Alimentarius

The work of the Codex Alimentarius is guided by a series of five-year plans called Medium-Term Plans. These plans, developed by the Executive Committee, provide general guidelines intended to direct committee work. However, not all that the committees do must fall within the ambit of these plans and a large portion of the work of individual committees is typically not directly relevant to the Medium-Term Plan.

As an example of a Medium-Term Plan, a summary of the Medium-Term Plan for 1998 – 2002 is given in Table 2. For each work objective listed, relevant areas in which standards were worked on by the selected committees are noted, as is the time frame during which these were worked on. As will be seen, work on some proposed standards was begun before this particular plan was made, and some areas of work had not been completed by the end of 2004, several years after their target date for completion.

Table 2: Medium-Term Plan for 1998 – 2002 and Progress through 2004 on Selected Standards Issues

Plan Objective	Relevant Standard Document	Time Taken for Standard Document Development
Integration of risk analysis principles into Codex procedures	Proposed risk assessment policy statement for the application of risk analysis principles to the standard setting activities of the CCFAC	2002 – 2004
	Guidelines on the application of risk analysis	2003 –
	General principles for the application of risk analysis to foods derived from biotechnology	2000 – 2002
Guidelines on the application and interpretation in risk management of legitimate factors other than science relevant to the health protection of consumers and for the promotion of fair practices in the food trade	Principles and Guidelines for the conduct of microbiological risk management	1998 –

Plan Objective	Relevant Standard Document	Time Taken for Standard Document Development
Completion of the General Standard for the Use of Food Additives	Revised annex A to the general standard	1995 – 2000
	Revised preamble to the codex general standard for food additives	2002 –
	Revised food category system of the codex general standard	2002 – 2004
Application of risk analysis principles for control of specific microbiological food-borne hazards	Control of Listeria monocytogenes in foods in international trade	2001 –
	Principles and Guidelines for the conduct of microbiological risk management	1998 –
Establishment of principles for the use of safe technologies in food production, processing, and handling	Code of Hygienic Practice for primary production, harvesting and packaging of fresh produce	1998 – 2001
Consideration of standards for foods derived from biotechnology on the basis of scientific evidence and risk analysis and having regard to other legitimate factors relevant to the health protection of consumers and for the promotion of fair practices in food trade	General principles for the application of risk analysis to foods derived from biotechnology	2000 – 2002
	Guidelines for the conduct of food safety assessment of foods derived from recombinant-DNA plants	2000 – 2002
	Biotech annex on allergenicity	2000 – 2002
	Guidelines for the conduct of food safety assessment of modified microorganisms in food	2001 – 2003
	Recommendations for the labelling of foods obtained through biotechnology (definitions, allergens, mandatory labelling)	1996 –
Continued development of guidelines for food quality and safety management systems	Guidelines for the conduct of food safety assessment of foods derived from recombinant-DNA plants	2000 – 2002
	Guidelines for the conduct of food safety assessment of modified microorganisms in food	2001 – 2003
	Code of Hygienic Practice for milk and milk products	1997 – 2004
	Code of Hygienic Practice for pre-cut fruits and vegetables	1998 – 2001
	Revision of the Code of Hygienic Practice for egg products	2001 –

Plan Objective	Relevant Standard Document	Time Taken for Standard Document Development
Guidelines on equivalence and mutual recognition of testing procedures, inspection and certification systems	Guidelines for the judgment of equivalence of sanitary measures associated with food inspection and certification systems	1999 – 2003
	Guidelines for evaluating acceptable methods of analysis	1994 –
Review of the basis for nutrition requirements and relevant food labeling requirements in light of scientific evidence risk analysis and legitimate factors other than science relevant to the health protection of consumers and for the promotion of fair practices in food trade	Amendment to the guidelines on nutrition labelling	1998 – 2003
	Recommendations for the use of health (and nutrition) claims	1997 – 2004
	Table of conditions for claims for nutrient contents (Part B – Protein, vitamins, minerals)	1995 – 2000
	Table of conditions for claims for nutrient contents (Part B – Fibre)	1995 -

Source: Alinorm 99/37

In addition to the objectives specified in Table 2, four additional objectives were specified in the Medium Term Plan for 1998 to 2002 that are not noted in Table 2 because no applicable standard could be found among the General Subject Committees for these. Evidently, not all objectives specified by the Codex Executive Committee are pursued and not all objectives that are pursued are achieved. Of the twenty-two standards indicated in Table 2 for 1998 to 2002, only eight were completed before the end of that Medium-Term Plan. It would seem that the five-year plans that are intended to guide Codex processes are not particularly effective in terms of encouraging timely consensus on food standards and/or the Codex process is unduly lengthy for some standards issues.

General Statistics on Completion of Standards Processes

The progress of each selected Codex committee was analyzed as a means to assess the effectiveness of these bodies. Based on records of standards begun and completed within the time frame of 1990 to 2004, inclusive, the average number of years to complete a standard was calculated. These are given in Table 3. In general, committees meet once each year. This is not always the case, however. Thus the average number of meetings required to complete a standard is also calculated. The results of both tabulations are in Table 3.

Table 3: Statistics on Standards Completed by Selected Committees

Committee	Average Years for Standard Completions	Average Meetings for Standard Completions
Task Force on Biotechnology	3	3
Committee on Food Labelling	5.3	4.6
Committee on Methods of Analysis and Sampling	6.4	4
Committee on Import/Export	5	4.4
Committee on Nutrition	5.4	3.8
Committee on Veterinary Drug Residues	3.7	3
Committee on Food Additives and Contaminants	4.5	4.5
Committee on Food Hygiene	4.9	4.3
Committee on Pesticide Residues	4.6	4.6
Overall	4.8	4.3

Source: Calculations based on information in committee reports. See Appendix 1.

Only *completed* standards are included in calculating the statistics given in Table 3. Thus, since many proposed standards had not been completed during the period assessed, although in development for years, and are excluded from the calculations reported in Table 3, the average time periods for completion of standards development for all standards that are worked on are longer than reported in the table.

The data on time taken to reach consensus on the selected standards that were successfully developed (i.e. the data used in Table 3) are next considered in terms of the times taken for completion of international food standards related to biotechnology. An issue considered in this context is whether it has been more difficult to reach consensus on standards related to technical or scientific issues, as versus other types of standards issues. For this purpose, the various standards were classified into four groups (see Appendix 2). First, the completed standards

were sub-divided according to whether or not these relate to biotechnology. These two groups were further sub-divided on the basis of whether the nature of each standard was largely technical or whether this was non-technical in nature, being related to broad social issues. For example, General Methods for Analysis of Contaminants concerns scientific methods for analyzing and identifying contaminants in foods. This is classified as technical in nature, rather than being related to broad social issues. On the other hand, Guidelines for Information Exchange in Food Control Emergency Situations concerns how information is to be handled and shared between countries. This standard was classified as a member of the non-technical group. Calculations of the average number of years for standard completions and the average number of meetings for the various types of standards to be completed were then calculated for each of these groups. The results of these tabulations are given in Table 4.

Table 4: Group Statistics on Codex Standards Completed by the Nine Selected Committees

	Technical Standards		Non-Technical Standards	
	Avg. Years	Avg. Meetings	Avg. Years	Avg. Meetings
Biotechnology	3	3	4	3.5
Non-Biotech	4.7	4.2	5.1	4.5

Source: Based on information in committee reports. See Appendices 1 and 2.

Although the statistics on time taken to develop standards relating to biotechnology that are given in Table 4 suggest that it was slightly easier to come to consensus on technical than on non-technical standards, this observation must be treated with caution. There were only seven biotechnology standards, two of which were excluded from the tabulations in Table 4 because they had not been completed by the end of 2004. Thus the averages reported for biotechnology standards in Table 4 are based on only five observations.

At this point it is useful to note those standards that were not yet completed at the end of 2004. As indicated above, these were not included in calculating the statistics given in Tables 3 and 4. The titles of the excluded standards, whether they are technical or non-technical in nature, and for how long they have been deliberated on, are set out in Table 5. As indicated in Table 5 these are Recommendations for the Labelling of Foods Obtained through Biotechnology sections 2, definitions and 5, mandatory labelling (these are outlined in Alinorm 04/27/22 appendices V and VI). Section 2 of this document was classified to be within the technical group of standards, while section 5 was specified as non-technical in nature. Both sections have been treated separately. Both had been considered for 9 years as of 2004. Consensus on these issues has not yet been achieved, despite attempts by the committee chair to seek assistance from a smaller group (MacKenzie, 2001, 2003). The standards that had been completed by the selected committees are listed in Appendix 2 to this paper.

Table 5: Details of Standards Not Completed by 2004

Standard	Number of Years in Development to the end of 2004
Technical	
Recommendations for the Labelling of Foods Obtained through Biotechnology, section 2	9
Guidelines for Evaluating Acceptable Methods of Analysis	10
Table of Conditions for Claims for Nutrient Contents (Part B – Fibre)	10
Revised Standard for Gluten Free Foods	13
Revised Standard for Cereal Based Foods	9
Revised Standard for Formulas for Special Medical Purposes Intended for Infants (Section A)	9
Draft Maximum Levels for Ochratoxin A in Wheat, Barley, and Rye	4
Maximum Levels for Cadmium	6
Maximum Levels for Lead in Fish	5
Non-Technical	
Recommendations for the Labelling of Foods Obtained through Biotechnology, section 5	9
Amendment to the General Standard for Labelling (Quantitative Declaration of Ingredients)	4

Source: Based on information in committee reports for nine selected Codex committees.

We categorize the total of complete and incomplete standards of the identified committees to include forty-seven technical standards and thirty-nine non-technical standards, reflecting a greater number of technical standards that have not been completed. The average length of time taken to complete a technical standard, then, will rise by a greater amount from the inclusion of these standards than will the average length of time for a non-technical standard. Together Tables 4 and 5 suggest that it can be more difficult to come to a consensus on technical standards than on non-technical standards.

The numbers of standards considered by each of the selected committees that had advanced to Step 8 of the standards development process in each of the fourteen years to 2004 was identified in order to gain insight into the number and frequency of completed standards. Data on this are in Table 6.

Table 6: Number of Standards at Step 8 by Year, 1990 to 2004

Committee	'90	'91	'92	'93	'94	'95	'96	'97	'98	'99	'00	'01	'02	'03	'04	Total
Additives/ Contaminants	2	3	0	2	3	2	3	5	5	5	5	11	7	6	15	74
Food Hygiene	0	3	0	2	1	1	3	3	2	2	0	1	0	1	1	20
Food Labelling	0	3	0	1	0	0	2	1	3	2	2	3	0	4	0	21
Analysis/Sampling	0	1	2	4	3	1	0	2	0	0	0	0	0	0	2	15
Pesticide Residues	2	3	1	2	1	2	2	2	3	3	2	3	2	3	2	33
Veterinary Drugs	1	3	0	5	1	1	3	0	2	0	2	2	0	2	0	22
Import/Export	0	0	0	0	0	2	1	2	0	1	2	0	2	0	1	11
Nutrition	0	5	0	0	0	1	2	0	1	0	0	1	0	0	0	10
Task Force on Biotech	0	0	0	0	0	0	0	0	0	0	0	0	3	1	0	4
Total	5	21	3	16	9	10	16	15	16	13	13	21	14	17	21	210

Source: From information in Review of Codex Committee Structure and Mandates of Codex Committees and Task Forces, Consultants' Final Report Annex 4A (March 2005)

Finally, the average length of time it has taken for a standard to be completed, starting from step 1 to completion at step 8 was tabulated. Each standard started and completed during the time period of 1990 to 2004 was tracked from the reports of the selected committees. From the committee reports it was determined how long each standard took to be completed, both in terms of the number of years and the number of meetings. Based on this assessment, the average length of time for development of a completed standard is five years. Alternatively, based instead on the number of committee meetings, the average time for consensus and approval is 4.5 meetings.

Several tentative conclusions can be drawn from the tabulations given above. First, the average time it has taken to complete a standard is equal in length to the time period of the Medium Term Plans. This does not necessarily mean that the process of planning work according to the plans established by the Executive Committee is effective in terms of time taken. As noted above, almost two-thirds of the standards that are actually relevant to the work plan are not completed on time. Scrutiny of the reports of the selected committees indicates that, in general, work on particular standards is often not started until two or three years into the plan period. There may be several reasons for this. The work of the committees continues over time, and may involve developing several standards from the previous plan, while some standards that are developed arise from other causes than from the medium-term plans, however in general it appears that work on many standards starts late and continues for a long period of time.

A second point that can be noted from the assessments above is that the length of time it takes to complete a technical standard does not differ widely from the length of time to complete a non-technical standard. Consideration of the uncompleted standards does not suggest that it is easier to achieve consensus on technical standards issues than on non-technical issues. The pattern seems to involve a polarization: either a standard is completed quickly, or the process takes a long time. There is not much in between.

Comparison of Codex Processes for Food Standards in Two Committees Relative to Standards for Agricultural Biotechnology

We now turn to consideration of biotechnology-related food standards and for this purpose move to consider a smaller set of selected committees. The Committee for Veterinary Drugs and the Committee for Pesticide Residues were selected as comparators for the standards development processes conducted relative to agricultural biotechnology. There is no permanent Codex biotechnology committee and the work of the Codex Commission on this topic has been undertaken by the Task Force on Biotechnology (formally, the Ad Hoc Intergovernmental Task Force on Biotechnology) as well as the Committee on Food Labelling. The standards issues considered by both comparators (veterinary drugs and pesticides) are mainly technical in nature. Nonetheless each comparator faces standards issues that cannot be resolved simply by an appeal to science.

Compilation of statistics on the time taken for standards completion for the two comparator committees and for the Task Force on Biotechnology, summarized in Table 7, indicate that on average, the Task Force on Biotechnology took three years to complete the standards embodied in the documents on Codex principles and guidelines for biotechnology[1], while the

[1] These were adopted in 2003 and consist of Codex Principles for the Risk Analysis of Food Derived from Modern Biotechnology, Codex Alimentarius Commision, FAO/WHO, Rome 2003 (CAC/GL 44-2003),

Codex Committee on Residues of Veterinary Drugs in Foods took 3.7 years, and the Codex Committee on Pesticide Residues took 4.6 years on average for standards completion in their areas of work. This could suggest that the Task Force on Biotechnology was more effective than the two chosen comparison committees in developing acceptable food standards. However, as noted previously, it should be recognized that the Task Force was able to call on documentation that had been developed in FAO/WHO expert consultations and that reference to the rate of standards completion by the Task Force ignores the inability for agreement to be reached on accepted international standards for labelling of biotechnologically derived food within the Codex process (see footnote 1). When these aspects of biotechnology standards are considered, the time for biotechnology-related standards to be completed is quite different.

In comparing the process of standards completion by the Task Force and the two comparator Codex committees, it should also be noted there are differences in the numbers of standards and guideline documents that were actually completed in these three bodies, as shown in Table 7. Over the four years that the Task Force operated (from 2000 through 2003), four standards and guidelines documents were completed, while the Committee for Veterinary Drugs completed 6 standards, and the Committee for Pesticide Residues completed 10 standards in this period.

Table 7: Comparisons of Standards Completion by Three Codex Committees. 2000-2003

Committee	Average Time to Complete a standard	Number of Standards Completed over 4 Years	Extrapolated Number Completed over 15 Years	Number Actually Completed over 15 Years	Number of Completed Standards per year
Task Force	3 years	4	15	N/A	1
Veterinary Drugs	3.7 years	6	22.5	22	1.47
Pesticide Residues	4.6 years	10	37.5	33	2.2

Source: Based on information in committee reports.

www.codexalimentarius.net/download/standards/10007/CXG_044e.pdf, in addition to Guidelines for the conduct of food safety assessment of foods derived from recombinant-DNA plants and Guidelines for the conduct of food safety assessment of foods produced using recombinant-DNA microorganisms, Codex Alimentarius Commission, Food and Agricultural Organization of the United Nations/World Health Organization, Rome, 2003 (CAC/GL 45-2003;CAC GL 46-2003), www.codexalimentarius.net/download/standards/100021/CXG_045e.pdf; www.codexalimentarius.net/download/standards/100025/CXG_046e.pdf

The Task Force on Biotechnology was able to adjust some portions of its work. This body attempted development of only five standards, one of which was transferred to the committee on analysis and sampling, while the other four were completed by the Task Force itself. For purposes of comparison of the work faced by the comparator committees, Table 8 lists the number of documents being worked on each year by the Committee for Pesticide Residues and the Committee for Veterinary Drugs. Though the Committee for Pesticide Residues took longer to complete the standards it worked on, it completed a greater number of these during this time period.

Table 8: Number of Documents Worked on Simultaneously in three Selected Committees

Committee	2000	2001	2002	2003
Task Force on Biotechnology	3	5	4	1
Pesticide Residues	20	13	17	17
Veterinary Drugs	13	13	N/A	12

Source: Review of Codex Committee Structure and Mandates of Codex Committees and Task Forces: Consultants' Final Report Annex 4B (March 2005)

Based on the comparisons above, it seems that the two committees completed more work than the Task Force, while the Task Force completed its smaller volume of work in a shorter time period. Overall, the establishment of Ad Hoc Task Forces is seen within the Codex structure as a useful mechanism to undertake specific areas of Codex work, to be completed within specific time frames, on issues that do not fit within the existing committee structure. Thus, in 2004 the Commission discussed the establishment of a new Ad Hoc Intergovernmental Task Force on Foods derived from Biotechnology. Japan was asked to prepare a project document and draft terms of reference for this purpose and a process to solicit specific proposals for new work and to define priorities was determined. The Commission has specified that the final report of this new Task Force is to be submitted in 2009. [2]

[2] The argument for more use of task forces is reflected by the Codex tentative agreement in 2005, to a task force directed to antimicrobial resistance, which may be associated with widespread antibiotic use, an issue that had been debated for several years. The lack of agreement to date has been attributed to the feature that this issue involves collaboration from the different sectors of animal health and production, human health and drug manufacturing. A task force would bring these various sectors together, enabling a more holistic view to be taken. A formal decision on this task force will be taken in 2006 (FAO, 2005).

Specific Food Standards Issues: When is consensus not possible?

In considering common features that may seem to apply when consensus on food standards does not seem to be possible, we return to the nine selected committees for which completed standards were summarised in Table 4. For purposes of closer examination, standards were grouped into several categories. Standards were randomly selected from these different groupings. Based on committee reports, the major issues discussed for each selected standard were identified. These are noted in Table 9 where it is also indicated whether a consensus was reached and a standard established by the end of 2004[3].

Table 9: Selected Standards Issues, 1990 through 2004

Technical		
Issue	**Consensus**	**Reference**
Whether foods derived from biotechnology can serve as conventional counterparts for other such foods	Yes	Alinorm 01/34A
Whether to include post-market monitoring in risk management	Yes	Alinorm 01/34A
Matters surrounding food matrices, microflora, and metabolic products	Yes	Alinorm 03/34A
What the maximum upper limit should be for vitamin and mineral supplements (a)	No	Alinorm 03/26
Non-Technical		
Issue	**Consensus**	**Reference**
Whether to use the phrase "modern biotechnology" or the phrase "genetically modified/engineered"	Yes – Task Force No – Labelling	Alinorm 01/34A Alinorm 03/22
Whether provisions for traceability should be included	Yes	Alinorm 03/34
Whether cultures should be made available by food producers to regulatory authorities and other bodies	Yes	Alinorm 03/34A
When labelling of biotechnology foods should be mandatory	No	Alinorm 99/22
Whether the document (Draft Guidelines on Sampling) was too complex and should be simplified	Yes	Alinorm 01/23
Whether to set the maximum level of Aflatoxin M1 in milk at a high or low level	No	Alinorm 01/12
Whether guidelines for vitamin and mineral supplements should be elaborated	Yes	Alinorm 99/26
Whether the preamble should be retained or incorporated elsewhere in the document (Draft Guidelines for Vitamin and Mineral Supplements)	Yes	Alinorm 03/26

(a) This issue was agreed on and standards were adopted for food supplements in 2005

[3] These were a random sample of the standards under development over the time period studied, based on examples from grouping technical, non-technical, biotechnology, and non-biotechnology standard areas.

Assessment of the issues listed in Table 9 suggests some factors that may influence the ability to achieve consensus. One seems to be the availability, applicability and acceptability of information and recommendations from expert sources. In technical matters, the committees are able to refer to outside sources for help and this should aid consensus. Thus there appears to be a tendency for consensus in those cases where expert advice was sought. This feature can be seen by referring to standards issues where consensus was not reached, as shown in Table 10. Even so, there may not be agreement on the merits of expert advice relative to other pressures which may bear on member governments, arising from political, strategic, social or ethical influences that may apply to particular standards issues in different member nations. Thus in considering a standard for maximum levels of Aflatoxin M1 in milk, for example, the Committee on Additives and Contaminants obtained expert advice from the Joint FAO/WHO Expert Committee on Food Additives [JECFA] (Alinorm 95/12). Nonetheless, consensus was not achieved on this issue. Table 10 indicates all technical standards considered by the nine selected committees from 1990 that were not completed by 2004 and indicates whether expert advice has been sought on these issues by the responsible committees. This information is obtained from the relevant committee reports.

Table 10: Uncompleted Standards: Whether or Not Expert Advice was Sought

Standard	Advice Sought?
Recommendations for the Labelling of Foods Obtained through Biotechnology, section 2	No
Guidelines for Evaluating Acceptable Methods of Analysis	No
Table of Conditions for Claims for Nutrient Contents (Part B – Fibre)	Yes
Revised Standard for Gluten Free Foods	No
Revised Standard for Cereal Based Foods	No
Revised Standard for Formulas for Special Medical Purposes Intended for Infants (Section A)	No
Maximum Levels for Ochratoxin A in Wheat, Barley, and Rye	Yes
Maximum Levels for Cadmium	Yes
Maximum Level for Lead in Fish	No

Source: Information from Committee reports.

In only a third of the cases where agreement was not reached did the committee consult outside experts. Reasons are not given in cases where expert advice is not sought. However, again it is expected that these are likely to be situations in which political, strategic, social or ethical pressures on member governments reduce the incentives to achieve consensus. Efforts by FAO and WHO to assist committees in accessing experts on technical standards issues might be of assistance in some instances, but lack of consensus seems unlikely to be overcome for all issues by this means. Consultants to Codex have suggested

that that there should be a willingness to limit the scope of new work, where necessary, to achieve consensual acceptance of final texts. (Consultants, 2005).

A related factor is whether there are positions and wording alternatives that accommodate opposing viewpoints on the contentious issues.. When the Task Force on Biotechnology considered whether or not to include provisions for traceability in the General Principles for the Application of Risk Analysis to Foods Derived from Biotechnology, arguments were given both for and against this (Alinorm 03/34). Consensus was reached by including traceability as an available option, but not as a requirement, for risk management.

On the other hand, issues such as whether to use the phrase "modern biotechnology" or "genetically modified/engineered" in the wording of the standard and in statements relative to labelling have been more difficult. In order to accommodate both these viewpoints, both terms would have to be included, not only in the standard, but also on all labels of genetically modified foods. This was argued to be cumbersome and to involve extra expense to producers, and therefore not to be a viable alternative. Consensus, then, would require one side of the argument ceding to the other. The result on this issue has been years of debate in the Committee on Labelling, with the same arguments being provided at each meeting. This issue has been discussed since 1996 without consensus having been achieved.

One factor that evidently makes consensus on a standard difficult to achieve occurs when concerns for consumer health and safety clash with economic feasibility or when there are different interpretations of the risks and benefits of different standards specifications. The debate over an accepted maximum level for Aflatoxin M1 in milk provides an example. Some nations and groups of these, including the EU, Norway, South Africa, and others, favour setting this limit at a low level, arguing a need for this in order to protect vulnerable groups such as children, who consume high quantities of milk (Alinorm 01/12). Others, including the United States, Argentina, Brazil, and the Philippines argue that this level would incur high costs, disrupt trade, and cause large quantities of milk to be discarded (Alinorm 01/12). This issue has been discussed since 1992 and consensus has not yet been reached.

An Example of National Differences in Social Acceptance

Differences in national views on biotechnology have had an effect on the development of international standards, influencing the issues discussed and the ability to reach consensus on these. Difference in attitudes between the views expressed by national representatives are also seen in the Codex processes. In general Europeans have tended to be more critical and cautious of agricultural biotechnology than in North America, and less trusting of government food safety regulations, than has been the case in the United States and Canada, where there is a significant amount biotechnology adoption in agriculture (Veeman, 2002, ISAAA, 2005).

The results of differences in social perspectives and acceptance are significant. This is clearly illustrated in the attempts of the Committee on Labelling to develop a standard for the labelling of foods obtained through biotechnology. The deadlocked issue is whether or not it should be mandatory for all foods derived from modern biotechnology to be so labelled, or whether a less strict voluntary labelling regime should be used. This particular debate has continued for more than nine years and has tended to be divided along North American/European lines, although numbers of other nations now adopt mandatory labelling, albeit with considerably more flexibility in detail than applies in the European Union (Veeman, 2003). The United States is opposed to mandatory labelling, arguing that food safety does not require the labelling of all foods from biotechnology, a position that has been supported by Canada, Brazil, and Argentina. This position maintains that only those foods that are not essentially equivalent to conventional foods should be identified as being the products of or containing biotechnology-derived ingredients (Alinorm 99/22).

The Europeans have a different view. Given their population's mistrust of regulatory procedures and biotechnology, these delegates want labelling of all foods that contain genetically modified organisms or that are produced by genetically modified organisms, in order to maintain transparency and allow consumers to make informed choices. The difficulty in achieving consensus, then, rests on the marked differences in acceptance of agricultural biotechnology from country to country, which have made it impossible to come to a consensus on a labelling standard on this particular issue. The difference in polices relating to genetically modified food have led to a current major WTO dispute between the EU on one hand and the US, Canada and Argentina on the other.

Improving the Codex Process

Although Codex has proved to be a valuable mechanism to facilitate international harmonisation of food safety standards, the process of achieving this can be protracted, unwieldy, and inefficient, as has been seen, for example in attempts to introduce labelling standards for biotechnologically-derived food and in debates on the standard for maximum levels of Aflatoxin M1 in milk. The growth in importance of trade disputes based on differences in food safety

standards and the official role of Codex standards in WTO trade disputes led FAO and WHO to initiate a review of Codex operations in 2002. Consultants to this process surveyed Codex stakeholders to gain their assessments of the functioning of this process and the ways it might be improved. Their recommendations, contained in a final report filed in March 2005, are currently under consideration within the Codex structure. The recommendations include some changes in committee structure (such as splitting the work load of the Committee on Food Additives and Contaminants into separate committees, one on additives and the other on contaminants). More streamlined reporting by groups is also recommended, as are a variety of procedural recommendations. It was recommended that the current practice of development of certain regional standards be discontinued.

The consultants suggested moving from a "committee oriented" approach to standards issues towards an "task oriented" approach, with a closer role for management, to be applied through creation of a Commodity Management Committee to oversee a more tightly structured program of creating and updating food standards. This recommendation would provide more limited terms of reference for committees that would become active only for the time taken to complete specified time-limited tasks (Consultants, 2005). Alternatively it is suggested that the Codex Alimentarius Executive Committee play a more active role in management oversight of committees in order to been suggested as alternate means to improve the "management deficit" that lies behind the slow process of standards establishment (Consultants, 2005).

Summary and Conclusions

The Codex Alimentarius is a mechanism for supporting the development of food standards and for overcoming technical barriers which was created for the general purpose of protecting consumer health without restricting trade (Hillman, 1991). The specific purpose of the Codex process is to formulate consensus-based international standards for food safety that will both contribute to food safety and quality and facilitate international trade in safe foods. This levels the playing field for all products sold in participating countries. The development within the General Agreement on Tariffs and Trade of side-agreements, administered by the World Trade Organization (WTO), relating to impediments to trade associated with technical barriers to trade (TBT), which typically arise from incompatible national standards, and to the particular issues of sanitary and phytosanitary standards (SPS) in agricultural trade, reflect recognition of increasing importance of standards in potentially impeding or enhancing international trade and the increasing importance of the Codex process.

The Codex process has traditionally emphasized the voluntary nature of its standards and some nations have moved to adopt standards that are more stringent than those of the Codex. Nonetheless, Codex standards have wide

international recognition, are specifically cited in the SPS Agreement of the WTO, and have often been used as a reference in trade disputes (WHO, 2005).

Most technical barriers to trade exist because standards differ from country to country. International standardising bodies, such as the Codex Alimentarius, aid in avoiding problems of a lack of standards compatibility and are considered to have done a reasonably good job at overcoming technical barriers (Sykes, 1995). However, it is apparent from assessing a sample of Codex processes, as we have done in this paper, that the current structures and procedures can be ineffective and inefficient. Although the Codex and the SPS and TBT Agreements may have encouraged modifications of some technical barriers to trade, these are a growing issue in international trade for agriculture and food.

We found that, on average, it has taken five years to develop a Codex standard, in calculations that were unable to take into account a fairly large number of standards that have been discussed for a great many years without being completed as of yet (see Annex 1). Related to this issue is the nature of the terms of reference and the direction given the committees. A majority of Codex work appears to fall outside the direction given in the medium-term plans specified by the Executive Committee. Of the draft standards that are applicable to these plans, only a third were completed on time. These inefficiencies challenge the effectiveness of the Codex.

It is clear that structural and/or procedural changes to streamline the operation of the work of Codex committees and to improve their timeliness are badly needed. Proposals by consultants emphasize the need for justification and prioritization of work areas directed to food safety standards and for a clearer distinction between food safety and food quality issues to be made. The need to improve consistency among committees and to make committees more accountable and more sensitive to the need for timely operations are also emphasized (Consultants, 2005). Nonetheless, there will continue to be situations where food quality standards differ among nations due to political and economic pressures. Consensus becomes impossible when governments have entrenched differences of opinion or vested economic interests (Sykes, 1995). These situations will constitute continuing challenges for Codex operations, although it is evident that there numbers of feasible ways in which these operations may be improved in the short and medium term.

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Appendix 1: Selected Codex Committees, Standards Adopted, 1990-2004

Committee	Standard	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Ad Hoc on Biotechnology	GP for the application of risk analysis to foods derived from biotechnology											proposed	step 5	step 8		
	Guidelines for the conduct of food safety assessment of foods derived from recombinant-DNA plants											proposed	step 5	step 8		
	Annex on allergenicity assessment												step 3	step 8		
	Guidelines for the conduct of food safety assessment of modified microorganisms in food												proposed	step 5	step 8	
Labelling	Section 3.3.4 (nutrient reference values) of the codex guidelines on nutrition labelling		step 5		step 8											
	Guidelines for use of nutrition claims		step 3		step 3	step 5		step 8								
	General guidelines for use of the term "Halal"					step 5		step 8								
	Guidelines for organically produced foods				step 5	step 6		step 6	step 6	step 8	s. 5.1 - step 8	livestock - step 8	Bee-keeping - step 8			
	Guidelines for organically produced foods (soil fertilizing)											proposed	step 5*			
	Amendment to the standard for quick frozen fish sticks							step 3*	step 5*	step 8						
	Amendment to the general labeling standard (Hypersensitivity)		step 1,2		step 3	step 3		step 3	step 5	step 8	step 8					
	Recommendations for the labelling of foods obtained through biotechnology							step 3	step 3							
	biotech - s. 2 - definitions									step 5		step 6	step 8	step 6	step 7	step 7
	biotech - s. 4 - allergens									step 5		step 8				

Committee	Standard	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
	biotech - s. 5 - labeling									step 3	step 3	step 3	step 3	step 3	step 4	step 3
	Amendment to the general labeling standard (class names)								step 3*	step 3	step 5	step 6	step 6	step 6	step 8	
	Recommendations for the use of health (and nutrition) claims								step 3	step 3	step 3	step 3	step 3	step 5	step 8	step 8
	Amendment to the guidelines on nutrition labeling									step 3	step 5	step 3	step 3	step 5	step 8	
	Amendment to the general standard (quantitative declaration of ingredients)												step 3	step 3	step 3	step 3
	RG on organically produced foods (section 5 - criteria)													step 5	step 8	
	RG on organically produced foods (Annex 2 - permitted substances)													step 3	step 5	step 6
Hygiene	Guidelines for the application of the HACCP system		step 3		step 5/8		step 5	step 8								
	RG for the application of HACCP system											step 1/2/3	step 5		step 8	
	International code of practice - general principles of food hygiene				step 3	step 5	step 8									
	Revision of the principles for the establishment of microbiological criteria for foods					step 3	step 5	step 8								
	CHP for refrigerated packaged food		step 3		step 3	step 3	step 5	step 6	step 8							
	Principles and guidelines for the conduct of microbiological risk assessment					step 3		step 3	step 5	step 8						
	CHP for the transport of foods in bulk						step 3	step 3	step 3	step 5	step 8					
	Control of Listeria monocytogenes in foods in international trade												step 2		step 2	step 2
	CHP for bottled waters							step 2	step 5	step 6	step 8					
	CHP for milk and milk products								step 3	step 3	step 3	step 3	step 2		step 5	step 8

Committee	Standard	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
	Guidelines for hygienic recycling of processing water in food plants										step 3	step 3	dropped			
	Guidelines for the conduct of microbiological risk management									step 3	step 3	step 3	step 2		step 2	step 2
	CHP for primary production, harvesting and packaging of fresh produce									step 3	step 3	step 5	step 8			
	CHP for pre-cut fruits and vegetables									step 3	step 3	merged with above				
	Guidelines for the validation of food hygiene control measures												step 1/2/3		step 2	step 2
	Proposed draft revision of the CHP for egg products												step 1/2/3		step 2	step 2
	Revision of the international code of practice for foods for infants and children															step 1, 2, 3
Import/Export	Guidelines for the exchange of information between countries on rejections of imported foods				step 3		step 5	step 8	step 8							
	Principles for Food Import and Export Inspection and Certification			step 3	step 5		step 8									
	Guidelines for information exchange in food control emergency situations			step 3	step 5		step 8									
	Guidelines for the design, operation, assessment and accreditation of food import and export inspection				step 3		step 3	step 5	step 8							
	Guidelines on the development of equivalence agreements regarding food import/export inspection				step 3		step 1	step 2/3	step 2/3	step 5	step 8					
	Guidelines on food import control systems								step 2/3	step 1/2	step 3	step 2/3	step 5	step 8		

Committee	Standard	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
	Guidelines and criteria for official certificate formats and rules relating to the production and issuance of certificates								step 1/2	step 1/2	step 3	step 5	step 8			
	Guidelines for the judgment of equivalence of sanitary measures associated with food inspection and certification systems										step 1	step 1/2/3	step 5/8	step 5/6	step 8	
	Revision to Codex guidelines for the exchange of information in food control emergency situations												step 1/2/3	step 2/3		step 5/8
	Principles for electronic certification															step 1/2/3
	Guidelines for risk based inspection of imported foods															step 1/2/3
Analysis/ Sampling	Guidelines on sampling		step 1						step 3	step 3			step 3	step 5		step 8
	General methods of analysis for contaminants		step 3		step 5	step 8										
	Guidelines for the assessment of the competence of testing labs involved in the IE control of food					step 3			step 5/8							
	Analytical terminology for codex use								step 5/8							
	Guidelines for evaluating acceptable methods of analysis					proposed			step 2	step 2			step 1/2/3	step 3		step 5
	Harmonization of analytical terminology in accordance with international standards					proposed			step 2	step 2			dropped			
	Guidelines on measurement uncertainty								step 2	step 2			step 1/2/3	step 5		step 8
	Guidelines for settling disputes on analytical test results													step 1/2/3		step 2/3
	Recommendations on the fitness-for-purpose approach															step 2/3

Committee	Standard	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Pesticide Residue	Dinocap	step 5	step 5	step 7	step 7							step 5		step 8		
	Amitraz	step 5	step 8													
	Procymidone	step 5	step 5	step 7			step 8									
	Metalaxyl	step 7	step 8	step 8	step 8	step 8										
	Anilazine	step 5	step 5	step 8		step 8										
	Flusilazole	step 5	step 5	step 6	step 8		step 8									
	Terbufos	step 5	step 5	step 8												
	Triadimenol	step 5	step 5	step 8		step 8										
	Cyfluthrin		step 5			step 8	step 8									
	Cyromazine		step 5	step 8	step 8	step 8										
	Hexaconazole		step 5	step 8	step 8		step 8									
	Azinphos-methyl			step 3	step 5	step 8			step 8							
	Fentin			step 3	step 5		step 8									
	Parathion			step 3	step 5	step 8			step 7		step 8					
	Disulfoton			step 3	step 5	step 8		step 7			step 6	step 6	step 6	step 8	step 8	
	Propoxur			step 3	step 5	step 8										
	Bioresmethrin			step 3	step 5	step 8										
	Buprofezin				step 5	step 7							step 8			
	Cadusafos				step 5	step 8										
	Glufosinate-ammonium				step 5	step 7						step 5	step 5	step 8		
	Dicofol					step 5	step 5				step 8					
	Methidathion					step 5	step 5/8	step 7		step 8						
	Parathion-methyl					step 5/8				step 8						
	Abamectin					step 5		step 5			step 6	step 6	step 8			

Committee	Standard	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
	Bromopropylate						step 5	step 7	step 8							
	Dithiocarbamates						step 5		step 6			step 8				
	Chlormequat									step 5		step 6		step 5	step 8	
	Tebufenozide									step 5			step 6	step 6	step 6	step 8
	Method of sampling for the determination of pesticide residues in milk, milk products and eggs			step 3	step 5	step 7	step 8									
	Revised methods of sampling for the determination of pesticide residues						step 1	step 3	step 5	step 8	step 8					
	Regulatory practices to facilitate the use of Codex maximum residue limits for pesticides								step 1	step 2	step 2	step 2				
	Amendment to the codex classification of foods and animal feeds											step 1/2/3	step 5			step 1/2/3
	Amendment to the guidelines on good laboratory practice in pesticide residue analysis									proposed		step 1	step 3	step 5	step 8	
	Amendment to recommended methods of analysis for pesticide analysis (introduction section)												step 3	step 5/8		
	Guidelines on the use of mass spectrometry for identification, confirmation, and quantitative determination of residues														step 1/2/3	step 3
	Guidelines on the estimation of uncertainty of results														step 1/2/3	step 3
	Revision to the list of methods of analysis for pesticide residues												proposed		step 1/2/3	step 3
	Criteria for prioritization process of pesticides														proposed	

Committee	Standard	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Additives / Contaminants	GS for food additives (preamble)		step 2, 3	step 3	step 5	step 8	step 8									
	Annexes I, II, and III of the general standard				step 2, 3	step 2, 3	step 5	step 8	step 8							
	Annexes IV and V of the general standard						step 2, 3	step 5	step 8							
	CP for the reduction of Aflatoxin B1				step 1, 2, 3			step 5	step 8							
	Revised annex A to the general standard						step 5	step 2/3	step 2/3	step 2	step 5	step 8				
	Maximum levels of aflatoxin M1 in milk		step 3	step 5	step 5	step 7	step 7	step 7	step 7	step 8		step 6	step 8			
	Guideline levels and sampling plans for total aflatoxins in peanuts		step 3					step 6	step 7	step 8						
	Maximum levels for lead							step 3		step 6	step 6	step 8				
	Guideline levels for cadmium and lead in cereals, pulses, and legumes							step 6	step 7			step 6	step 8			
	Specifications for the identity and purity of food additives		step 1	step 1						step 8	step 8	step 5/8	step 5/8	step 5/8	step 5/8	step 5/8
	Maximum level for patulin in apple juice									step 3		step 8		step 8		
	CP for source directed measures to reduce contamination of food with chemicals									step 3	step 3	step 5	step 8			
	Draft maximum levels for tin									step 3	step 5	xxx	step 4/5	step 3		
	Packaging provisions for maintaining the stability of iodized salt									step 3	step 3	step 5	step 8			
	Maximum levels for cadmium										step 3	step 3	step 5	step 3	step 5	step 5
	Revision of the GS for irradiated foods										step 1/2/3	step 3	step 5	step 6	step 8	
	Maximum level for lead in fish, etc.											step 6	step 6	step 6	step 6	step 7
	CP for the prevention of contamination by patulin in apple juice											step 1/2/3	step 2/3	step 5	step 8	

Committee	Standard	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
	CP for source directed measures to reduce dioxin contamination in food											step 1/2/3		step 2/3		step 1/2/3
	Revised sampling plan for peanuts											step 1/2/3	step 5/8			
	Maximum levels for ochratoxin A in wheat, barley, and rye												step 5	step 8		step 7
	CP for the prevention of mycotoxin contamination in cereals (annexes on ochratoxin A, zearalenone, fumonisin, and tricothecenes)										step 1/2/3	step 3	step 2/3	step 5	step 8	
	CP for source directed measures to reduce dioxin contamination in food												step 2/3		step 2/3	
	Recommended international code of practice for radiation processing of food												step 1/2	step 5/8		
	Principles for exposure assessment of contaminants and toxins in food												step 1/2	step 3	step 5	step 8
	Risk assessment policy statement for the application of risk analysis principles to the standard setting activities of the CCFAC													step 3	step 5	step 8
	Revised preamble to the codex general standard for food additives													step 1/2/3	step 1/2/3	step 1
	Revised food category system of the codex general standard													step 1/2/3	step 5	step 8
	CP for the reduction of aflatoxin contamination in tree nuts													step 1/2/3	step 2/3	step 5
	CP for the reduction of lead in food													step 1/2/3	step 5	step 8
	Revision of the annex to table 3													step 6	step 8	
	CP for the safe use of active chlorine														step 1/2/3	

Committee	Standard	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
	CP for the prevention of aflatoxin in peanuts														step 5	step 8
	RG levels for radionuclides in foods following accidental nuclear contamination														step 1/2/3	step 5
	Maximum levels for aflatoxins in hazelnuts, almonds and pistachios														step 1/2/3	step 3
	CP for the prevention of tin contamination														step 1/2/3	step 5
	Maximum levels for deoxynivalenol														step 1/2/3	
	Maximum levels for tin in canned drinks and food															step 4
	Maximum level for cadmium in mollusks															step 3
	Revision to the codex general standard															step 1/2/3
	Sampling plans for aflatoxins in almonds, brazil nuts, hazelnuts and pistachios															step 1/2/3
	Maximum levels for 3-MCPD in acid-hydrolized vegetable proteins															step 1/2/3
Nutrition	Standard for formula foods for use in very low energy diets			step 5			step 8									
	Table of conditions for claims for nutrient contents (Part A)						step 5	step 8								
	Table of conditions for claims for nutrient contents (Part B – Protein, vitamins, minerals)						step 5	step 6		step 8		step 8				
	Table of conditions for claims for nutrient contents (Part B – Fibre)						step 5	step 6		step 6/7		step 6	step 7	step 7	step 6	step 6
	RS for food grade salt			step 3			step 3	step 8								
	RS for Gluten free foods			step 3			step 3	step 5		step 6/7		step 7	step 7	step 7	step 7	step 7
	Guidelines for vitamins and minerals supplements						step 3	step 5		step 4		step 3	step 3	step 3	step 5	step 8
	RS for cereal based foods							step 3		step 5/6/7		step 4	step 3	step 3	step 5	step 6

Committee	Standard	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
	RS for Formulas for special medical purposes intended for infants (section A)							step 3		step 3/4		step 3	step 3	step 3	step 5	step 6
	Formulas for special medical purposes (section B)									step 3/4		step 3				step 3
	Advisory lists of mineral salts and vitamin compounds									step 1/2/3		step 3	step 2	step 2/3	step 2	step 2/3
	Recommendations on the scientific basis of health claims													step 1/2/3	step 2	step 2/3
	Guidelines on the application of risk analysis														step 1/2/3	
Veterinary Drugs	Levamisole	step 3	step 4	step 4		step 5		step 8 & 7	step 8 & 7							
	Triclabendazole			step 5		step 7		step 8 & 7	step 8 & 7							
	Carazolol		step 4	step 4		step 4		step 5	step 5/8	step 7		step 7	step 8			
	Cetiofur Sodium							step 5	step 5/8	step 8						
	Doramectin							step 5	step 5/8			step 5/8				step 5
	Moxidectin							step 5	step 5/8	step 5/8						
	Spiramycin		step 4	step 4		step 4		step 5 & 4	step 5/8							
	Diminazene					step 5		step 7	step 7							
	Azaperone							step 4		step 8						
	Chlortetracycline							step 4		step 5 & 7		step 7	step 8			
	Dexamethasone					step 4		step 4		step 7						
	Diclazuril							step 4		step 8						
	Dihydrostreptomycin							step 4		step 8		step 5/8			step 5/8	
	Febantel		step 4	step 4		step 4		step 4		step 8 and 5/8						
	Gentamicin							step 4		step 7		step 8				
	Neomycin							step 4		step 8		step 5	step 6		step 6	step 8
	Spectinomycin					step 4		step 4		step 8 & 5/8						

Committee	Standard	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
	Bovine Somatotropins			step 5		step 8				step 8						
	Tilmicosin									step 8						
	Benzylpenicillin	step 3	step 5/8	step 5/8						step 5/8						
	Fluazuron									step 5/8						
	Nicarbazin									step 5/8						
	Cyfluthrin									step 5		step 7	step 8			
	Danofloxacin									step 5		step 8				
	Eprinomectrin									step 5		step 7	step 8			
	Flumequine									step 5		step 7	step 6		step 6	step 8
	Imidocarb									step 5		step 8				step 5/8
	Sarafloxacin									step 5		step 8				
	Abamectin									step 7		step 7	step 8			
	Thiamphenicol									step 7		step 5	step 6			
	Clenbuterol									step 4		step 5	step 8		step 8	
	Phoxim											step 5	step 8			
	Porcine Somatotropin											step 5	step 8			
	Deltamethrin											step 4	step 5		step 8	
	Cyhalothrin												step 5/8			step 8
	Ivermectin	step 3	step 5/8	step 5/8									step 5/8			
	Lincomycin												step 5/8			
	Trichlorfon												step 5		step 6	step 7
	Dicyclanil												step 5		step 6	step 8
	Melengestrol Acetate												step 5		step 6	
	Cefuroxime														step 5	
	Pirlimycin															step 5
	Ractopamine															step 4
	Closantel	step 3	step 5/8	step 5/8												

Committee	Standard	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
	Oxytetracycline	step 3	step 5/8	step 5/8												
	Carbadox	step 3	step 5/8	step 5/8												
	Flubendazole			step 5		step 8										
	Thiabendazole			step 5		step 8										
	Isometamidium			step 5		step 8										
	Amendments to the glossary of terms and definitions											step 3	step 5*			
	CP to minimize antimicrobial resistance												step 1/2		step 2	step 5/8
	RG for the establishment of a regulatory program for control of veterinary drug residues in food												step 1/2		step 2	step 2
	General consideration of analytical methods of residues control														step 2	
	Revised parts I, II, and III of the guidelines for the establishment of a regulatory program for control of veterinary drug residues in food															step 2

Legend:

GP – General Principles

RG – Revised Guidelines

CHP – Code of Hygienic Practice

GS – General Standard

CP – Code of Practice

RS – Revised Standard

* - Accelerated Procedure (5 steps)

Appendix 2: Groupings of Standards Considered by Selected Codex Committees, 1990 to 2004

	Technical		# years	# meetings	Non-Technical		# years	# meetings
Biotech	Ad Hoc:	Guidelines for the conduct of food safety assessment of foods derived from recombinant-DNA plants	3	3	Ad Hoc:	General principles for the application of risk analysis to foods derived from biotechnology	3	3
		Annex on allergenicity assessment	3	3	Labelling:	biotech - s. 5 - labelling	9+	
		Guidelines for the conduct of food safety assessment of modified microorganisms in food	3	3		biotech - s. 4 - allergens	5	4
	Labelling:	biotech - s. 2 - definitions	9+					
		Total	9	9		Total	8	7
		AVG:	3	3		AVG:	4	3.5
Non-biotech	Analysis/ Sampling:	General methods of analysis for contaminants	5	3	Import/Export:	Principles for Food Import and Export Inspection and Certification	4	3
		Guidelines on sampling	14	8		Guidelines for information exchange in food control emergency situations	4	3
		Guidelines for evaluating acceptable methods of analysis	10+			Guidelines for the exchange of information between countries on rejections of imported foods	5	4
		Analytical terminology for codex use	2	2		Guidelines for the design, operation, assessment and accreditation of food import and export inspection	5	4
	Nutrition:	Standard for formula foods for use in very low energy diets	4	2		Guidelines on the development of equivalence agreements regarding food import/export inspection	7	6
		Table of conditions for claims for nutrient contents (Part A)	2	2		Guidelines and criteria for official certificate formats and rules relating to the production and issuance of certificates	5	5
		Table of conditions for claims for nutrient contents (Part B – Protein, vitamins, minerals)	6	4		Guidelines for the judgment of equivalence of sanitary measures associated with food inspection and certification systems	5	5
		Table of conditions for claims for nutrient contents (Part B – Fibre)	10+			Guidelines on food import control systems	6	6
		RS for food grade salt	5	3		Revision to Codex guidelines for the exchange of information in food control emergency situations	4	4
		RS for Gluten free foods	13+		Analysis/ Sampling:	Guidelines for the assessment of the competence of testing labs involved in the IE control of food	3	2
		RS for cereal based foods	9+			Guidelines on measurement uncertainty	8	5
		RS for Formulas for special medical purposes intended for infants (section A)	9+		Nutrition:	Guidelines for vitamins and minerals supplements	10	8
	Veterinary Drugs:	Avg. MRLs	5	4	Veterinary Drugs:	CP to minimize antimicrobial resistance	4	3
		Amendments to the glossary of terms and definitions	2	2	Labelling:	Guidelines for use of nutrition claims	6	4
	Labelling:	Section 3.3.4 (nutrient reference values) of the codex guidelines on nutrition labelling	3	2		Guidelines for organically produced foods	9	8
		RG on organically produced foods (section 5 - criteria)	2	2		General guidelines for use of the term "Halal"	3	2

	Technical		# years	# meetings	Non-Technical		# years	# meetings
	Additives/ Contaminants:	Maximum levels of aflatoxin M1 in milk	11	11		Amendment to the general labeling standard (Hypersensitivity)	9	7
		Annexes IV and V of the general standard	3	3		Amendment to the standard for quick frozen fish sticks	3	3
		Guideline levels and sampling plans for total aflatoxins in peanuts	8	8		Amendment to the general labeling standard (class names)	7	7
		Maximum levels for lead	5	5		Recommendations for the use of health (and nutrition) claims	8	8
		Guideline levels for cadmium and lead in cereals, pulses, and legumes	6	6		Amendment to the guidelines on nutrition labeling	6	6
		Maximum level for patulin in apple juice	5	5		Amendment to the general standard (quantitative declaration of ingredients)	4+	
		Maximum levels for ochratoxin A in wheat, barley, and rye	4+			Guidelines for organically produced foods (soil fertilizing)	2	2
		Revised sampling plan for peanuts	2	2	Additives/ Contaminants:	Codex general standard for food additives (preamble)	5	5
		CP for source directed measures to reduce contamination of food with chemicals	4	4		Revised annex A to the general standard	6	6
		Maximum levels for cadmium	6+			Annexes I, II, and III of the general standard	5	5
		Maximum level for lead in fish, etc.	5+			CP for the reduction of Aflatoxin B1	5	5
		Recommended international code of practice for radiation processing of food	2	2		Revision of the general standard for irradiated foods	5	5
		Principles for exposure assessment of contaminants and toxins in food	4	4		Packaging provisions for maintaining the stability of iodized salt	4	4
		CP for the prevention of contamination by patulin in apple juice	4	4		Proposed risk assessment policy statement for the application of risk analysis principles to the standard setting activities of the CCFAC	3	3
		CP for the prevention of mycotoxin contamination in cereals (annexes on ochratoxin A, zearalenone, fumonisin, and tricothecenes)	5	5	Hygiene:	Revision of the principles for the establishment of microbiological criteria for foods	3	3
		Revised food category system of the codex general standard	3	3		Guidelines for the conduct of microbiological risk assessment	5	4
		CP for the prevention of aflatoxin in peanuts	2	2		Guidelines for the application of the HACCP system	6	4
		CP for the reduction of lead in food	3	3		Revised guidelines for the application of HACCP system	4	3
	Hygiene:	CHP for refrigerated packaged food	7	6		Draft international code of practice - general principles of food hygiene	3	3
		CHP for bottled waters	4	4	Pesticide:	Amendment to recommended methods of analysis for pesticide analysis (introduction section)	2	2
		CHP for the transport of foods in bulk	5	5		Total	179	157
		CHP for primary production, harvesting and packaging of fresh produce	4	4		AVG:	5.11	4.48
		CHP for milk and milk products	8	7				

	Technical		# years	# meetings	Non-Technical		# years	# meetings
	Pesticide:	Avg. MRLs	6	6				
		Method of sampling for the determination of pesticide residues in milk, milk products and eggs	4	4				
		Revised methods of sampling for the determination of pesticide residues	5	5				
		Amendment to the guidelines on good laboratory practice in pesticide residue analysis	6	6				
		Total	166	148				
		AVG:	4.74	4.23				

Note: a '+' after a number indicates the standard has not yet been completed. These standards are not included in the calculations reported in the text.
Legend:
MRL – Maximum Residue Limit
RS – Revised Standard
RG – Revised Guidelines
CP – Code of Practice
CHP – Code of Hygienic Practice