Codex Alimentarius Commission

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ABSTRACT

The Codex Alimentarius Commission was established to facilitate international trade in foods through the development of specifications which assure the identity and quality of the item. The history, accomplishments and current status of Codex Alimentarius deliberations on fats and oils is reviewed through the Eleventh Meeting held in London during June 1980.

History

The Codex Alimentarius Commission was created in 1963 by the Food and Agriculture Organization (FAO) and the World Health Organization (WHO). This commission is responsible for developing international food standards designed to facilitate world trade and protect the health of consumers. Any government which is a member of FAO or WHO may participate. Considering the development of industrial and government specifications in many countries, one might ask why the world needs yet another standards system.

In the last 30 years, significant improvements have been made in the technology of foods and their transportation systems, thus permitting them to be shipped longer distances. Although industrial or government specifications existed in many countries, minor within-country differences including legal limitations could exclude the importation of products having potentially excellent consumer appeal. Uniform food standards could obviously overcome such problems and facilitate international trade. A survey was made in 1962 by the FAO on international food standard efforts—they learned that there were at least 135 different organizations developing food standards. Duplication, waste, confusion and conflict would inevitably result from such a proliferation of efforts. As a consequence, FAO/WHO created the Codex Alimentarius Commission with the expectation that standards developed by that group could be accepted internationally. Also expected was that these standards could encourage labeling to fully inform the consumer.

Acceptance of the concept of international food standards has grown dramatically from a small, initial group of nations to 117 in 1980. During the early years of the Commission, financing was by governmental and industrial contributions. More recently, it has been carried as a regular budget item by FAO (two-thirds) and WHO (one-third).

Although the fats and oils committee has been operative for over 15 years, no single standard has been finalized. There are many reasons for this slow progress, including differences in methodologies and specification ranges, preexisting legal restrictions, as well as an unusual mix of government representatives, lawyers, academia and industrial consultants which, at times, makes technical communication difficult. Lowrie Beacham, a former FDA official who previously was the U.S. delegate to the fats and oils committee, described Codex as similar to "riding a glacier—if you're sitting right on top of the thing, at any given time you don't seem to be making any progress."

Modus Operandi of Codex Alimentarius Commission

The Codex Alimentarius Commission operates through a chairman, three vice-chairmen and an executive committee who have the responsibility to identify the need for a food standard. To handle the enormous task of assimilating and standardizing existing worldwide food standards, the commission appointed 19 general subject and commodity committees. The general subject committees are on general principles, food labeling, food hygiene, food additives, pesticide residues and analysis/sampling. The commodity committees are on cocoa products and chocolate, processed meat products, processed fruits and vegetables, cereal and cereal products, vegetable proteins, dietary foods, sugars, meats, meat hygiene, soups and broths, fats and oils, and edible ices.

In developing standards, these committees can call on the expertise of other groups such as the FAO/WHO Expert Committees on Food Additives or Pesticide Residues or the FAO Ad Hoc Committee on Nutrition. The general subject and commodity committees are hosted by individual countries which provide the chairman, local meeting facilities and related expenses. The U.K. is the host for the fats and oils committee. A.W. Hubbard, who served as chairman for a number of years, retired after the eleventh meeting in June 1980. For the U.S. fats and oils delegation, Robert Weik of the FDA is the official delegate and William Tallent of the USDA in Peoria, Illinois, is the alternate delegate. During the 11 fats and oils meetings held to date, advisors from all major U.S. edible oil producing and using companies have participated, providing technical support as needed.

Drafting and approval of standards is a 10-step process as shown in Table I. Note the deliberative nature of the

TABLE I

Step Process for Codex Standards

1.	Project assignment
2.	Preparation of provisional standard draft
3.	Distribution of provisional standard draft
4.	Amendment of provisional standard draft
5.	Adoption by Codex commission or referral to ad hoc committees
6.	Distribution to governments and international organizations for comment
7.	Revisions by expert committee based on feedback
8.	Resubmission to commission for adoption
9.	Distribution to member states for acceptance or rejection
10.	Issuance as worldwide Codex standard

procedure which gives every member ample opportunity to comment. During this procedure, the consensus food standard is submitted for formal comment by member nations which have a number of response options: (a) the standard can be "fully accepted" as written. Product meeting the minimum of the standard can be freely distributed under the specified name; (b) a government may choose "target acceptance," which indicates that it intends to accept the standard after a stated number of years experience with it. During that time, it will not interfere with the distribution of any product meeting the standards. "Target acceptance" is appropriate for countries which may have only limited experience with the characteristics of a particular food product. A typical example would be sunflower seed oil, which has been introduced relatively recently in the U.S. market; (c) a government may choose "acceptance with specified deviations." This is most often triggered by preexisting regulations which prevent "full acceptance." Any product meeting the standard and the deviation(s) may move freely within that country. As an example of "acceptance with specified deviation," the U.S. has accepted the margarine standard, but existing federal regulations preclude the use of marine oils which are widely accepted in Europe. The U.S. deviation, therefore, excludes the distribution of margarine prepared from marine oils; (d) finally, a government may reject the standard completely. This was done by the U.S. in 1973 for 10 oils on the grounds that the proposed standards were too general, did not conclusively identify an oil and added nothing beyond established trading rules. The pending addition of fatty acid composition, which is not covered in trading rules, may alter that decision in the future.

Scope of Codex Standards

In considering the establishment of international food standards, the Codex Alimentarius Commission wisely decided on a uniform format. The categories of the format are scope, description, physical/chemical identity characteristics, quality characteristics, food additives, contaminants, hygiene, labeling, and sampling and methods of analysis. Just the acceptance of the scope section took almost three sessions. Table II shows the status, within the 10-step procedure, of all fats and oils products presently being considered. Note that most of the standards are at steps 8 or 9.

TABLE II

Codex Fats and Oils Standards

Standard	Step
General standard	8
Arachis (peanut or groundnut)	9
Babassu	8
Coconut	8
Cottonseed	9
Ghee (animal and vegetable)	3
Grape seed	8
Lard (pork fat)	9
Maize (corn)	9
Margarine	9
Margarine (reduced fat-39/41%), Minarine	8
Margarine (reduced fat-excluding 39/41%)	5
Mustard seed	9
Olive	9
Palm	8
Palm kernel	8
Premier jus (oleo stock)	9
Rapeseed	9
Rapeseed (low erucic)	9
Safflower seed	9
Sesame seed	9
Soya bean	9
Sunflower seed	9
Tallow	9

Recent Developments

One of the limitations of classical analytic characteristics, whether they are chemical or physical, is their inability to conclusively identify pure oils. In the event of a dispute between buyer and seller on the identity of an oil, such standards would be of limited value. During 1976, the U.S. Department of Agriculture Laboratory at Peoria, Illinois, examined fatty acid composition data obtained via gas liquid chromatography (GLC) on almost 300 oil samples in order to see whether this technique might fill the identification gap. Statistical examination of the data permitted them to positively identify 97% of the oils. This work ultimately led to the development of a simple graphical procedure which was proposed for inclusion in the individual standards at the 1977 meeting.

Subsequently, it was questioned whether fatty acid composition data correlated with iodine value. A collaborative study carried out by Dr. Tallent (USDA, Peoria, IL) and Dr. Wolff (ITERG-Paris) showed that fatty acid was highly correlated with iodine value. As a consequence, the committee approved the addition of fatty acid composition as an identity characteristic during the June 1980 meeting.

Although its history is hard to trace, the fats and oils committee has stipulated that these standards apply only to packaged, consumer-ready items. Even if olive oil is included, the amount of such products moving in international trade is minute compared to that for crude or partially processed bulk oils. In the interest of promoting integrity, it seemed reasonable that these standards, with the possible exception of such quality factors as odor, flavor, color, PV and free fatty acid, ought to be applied to bulk oils. Several years ago, this proposition was presented to the fats and oils committee, tied to the inclusion of certain additives. Because of the more restrictive European legislation on food additives, this proposition was rejected. During the 1979 meeting, the U.S. delegation proposed that bulk and semifinished oils be included within the standards. The relative volume figures were challenged and the U.S. delegation provided documentation in time for the 1980 meeting. We owe gratitude to A.W. Hubbard, the outgoing chairman, who correctly reasoned that if these chemical characteristics apply to the finished product, they must also apply to the raw material from which it is derived.

Implementation of this decision presents a problem. The logical place to include this change is to broaden the scope which has been restricted to consumer-ready products. However, many nations were reluctant to tamper with the scope because it took almost three meetings to finalize. It has been suggested that this broadening of scope be included elsewhere in the standard. Unfortunately, the scope section would then dominate, excluding such a broadening feature. Member nations will be asked to advise their preferred approach to resolve this dilemma.

Unfinished Business

The individual standards will continue to progress through the 10-step process. With a few exceptions, it is expected that the cycle will be completed uneventfully. One exception is olive oil—its high price encourages the development of imitations from lower cost raw materials. These may be difficult to detect even using fatty acid composition. It is likely that distinguishing sterol ranges will be added. Enthusiasm is limited for the development of sterol ranges for every standard. However, the tedious methodology, the

need for numerous collaboratives and the lack of need in the case of other oils will probably discourage such an effort.

Although the margarine standard has been accepted, the situation for products with reduced fat levels is difficult, at best. A product with a fat content of 39-41%, protected by patent in some European countries, is sold under the name of Minarine. It is likely that there will be a standard for such products, though the name of Minarine would hardly be acceptable on a worldwide basis. Reduced fat spreads with fat content greater than 41%, but considerably less than 80%, have surfaced in the U.S. market. In addition, it is likely that future research may generate good-tasting products which contain considerably less than 39% fat. As a consequence, there was no general agreement on the range of fat content for such products or how they would be named. An obvious solution is to call such products "margarine—reduced fat (X%)" or even "Spread (X% fat)," with the percentage of fat dictated by the expertise of the manufacturer. Unfortunately, little enthusiasm was expressed for this terminology, particularly where Minarine is established in the market place.

Perhaps because of more restrictive legislation on food additives, there has been interest by European countries in adding to the standard the typical ranges of unavoidable residues from normal fats and oils processing. Such materials as bleaching clay, citric acid, sodium hydroxide, phosphoric acid and nickel, e.g., might then be considered food additives in each standard, triggering much unnecessary analytical work. Adherence to good manufacturing practices and a desire to maximize shelf life and quality will invariably encourage a manufacturer to minimize these residues to levels that are consistent with current process capabilities. It has been suggested that these unavoidable residues not be included in this standard, but be covered separately or combined with a code of practice describing the various unit operations and the unavoidable residues therefrom. There was general agreement that processing aids and the code of practice not be mandatory because this would discourage further technology. Also agreed was that residual processing aids present at a sufficiently high level to have a technological effect must be considered a food additive. Although there has been no final decision on either document, exchairman Hubbard has suggested that development of a nonmandatory code might demonstrate that the committee was taking a responsible attitude toward the processing of fats and oils.

Future

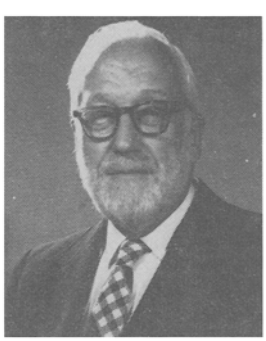
Over 20 international fat and oil standards are expected to be firmly established within the next five years. At least half of them are sufficiently advanced to be useful in their present form. These standards will increase in number very slowly as agriculture generates new varieties which ultimately achieve commercial scale. As its volume grows, high oleic safflower oil may become a candidate. It is expected that consumer-ready (packaged) goods, as well as semi-finished and crude fats and oils will be covered. These standards will help promote international trade as well as prove invaluable in the inevitable disputes between buyer and seller.

Special Recognition

Progress in internationally oriented deliberations is understandably slow. However, the hundreds of participants who have labored throughout these 11 sessions on fats and oils owe Mr. Hubbard, the outgoing chairman, much gratitude for his ability to arbitrate and make progress under almost impossible situations. In appreciation of his services as he retired at the conclusion of the Eleventh Session, the U.S. delegation offered a resolution of commendation which was unanimously accepted by the committee.

ACKNOWLEDGMENTS

The author gratefully acknowledges the help of Dr. Rex Sims (General Foods), Dr. Robert Weik (FDA) and Dr. William Tallent (USDA) in providing details on the Codex Alimentarius Commission and the Fats and Oils Commodity Committee which were inaccessible in published form.



History of the Development of Soy Oil for Edible Uses

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ABSTRACT

In the early 1940s, soybean oil was considered neither a good industrial paint oil nor a good edible oil. The history of soybean oil is a story of progress from a minor, little-known, problem oil to a major source of edible oil proudly labeled on premium products in the 1980s. It is also a story of cooperative government research and industrial implementation of research findings. After 3-1/2 decades, soybean oil, "the number one problem of the soybean industry," has become the source of choice for edible oil products in the U.S., moreover, increasing outlets appear to be assured in the world markets of the future.

Soybeans were discovered by man before the building of Tenochtitlan by the Aztecs, before the advanced cultural development of the Mayas and the large-scale architecture of Teatihuacan by the Toltecs. Soybeans predate the pyramids, were grown before the building of the Tower of Babel, and came centuries before Solomon fashioned his