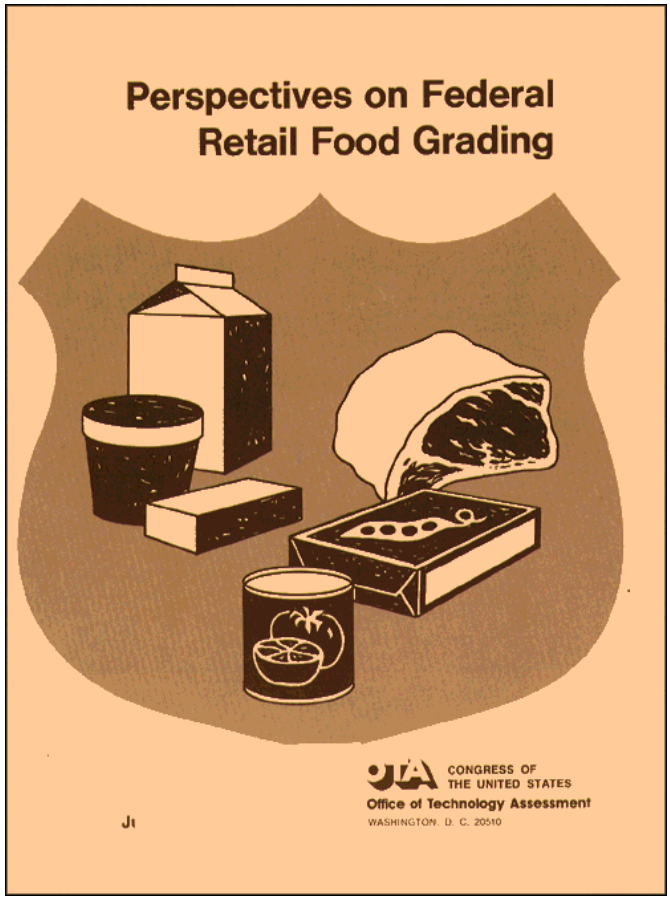
Perspectives on Federal Retail Food Grading

June 1977

NTIS order #PB-273163



Congress of the United States
OFFICE OF TECHNOLOGY ASSESSMENT
WASHINGTON, D.C. 20510

EMILIO Q. DADDARIO
DIRECTOR
DANIEL V. DESIMONE
DEPUTY DIRECTOR

JUN 1 1977

The Honorable George McGovern
Chairman
Select Committee on Nutrition and Human Needs
United States Senate
Washington, DC 20510

Dear Mr. Chairman:

On behalf of the Board of the Office of Technology Assessment, we are forwarding to you the report Perspectives on Federal Retail Food Grading.

The report is an analysis of the U. S. food grading program. It evaluates changes and modifications in the present grading system which would facilitate consumer choices, examines the major issues associated with these changes, and outlines alternative approaches to implementing these changes.

This assessment was performed in accordance with your request to the Office of Technology Assessment dated September 15, 1975. The request was accepted and the study authorized by the Technology Assessment Board on December 9, 1975.

Sincerely,

EDWARD M. KENNEDY
Chairman

Sincerely,

MARJORIE S. HOLT
Vice Chairperson

Congress of the United States
OFFICE OF TECHNOLOGY ASSESSMENT
WASHINGTON, D.C. 20510

EMILIO Q. DADDARIO
DIRECTOR
DANIEL V. DESIMONE
DEPUTY DIRECTOR

JUN 1 1977

The Honorable Edward M. Kennedy
Chairman
Technology Assessment Board
Office of Technology Assessment
Congress of the United States
Washington, DC 20510

Dear Mr. Chairman:

The enclosed report, Perspectives on Federal Retail Food Grading, presents OTA's analysis of changes and modifications in the present food grading system which would facilitate consumer choice in buying food products.

The assessment was requested by the Chairman of the Senate Select Committee on Nutrition and Human Needs and endorsed by the Chairman of the Senate Agriculture, Nutrition, and Forestry Committee. The report has been reviewed extensively within OTA, by the Food Advisory Committee, and by personnel from the Federal agencies, industry, and consumer organizations which will be affected by this study.

Specifically the report, (1) identifies and analyzes changes in the grading system needed to facilitate consumer choice, (2) identifies and analyzes the major issues associated with these changes, and (3) presents to Congress alternative approaches to accomplishing these changes.

A consumer-oriented food grading system has become an important issue in Congress and the Administration. In addition to the requesting committees, the House Agriculture Committee and the House Interstate and Foreign Commerce Committee have expressed interest in receiving the report. The USDA Assistant Secretary for Nutrition and Consumer Services has indicated a desire to revamp the food grading system to aid consumers in making sounder purchase decisions. This report will be useful to Congress both to draft legislation in this area and to consider the Administration's suggested changes.

Sincerely,

EMILIO Q. DADDARIO
Director

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Preface

This assessment is an analysis of the U.S. food-grading program. It evaluates those changes and modifications in the present grading system which would facilitate consumer choices and examines their possible consequences.

The assessment was requested by the Senate Select Committee on Nutrition and Human Needs and endorsed by the Senate Committee on Agriculture, Nutrition, and Forestry. The report identifies and evaluates the major issues and options available for congressional consideration in food grading.

The report was prepared by the Office of Technology Assessment food program staff, under the supervision of Mr. J. B. Cordaro, food program manager, and Dr. Michael J. Phillips, project leader, with contributions from: (1) the Food Advisory Committee; (2) the food-grading workshop participants; (3) Dr. Thomas Sporleder, food grading consultant; and (4) Mr. Robert L. Smith, Jr., OTA research assistant. Ms. Jane Mason and Ms. Ann Woodbridge provided clerical and logistic support in preparation of this report. The Food Advisory Committee provided advice and comment throughout the assessment, reviewed the final draft, and has recommended publication of this report.

The Technology Assessment Board, governing body of OTA, approves the release of this report, which identifies a range of viewpoints on a significant issue facing the U.S. Congress. The views expressed in this report are not necessarily those of the Board, the OTA Advisory Council, or of individual members thereof.

Acknowledgements

The food program staff received advice and assistance from Federal agency officials, individuals from the private food sector, consumer groups and widely known experts. Some participated in workshops, some were the subject of interviews, others assisted in review, and others helped in numerous ways essential to a balanced understanding of the complex issues involved in this study of food grading.

Their assistance is acknowledged. Likewise, the time made available and the effort put forward on behalf of OTA and Congress is appreciated.

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Part I

Summary of Issues, Findings, and Congressional Options

INTRODUCTION

Food grading is basically a sorting process, a method of separating a food product into two or more groups through the use of chosen base criteria. Once separation is accomplished, the grade assigned should directly impart the criteria used in its determination. Grades are not used for sorting across products—i.e., apples from pears—but rather within products—i.e., apples from other apples.

Present Federal food grades impart little information to the consumer. Federal grade criteria for sorting products are based on sensory characteristics-such as taste, flavor, color, or exterior appearance-and evolved as a mechanism to facilitate wholesale transactions in industry. To benefit consumers, simple, uniform terminology, increased nutritional information, and standardized systems for grading might be established. The question now arises as to whom grades should serve: consumers, industry, or both?

Industry and consumers are affected by:

- which food products are graded;
- what criteria are chosen for the grade;
- how the grade is designated on the product; and
- where grading occurs in the food distribution channel.

This study assesses the social, institutional, and economic consequences of modifying or changing the present grading system to a retail- or consumer-oriented grading system. Public policy issues of significant concern to Congress and the Nation surrounding Federal retail food grading are defined.

These issues are:

1) the criteria (or sorting rules) used for grades;
2) whether or not retail grades should be mandatory; and
3) the nomenclature used for grades.

The Office of Technology Assessment found that each major food category—processed foods, fresh fruits and vegetables, and fresh red meat—poses a different problem. Therefore, potential costs and benefits (with respect to a retail-oriented food-grading system useful to consumers for

S Department of Agriculture Photo

making better food-purchase decisions) differ for each category. The issues, as they relate to each of these broad product categories, are discussed in the text (see centerfold), and possible congressional options for each grading issue are identified. Each option has a cost; none are free. Also, each option has potential benefit to consumers. Careful consideration should be given to the net benefit (cost in relation to benefit) prior to adoption of any particular option. In this report, a full range of congressional options are stated regardless of the potential relative or absolute net benefit to various participants in the food distribution system.

NOTE: A Glossary of major terms used throughout this report appears on page 87.

ISSUE I: GRADE CRITERIA-COMBINING SENSORY CHARACTERISTICS AND NUTRITIONAL CRITERIA

Current food grades are based on criteria reflecting sensory characteristics such as flavor, texture, color, or other palatability or cosmetic factors. A major issue in food grading is whether to change this basis to reflect sensory and nutritional factors simultaneously. The issue is complex. One general problem associated with making nutritional content a basis for grades is that nutrition deals with diet. As one food grading workshop (see methodology) participant states:

> **We can** conceive of a nutritious diet, but the concept **of a nutritious food product has never been developed. There are many components of a nutritious diet, and the concept of getting them all in a product is very repulsive to nutritionists and, I think, the populous in general. So there is a very great difficulty in nutrition labeling. Any product is a component of a diet, and it may be a useful component although it is very lopsided in its individual characteristics. What makes a nutritious product is what other products it is combined with in a day or a period of several days. We have a conception of nutritional diet; we do not have a conception of nutritional product.**[1]

FINDINGS

Current Government programs for processed foods include regulation of food products for wholesomeness and safety, standards of identity, fair labeling and packaging, and optional nutritional labeling and grading systems. In addition, most major food manufacturers have elaborate quality control programs that assure compliance with Government regulations and their own specifications. Retail grade criteria should not be changed to reflect some combination of sensory and nutritional factors, as it is not meaningful to grade processed foods on both. Problems include an inverse relationship between sensory and nutritional characteristics and the time lag necessary to establish nutritional content and grade and label the product. For processed foods, analysis by OTA indicates that the most appropriate vehicle for conveying nutritional information to consumers is the nutritional labeling program already in operation.

With regard to fresh fruits and vegetables and red meat, nutritional factors apparently cannot be combined with sensory factors and serve as basis for retail grades. Evidence in this report indicates that the nutritional content of fresh products is quite similar within any particular commodity. For example, apples, regardless of variety, tend to have similar nutritional characteristics, as does round **steak** regardless of cattle breed. This means that nutrition information cannot serve as a meaningful basis for sorting (therefore grading) various products within a commodity category.

There are a number of options for increasing the flow of nutritional information to consumers, the intent being that such information would facilitate food purchase decisions. The range is wide. Some options **deal** directly with grade criteria changes, while others deal with increasing consumer nutrition education.

CONGRESSIONAL OPTIONS

The following are some of the options available to Congress for the grade criteria issue:

. Congress could direct the Department of Agriculture (USDA) to facilitate the adoption of a voluntary / mandatory nutritional labeling program for fresh retail meat cuts.

• Congress could support or provide incentives for education programs by *Government* agencies or the private sector to inform consumers about:

[1] **Transcripts** from food grading workshop conducted by OTA **on July 28-29, 1976 (hereafter referred to as Workshop vol.—). Workshop, vol. I, pp. 136–137.**

1. The nutrition of fresh fruits and vegetable products and also the differences in nutritive content from one commodity to another; and
2. The nutrition of processed food products and interpretation and use of the current nutritional labeling program and/or grades for processed food products.

- Congress could direct the Food and Drug Administration (FDA) to disseminate information to consumers concerning those programs currently in operation that assure the safety, wholesomeness, labeling, and identity of most manufactured or processed food products.
- Congress could direct USDA to administer a standard labeling and variety identification program for fresh fruits and vegetables that are sold in retail packages.
- Congress could direct USDA to institute a voluntary/mandatory program of retail meat grades where grade criteria are based on yield per pound or per serving. Such a program should not be instituted, however, prior to a program that would assure uniform identification of retail meat cuts.
- Since net benefit of any retail grade scheme for meat is highly dependent upon the type of meat distribution system in existence, committees of Congress with jurisdictional authority could examine the potential for improving the distribution costs of meat from various systems (such as conventional compared to centralized frozen) in oversight hearings. Such hearings could produce further evidence on the potential impacts and benefits of retail grade alternatives for meat.

ISSUE II: VOLUNTARY OR MANDATORY SYSTEM

There are three basic systems that might be used for grading under the voluntary or mandatory issue:

Private Voluntary System

With a private system, the development of standards for grading and the adoption of those standards are done by industry and used voluntarily.

Voluntary/Mandatory System

Under a voluntary/mandatory system, Federal Government grades are established. Any business firm that elects to enroll in the Federal program would be required to adopt the established grades.

Mandatory System

The mandatory system would establish the Federal grades, and use of these grades would be required by law.

FINDINGS

A **private voluntary system would be of little** use as an information aid in purchase decisions as it would not be expected to have wide industry adoption. From a consumer information viewpoint, the only beneficial grading system would be either an improved voluntary/mandatory system or a mandatory one. Federal grade systems for all food products are currently voluntary/mandatory, and the relative advantages and disadvantages of this system-as opposed to a completely mandatory grading system-are as follows:

Mandatory grading of food would be more costly than the current voluntary/mandatory system. This means that for a mandatory system to produce a positive net consumer benefit, the benefits from a mandatory system must exceed those of a voluntary/mandatory system.

For processed foods, OTA's analysis indicated that a mandatory system probably would not produce a positive net consumer benefit. Brand names partially substitute for retail grades. They have allowed society to exercise its perception of quality by selection of one brand name over another. A mandatory grading system would largely duplicate the information brand names currently provide consumers.

If retail grades were mandatory for processed foods, an inevitable consequence would be to suppress differentiation or variability and evolution of product characteristics. Thus, **if society looks at** the choice of whether or not **to** institute retail grades for processed foods, an important implication of that choice is what products should be stabilized in terms of characteristics, and what products should be permitted to continue to evolve.

There is no concentration point of firms in the handling of fresh fruits and vegetables relative to other product-marketing channels. This means no economical point exists in the fresh fruits and vegetables marketing channel for interception of large quantities of a product for the purpose of mandatory grading. A strictly mandatory system of grades, therefore, could be extremely expensive because the industry is structurally dispersed. A mandatory system probably would not produce a positive net benefit to consumers, since mandatory grading costs would be substantial and the additional information provided would likely be of marginal benefit to most consumer purchase decisions.

The current fresh red meat marketing channel, unlike fresh fruits and vegetables, does have points of relative concentration of firms. Given this structure, mandatory retail grading is viewed as potentially more feasible. However, net consumer benefit from mandatory grading as opposed to the *current* voluntary/mandatory system depends on the type of retail grading system implemented and on the type of distribution system for red meat assumed prior to net-benefit calculations.

Three possible systems for red meat grading are analyzed in this report:

1) yield per pound or per serving;
2) uniform mandatory retail cut identity labeling; and
3) a combination of current grades with the other two systems.

There is however, a direct relationship between the type of meat distribution system and the cost of any mandatory retail grading system. This means that net consumer benefit varies by both the type of grading base and the type of distribution system. Further detailed analysis, beyond the scope of this report, is necessary before net consumer benefit from any combination of grading and distribution systems can be determined.

CONGRESSIONAL OPTIONS

The following are some of the options available to Congress for the voluntary or mandatory grading issue:

- Congress could make grading mandatory:
  - — for processed foods, designation of current grades could be made mandatory on retail packages for selected products.
  - — for fresh fruits and vegetables, the current wholesale grade criteria could be used and designation of the grade could be made mandatory at retail.
  - — for fresh red meat, the current carcass-grade criteria could be used, and the grade could be designated on all individual retail meat packages.
- Congress could make grade designations at retail mandatory for any food product which is currently graded on a voluntary/mandatory basis. That is, if the product is graded, then the retail package must display that grade.
- Congress could provide incentives for widespread adoption by industry of the current voluntary/mandatory system for each major product category. Incentives could include a tax break for business firms that adopt the program and/or a direct subsidy to defray the initial cost of the program.

ISSUE III: GRADE DESIGNATION OR NOMENCLATURE

Confusing grade designation or nomenclature is a major problem for consumers in both fresh fruits and vegetables and processed foods. Uniform, easily understood terminology across grades is a basic need to aid consumers in making food purchase decisions.

There are two basic concerns regarding uniform nomenclature, One is the trade-off between meaningfulness and simplicity in terminology. That is, extremely simple designation for grades (such as A, B, C) impart no meaning in terms of grade criteria. More descriptive grades (such as young, tender, or extra fancy) are more complicated to use but may be more meaningful.

A second concern is that nearly all conceivable grade designations imply rank. One objection to the implication of rank is that a second- or third-grade product may in fact be superior to the top grade, depending on its use or relative price. If simple grade designations were uniformly adopted, such implications of rank might mislead consumers or impart incorrect information to them.

FINDINGS

There are unsettled questions regarding the optimum terminology for grades of fresh fruits and vegetables and processed foods. However, no reasons have been found for not instituting uniform designations for these products, regardless of the terminology chosen.

The terminology currently used for fresh red meat is uniform for all such products. However, one of the more significant consumer information needs is standard identification of individual retail meat cuts and standardized retail package labels. Voluntary identification and labeling standards devised by the National Livestock and Meat Board, exist for fresh beef. This voluntary program has been adopted as law in some States.

CONGRESSIONAL OPTIONS

The following are some of the options available to Congress for the grade designation issue:

- Congress could standardize nomenclature for the first, second, third, and fourth grades for both processed foods and fresh fruits and vegetables, so they would be consistent from one product to another.
- Congress could direct USDA to immediately adopt the new simplified grade nomenclature for fresh fruits and vegetables it announced in July 1976. This would mean that adoption of this program would not remain at the discretion of growers or processors of these commodities.
- Congress could direct USDA to administer a standard labeling and variety identification program for fresh fruits and vegetables sold in retail packages.
- Congress could make the current voluntary program on meat identification standards mandatory for all retail meat cuts. This would facilitate uniform identification of retail meat cuts.

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Part II

INTRODUCTION

Part II

Introduction

Grading is a means of sorting a particular food roduct-e.g., apples—into two or more groups based upon criteria selected for sorting. Grades cannot be used for sorting across products—i.e., apples versus pears--only within a product—i.e., one apple from another apple. The purpose of grades is to facilitate exchange of products between trading partners by providing information about the product. Assignment of a grade to any food product requires some base criteria, as the grade itself imparts the criteria used in its determination.

Both industry and consumers have a stake in whether food products are graded, what criteria are chosen for the grade if a product is graded, how the information is conveyed, and where the grading is done in the vast food distribution system from farmer to consumer (see figure 1). Such issues have recently surfaced as congressional concerns. This report details the issues surrounding retail food grading and identifies congressional options with respect to the issues.

To assist in making purchase decisions, consumers need a variety of information on wholesomeness, safety, nutrition, ingredients, price, weight, and sensory characteristics. Grading can be viewed as a mechanism for providing information on any one or a combination of these items.

Perhaps the three most essential information requirements for consumers are:

- the wholesomeness and safety of a product;
- the nutritional value of a product; and
- the product's sensory characteristics.

To view the possible role Federal food grades could play in providing information in these areas, it is necessary to review current Federal programs which interact with these consumer information requirements (table 1).

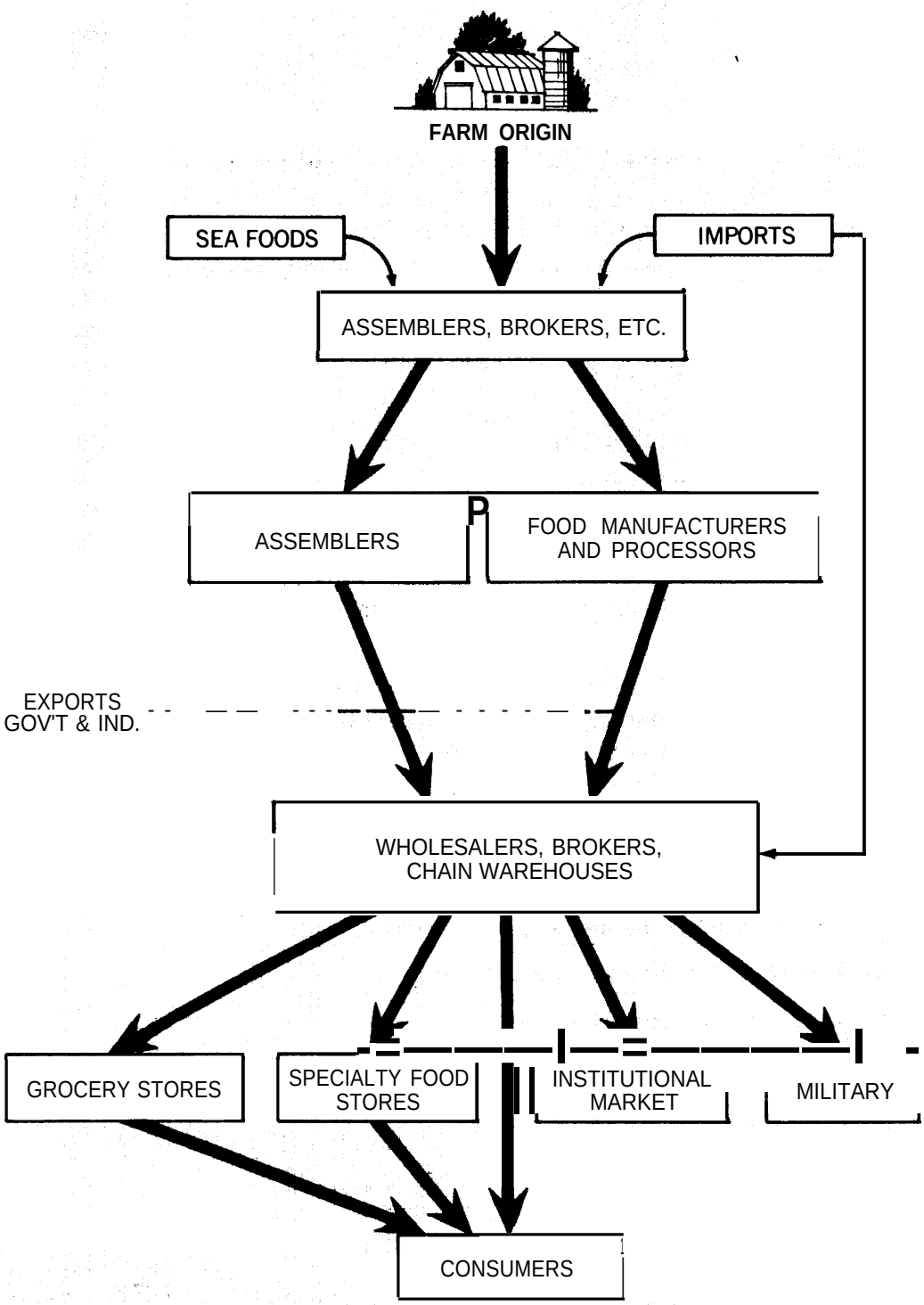
Wholesomeness and Safety

For wholesomeness and safety of a product, there are numerous programs providing that assurance to consumers. * For example, Federal and State mandatory inspection programs apply to fresh meat and poultry. In fresh fruits and vegetables the Environmental Protection Agency (EPA) established tolerance levels for insecticides and the Food and Drug Administration (FDA) monitors these levels and levels of any other additives. In processed food products, good manufacturing practice regulations are written and en-

*Wholesomeness refers to defects in food products which are not a health hazard to consumers. Safety means that the product will possess no defects or impurities which present a health hazard.

Figure 1.

Flow of Food From Farm to Consumer



SOURCE: Office of Technology Assessment

Table 1– Availability **of Consumer Information for Food**

Consumer Information Requirements	Information or Service Currently Provided by Major Food Categories		
	Fresh Meat & Poultry	Fresh Fruits & Vegetables	Processed Food Products
Wholesomeness/ Safety	USDA and/or State Inspection	EPA – Establishes tolerance levels of insecticides FDA– Monitors insecticide level	FDA* –Good manufacturing practices. Standards of identity.
Nutrition			Nutritional labeling Meat – USDA All others– FDA
Sensory Characteristics	USDA Grades**	USDA Grades	USDA Grades

*Work in coordination with U.S. Department of Agriculture and Department of Commerce
**For fish – U. S. Commerce Grades.

forced by FDA in cooperation with the U.S. Departments of Agriculture (USDA) and Commerce (DOC). Thus, wholesomeness and safety are adequately regulated in the major food categories. Each of these programs is discussed in detail in following sections of this report.

Nutrition Information

Nutrition information is conveyed to consumers through nutritional labeling of processed foods, such as canned or frozen products. This information includes the amount of protein, fat, carbohydrates, and calories per serving. In addition, the product's percentage of U.S. Recommended Daily Allowance (RDA) for important minerals and vitamins is also included on the package label (see figure 2) . Nutritional labeling is voluntary / mandatory; that is, a manufacturer does not have to put nutritional information on the product, but if nutritional labeling is used, it must conform to Federal standards for such labeling. However, when a manufacturer makes a nutritional claim for its product or adds nutrients, nutritional labeling becomes mandatory in most cases.

The use of nutritional labeling currently applies only to processed foods. FDA administers the program for all processed foods except processed meat and poultry, which come under the jurisdiction of USDA. For fresh meat and poultry, and fresh fruits and vegetables, there are currently no Federal nutritional labeling standards. Even though the nutritional labeling program exists, there is still concern among Government officials about nutrition education. As Dr. Robert Angelotti, Associate Director for Compliance, Bureau of Foods, FDA, stated:

> There are segments of our population that eat improperly, because there is socioeconomic pressure on them no doubt, but nevertheless they eat improperly. There are other segments of our population that eat improperly, but they do so willfully and by choice and they can afford it. Nevertheless, we (Government) should be reaching both kinds of people and trying to teach them what is good nutritional

Dr. Angelotti indicated that one of the objectives of the current nutritional labeling program was education:

> One of the objectives of the nutritional labeling system was an attempt to teach good nutritional habits to people. **The nutritional labeling in operation today is, in part, a teaching tool. Not**

[1] Workshop, vol. I, p. 49.

Figure 2.

Nutritional Labeling

The **U.S. RDAs are** the **amounts of protein,** vitamins and minerals people need each day to stay healthy.

These allowances are set by the Food and Drug Administration. They are based on body needs for most healthy adults.

Set at generous levels, they provide a considerable margin of safety for most people above minimum body needs for most nutrients.

Nutrition labels list U.S. RDAs *by percentage* per serving of food.

For example, if the nutrition label says "Vitamin A-10," that means a serving of the food contains 10 percent of the U.S. RDA for Vitamin A.

U.S. RDAs replace the outdated "Minimum Daily Requirements" (MDR).

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health **Service, Food and Drug Administration**
5600 Fishers Lane, Rockville, Maryland 20852
DHEW Publication No. **(FDA) 76-2049**

U.S. RECOMMENDED DAILY ALLOWANCES (U.S. RDA)
For adults and children over 4 years old

NUTRIENTS	AMOUNTS
Protein	45 or 65 **grams****
Vitamin A	**5,000 International Units**
Vitamin C (ascorbic acid)	**60 milligrams**
Thiamine (vitamin B_1)	**1 5 milligrams**
Riboflavin (vitamin B_2)	**1 7 milligrams**
	20 milligrams
Calcium	**1 0 gram**
Iron	**18 milligrams**
Vitamin D	**400 International Units**
Vitamin E	**30** International Units
Vitamin B_6	20 milligrams
Folic acid (folacln)	O 4 milligram
Vitamin B_{12}	**6 micrograms**
Phosphorus	**1 0 gram**
Iodine	**150 micrograms**
Magnesium	**400 milligrams**
Zinc	**15 milligrams**
Copper	**2 milligrams**
	O 3 milligram
Pantothenic acid	**10 milligrams**

'*45 grams if protein quality is equal to or greater than milk protein
65 grams **If protein quality is less than milk protein**

SOURCE: DHEW Publication No. (FDA) 76-2049.

only does it give you nutritional information, but it gives it to you in a way that you eventually come to understand that there is a 100 percent value for some Recommended Daily Allowance (RDA) figure. It is clear you should be striving to meet that RDA requirement through your total diet throughout the day.[2]

Sensory Characteristics

Federal food grades presently provide information about a food product's sensory or quality characteristics, such as color, blemishes, taste, and/or flavor. This information is presently available for all the major food categories.

Federal grade standards for agricultural products evolved in the 1920's as a mechanism to facilitate wholesale transactions for the food industry. Despite the original intent, the question arises as to whom grades should serve: consumers, industry, or both. Present Federal food grades impart little information to the consumer for most commodities. If Federal grades are to have a potential consumer-information role, it becomes necessary to determine the kind of information useful to consumers and the mechanism necessary to convey this information.

Given this situation, this report explores the potential informational role of Federal food grades for consumers. For example, should Federal food grades continue to provide information on sensory differences of food products as they do now but perhaps have uniform nomenclature and be used more extensively at retail? Should Federal food grades provide information on a product's nutritional value? What other kinds of information could Federal food grades convey to consumers?

[2]Ibid., **pp. 49-50.**

PURPOSE

This assessment analyzes alternative purposes food grades could serve in providing the consumer with more information in the marketplace. More specifically, this report:

1. Develops the issues surrounding the present grading program for food;
2. **Reviews current programs addressing** these issues; and
3. Analyzes the potential role and impact of Federal food grades at retail.

METHODOLOGY

To accomplish these purposes, a staff background document was prepared identifying the issues in the present grading program. Issues were determined via interviews with representative groups affected by grades—Government, industry, consumers. Second, an advisory group workshop was convened to review the background document and to further elaborate on the issues. The advisory groups consisted of a broad and balanced representation of affected groups including food processors, consumers, researchers, and Government regulatory agencies (appendix **C).**

The advisory group convened for a 2-day conference in July 1976. The group addressed themselves to the staff background document and to a list of issues and potential implications distributed prior to the workshop. The first day of the workshop the group met as a whole to discuss and elaborate on the issues in general. The second day the group divided into three working groups representing the processed foods, fresh fruits and vegetables, and fresh red meat areas. In each group the participants elaborated on the issues and implications of retail food grading for that particular food category. This report is thus a combination of the staff background document and the results of the workshop.

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Part III

HISTORICAL DEVELOPMENT

Part III

Historical Development

The first official Federal food grade standards were established for potatoes in 1917. The Food Production Act of August 10, 1917, encouraged the development and use of standards as part of producing the food needed for the military and U.S. allies. Although military needs were the major impetus for establishing a grading system, it was intended that the civilian food market would benefit too. The Government hoped the grading system would encourage farmers to grow higher quality produce, reasoning that since high quality food would sell at higher prices, the farmer would receive more for what he produced and therefore would be persuaded to grow better quality food.

The primary reason for grades was to make wholesale transactions simple and more efficient, thereby cutting food costs to consumers in the long run. Because a common language would be used nationally at wholesale, transactions would be simplified and time would be saved by wholesalers. Some of the cost reduction would be transferred to the consumer, and thus the consumer would benefit from wholesale grades by paying lower prices for food.

As the years went by, the USDA established wholesale grades for specific food products at the request of the food industry. In 1946, the Agricultural Marketing Act gave USDA the authority for the standardization of food quality grades and voluntary grading and inspection services. Section 203 (7, U.S.C. 1621-1627) of this Act states that:

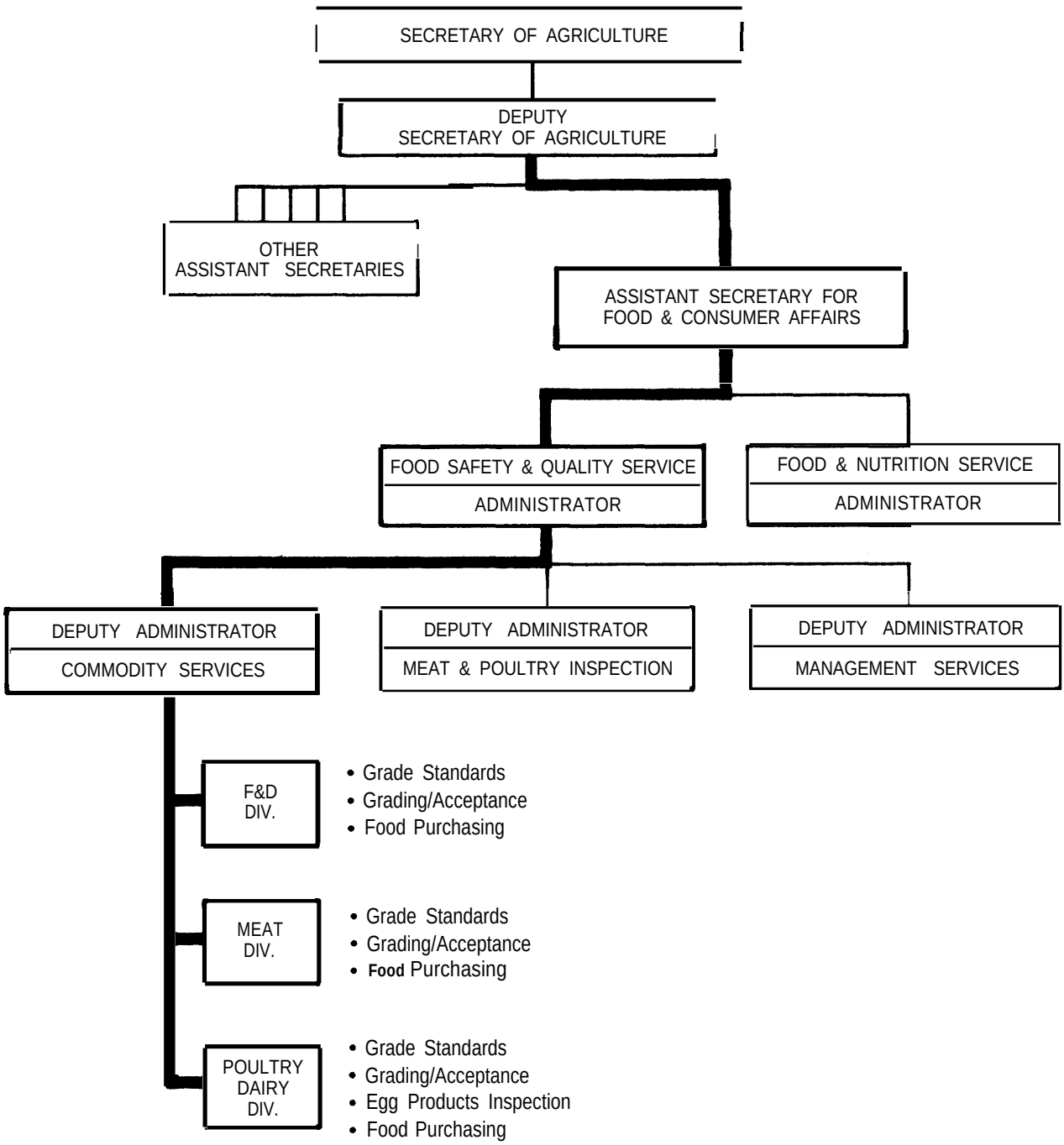
> **The Secretary of Agriculture is directed and authorized (h) to inspect, certify, and identify the class, quality, quantity, and condition of agricultural products when shipped or received in interstate commerce. . , to the end that agricultural products maybe marketed to the best advantage, that trading may be facilitated, and that consumers may be able to obtain the quality product which they desire . . . .**

As a result of this Act and growing congressional pressure, a memorandum was released by the Secretary of Agriculture on November 2, 1953, establishing the Agricultural Marketing Service (AMS) and placing the grading system required by the 1946 Act under its jurisdiction, where it has remained until recently. * The AMS administrator reported to the Assistant Secretary for Marketing and Consumer Services. AMS was organized into four major food divisions: dairy, fruits and vegetables, poultry, and livestock. Other divisions within AMS handled cotton and cottonseed, grain, and tobacco grading, areas which do not enter into this discussion as they are commodity rather than food-grading programs. In 1977, the food grading functions were shifted to USDA's Food Safety and Quality Service. Figure 3 depicts a proposed organizational structure of this new agency.

[1]Wayne D. Rasmussen, Historian, Economic Research Service, Interview.

Figure 3.

Proposed Organization Structure of USDA's Food Safety and Quality Service



SOURCE: USDA, AMS Office of Information

Part IV

DIVERSITY IN CURRENT FOOD GRADING

Part IV

Diversity in Current Food Grading

Federal grades provide information on the sensory characteristics of the major food categories. The current grading program administered by AMS of USDA is voluntary/mandatory. There are problems with the current Federal food-grading program, among them confusing nomenclature for grades and a general lack of useful information conveyed by them to consumers.

The present confusion is a result of over 50 years of USDA allowing industry considerable latitude in deciding the grade nomenclature to be used so that there would be some degree of standardization. The reason for this latitude is that grading is optional: Industry has the option of not using the USDA grading system if it does not care for the USDA standards or grade designations for their products. Because different industries have differing concerns and requirements (or at least perceive them differently), the result is the present diversity of grades. USDA views this as an inherent problem of the current voluntary/mandatory system,[1] and therefore appears to give industry most of what it wants to have at least some degree of participation.

USDA indicates that, because some products are naturally more variable than others, it is necessary to have more grades for some products than for others. Quality, in general, refers to the usefulness, desirability, and value of a product—its marketability—but the precise definition of quality depends on the commodity.[2] Certain general characteristics, both objective and subjective, are used to determine a **product's** quality. Some of these characteristics are color, uniformity, flavor, blemishes (if applicable), size, texture, and maturity. Most are sensory judgments, but an increasing number of objective (measured by instrument) standards are used when they are economically feasible.

The four AMS divisions manage Federal marketing and grading services for their particular food product. Each division has its own grading standards and nomenclature, different not only between the divisions but also within them (table 2).

Within the Dairy Division, for example, butter is graded and has the grade printed on the retail package. Flavor, aroma, texture, and the quality of the cream from which it is made are some of the criteria in grading butter (see figure 4).

According to the USDA "How To Buy" series for fresh fruits and vegetables, the top grades for fresh fruits and vegetables are usually either U.S. Fancy or U.S. No. 1. However, another pamphlet by the AMS Fruit and Vegetable Division states that U.S. Fancy, U.S. No. 1, and U.S. No. 2 are the order of grades for most fresh fruits and vegetables that are graded. This pamphlet also indicates that other grade names—U.S. Extra No. 1, U.S. Extra Fancy, and U.S. Combination-are used

[1] USDA Pamphlet. "USDA Grade Standards for Food, How They Are Developed and Used," p. 9, August 1974.
[2] Ibid., p. 5.

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Table **2–Nomenclature for Selected USDA Food Grades**

AMS Division	Food Product	Nomenclature for Top Grade	2nd Grade	3rd Grade	4th Grade
DAIRY	Butter	U.S. Grade AA	U.S. Grade A	U.S. Grade B	
	Cheddar Cheese	U.S. Grade AA	U.S. Grade A		
	Instant Nonfat Dry Milk	"U. S. Extra Grade"			
FRUITS AND VEGETABLES					
Fresh:	Cantaloupes	U.S. Fancy	U.S. No. 1	U.S. Commercial	U.S. No. 2
	Cucumbers	U.S. Fancy	U.S. Extra No. 1	U.S. No. 1	
	Peas	U.S. Fancy	U.S. No. 1		
	Potatoes	U.S. Extra No. 1	u. S. No. 1	U.S. Commercial	U.S. No. 2
	Watermelons	U.S. No. 1	U.S. Commercial	U.S. No. 2	
Processed:	Fruits	Grade A or Fancy	Grade B or Choice	Grade C or Standard	Substandard or cull
	Vegetables	Grade A or Fancy	Grade B or Extra Standard	Grade C or Standard	Substandard or cull
POULTRY	Poultry	U.S. Grade A	U.S. Grade B		
	Eggs	U.S. Grade AA or Extra Fancy	U.S. Grade A	U.S. Grade B	
LIVESTOCK	Beef	USDA Prime	USDA Choice	USDA Good	USDA Standard

SOURCE: U.S. Government, *Code of Federal Regu/at/ens,* **7CFR 46-57, Washington, D. C., 1976.**

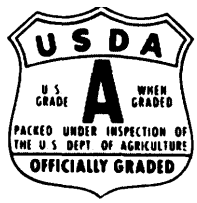
Figure 4.- **Grading of Butter**

Butter

One way to be assured of **high quality butter is to look** for the **USDA** grade shield on the package. The grade shield (AA, A, or B) means that the butter has been tested and graded by experienced government graders. Butter graders judge quality by U.S. grade standards that set forth the requirements for each grade. They also test the keeping quality of butter.

U.S. Grade AA Butter:

- has delicate sweet flavor, with a fine highly pleasing aroma;
- is made from high-quality fresh sweet cream;
- has a smooth, creamy texture with good spreadability;
- has salt completely dissolved and blended in just the right amount.

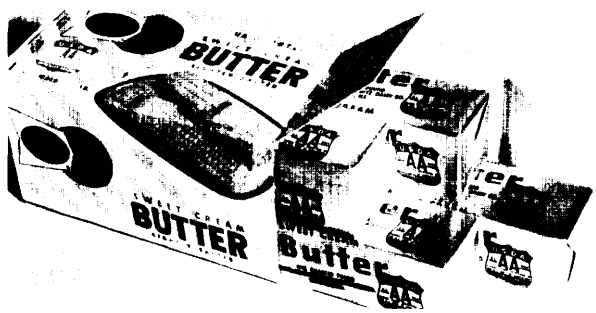


U.S. Grade A Butter

- has a pleasing flavor;
- is made from fresh cream;
- is fairly smooth in texture;
- rates close to the top grade.

U.S. Grade B Butter:

- may have a slightly acid flavor;
- generally is made from selected sour cream;
- is readily acceptable to many consumers.



SOURCE U S Department of Agriculture

for different food products in this particular divisions (See figure 5.)

Considerable diversity exists for fresh fruits and vegetables, and the extensive variety of grade nomenclature and criteria is illustrated in the Code of Federal Regulations, Title VII, Parts 46-57. Criteria for the different grades of a **product are** usually color, **size,** shape, maturity, and the number of defects; but the lower grades may be just as nutritious as the higher grades. The difference is mainly in appearance, taste, and preference.[4]

Three different conditions exist for grade nomenclature of fresh fruits and vegetables (table 3). For some fruits and vegetables, the nomenclature applies for every State in which the food commodity grows. For grapefruit and oranges, the nomenclature varies depending on the State in which the product is grown. Finally, in the case of Washington apples, a State grade applies rather than a USDA grade. The latter condition is possible because Federal grades are voluntary.

During 1976, USDA announced new uniform nomenclature for fresh fruits and vegetables. However, these changes will be implemented primarily at the request of industry. The details of this new uniform nomenclature effort by USDA are discussed in the fresh fruit and vegetable section of this report.

Processed fruits and vegetables are those frozen, canned, or otherwise preserved through processing. The nomenclature used when products are graded after processing is either a letter or an alternative name designation, Processed grades tend to be more uniform than those for fresh fruits and vegetables. Criteria for these grades are color, uniformity of size or shape, flavor, texture, maturity, and the number of defects (see figure 6).[5] While grading criteria for processed fruits and vegetables are based mostly on product appearance, grade designations are still diverse.

Figure 5.

Fresh Fruits and Vegetables

Although most fresh fruits and vegetables are sold at wholesale on the basis of U. S. grades, not many are marked with the grade in the grocery store.

The typical range of grades for fresh fruits and vegetables is U.S. Fancy, U.S. No. 1, and U.S. No. 2.

U.S. No. 1 means good quality and is the chief grade for most fruits and vegetables. U.S. Fancy means premium quality–only a few fruits and vegetables are packed in this grade.

The grades are based on the product's color, shape, maturity, and freedom from defects. The lower grades are just as nutritious as the higher grades. The difference is mainly in appearance, waste, and preference.

Some packaged produce is marked with the U.S. grade name. When the grade name is shown in this shield, it means the product was packed under the supervision of an official Government grader,

SOURCE U S Department of Agriculture

In the AMS Poultry Division, the difference between A and B for poultry is based on appearance, finish, and meatiness rather than tenderness.[6] However, age of the bird, as indicated by the class, determines tenderness; and this information must, under law, be stated on labels for poultry. The grades of eggs, on the other hand, are differentiated by appearance (height) of the yolk and white portion of the cracked egg as it lies on a flat surface. p

The Livestock Division uses names rather than letter grades (see figure 7). These grades are intended to reflect differences in tender-

[3]USDA Pamphlet. "Official Grade Standards and Inspection for Fresh Fruits and Vegetables, " December 1963, p. 3.

[4]USDA Pamphlet. "How To Use Grades in Buying Food," September 1971.

[5]USDA Pamphlet. "How To Buy Canned and Frozen Vegetables," April 1969.

[6]USDA pamphlet. "How To Buy Poultry," July 1968.

[7]USDA Pamphlet. "How To Buy Eggs," January 1968.

Table 3.

Nomenclature for Selected Federal and State Grades for Fruits and Vegetables

Product	Nomenclature for			
	Top Grade	Second Grade	Third Grade	Fourth Grade
Apples	U.S. Extra Fancy	U.S. Fancy	U.S. No. 1	U.S. Utility
Apples[1] (Washington)	Washington Extra Fancy	Washington Fancy		
Grapefruit (Texas)	U.S. Fancy	U.S. No. 1; U.S. No. 1 Bright; and U.S. No. 1 Bronze		
Grapefruit (Arizona & California)	U.S. Fancy	U.S. No. 1	U.S. No. 2	U.S. Combination
Grapefruit (Florida)	U.S. Fancy	U.S. No. 1; U.S. No. 1 Bright; and U.S. No. 1 Golden		
Onions	U.S. No. 1	U.S. Combination	U.S. No. 2	
Oranges (Texas)	U.S. Fancy	U.S. No. 1; U.S. No. 1 Bright; and U.S. No. 1 Bronze		
Oranges (Arizona & California)	U.S. Fancy	U.S. No. 1	U.S. Combination	U.S. No. 2
Oranges (Florida)	U. S. Fancy	U.S. No. 1 Bright; U. S. No. 1; and U. S. No. 1 Golden		
Pears (Summer & Fall)	U.S. No. 1	U. S. Combination	U.S. No. 2	
Pears (Winter)	U.S. Extra No. 1	U.S. No. 1	U. S. Combination	U.S. No. 2
Tomatoes	U.S. No. 1	U.S. Combination	U.S. No. 2	U.S. No. 3

[1] **These are grades established by the State of Washington, not USDA.**

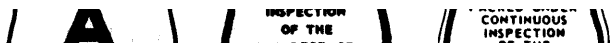
SOURCE: Compiled from data furnished by Agricultural Marketing Service, USDA.

Figure 6.

Grading of Processed Fruits and Vegetables

U.S. Grade A or Fancy	Grade A vegetables are carefully selected for color, tenderness, and freedom from blemishes. They are the most tender, succulent, and flavorful vegetables produced.
U.S. Grade B Extra Standard	Grade B vegetables are of excellent quality but not quite so well selected for color and tenderness as Grade A. They are usually slightly more mature and therefore have a slightly different taste than the more succulent vegetables in Grade A.
U.S. Grade C Standard	Grade C vegetables are not so uniform in color and flavor as vegetables in the higher grades and they are usually more mature. They are a thrifty buy when appearance is not too important –for instance, if you're using the vegetables as an ingredient in soup or souffle.
Packed under continuous inspection of the U.S. Department of Agriculture	This statement may be given along with the grade name or it may be shown by itself. It provides assurance of a wholesome product of at least minimum quality.

The grade names and the statement, "Packed under continuous inspection of the U. S. Department of Agriculture, " may also appear within shields.



Use of the U.S. grade standards and inspection service is voluntary, and paid for by the user. But most canned and frozen vegetables are packed and priced according to their quality even though a grade is not shown on the label. Sometimes the grade name is indicated without the "U. S." in front of it–for example, "Fancy" or "Grade A." A canned or frozen vegetable with this designation must measure up to the quality stated, even though it has not been officially inspected for grade.

The brand name of a frozen or canned vegetable may also bean indication of quality. Producers of nationally advertised products spend considerable effort to maintain the same quality year after year. Unadvertised brands may also offer an assurance of quality, often at a slightly lower price. And many stores, particularly chainstores, carry two or more qualities under their own name labels (private labels).

SOURCE, U. S. Department of Agriculture,

Figure 7.

Meat Grades

Main grades are Prime, Choice, and Good. There are lower grades, but you are not likely to see them marked on the meat. Some stores may have beef marked with the Standard or Commercial grades.

A mark like this may be stamped on meat. This is the grade (Choice) you are most likely to see.

Several kinds of meat are graded–beef, lamb, veal, and calf–and this shield is used on them all.

The beef grades are a guide to how tender most cuts will be–and to how juicy and flavorful the meat will be.

Prime beef is the best and most expensive. Not many stores sell it. Most cuts graded Prime will be very tender, juicy, and flavorful.

Choice beef is high quality. Steaks and roasts of this grade will be quite tender and juicy and have a good flavor.

Good grade beef is not as juicy and flavorful as Prime or Choice, but it is fairly tender and usually has less fat than Prime or Choice.

SOURCE: U.S. Department of Agriculture.

ness, juiciness, and flavor as well as the age of the slaughtered animal. In the past, Prime and Choice have been the grades of beef most frequently available at retail, but recently leaner meat has been made available under either a house grade or USDA Good and Standard grades. In spite of this development, Choice is still well recognized by consumers and many times the only grade of meat available at the store. Though the grade designations are uniform for beef, the terminology is considerably different from other AMS divisions.

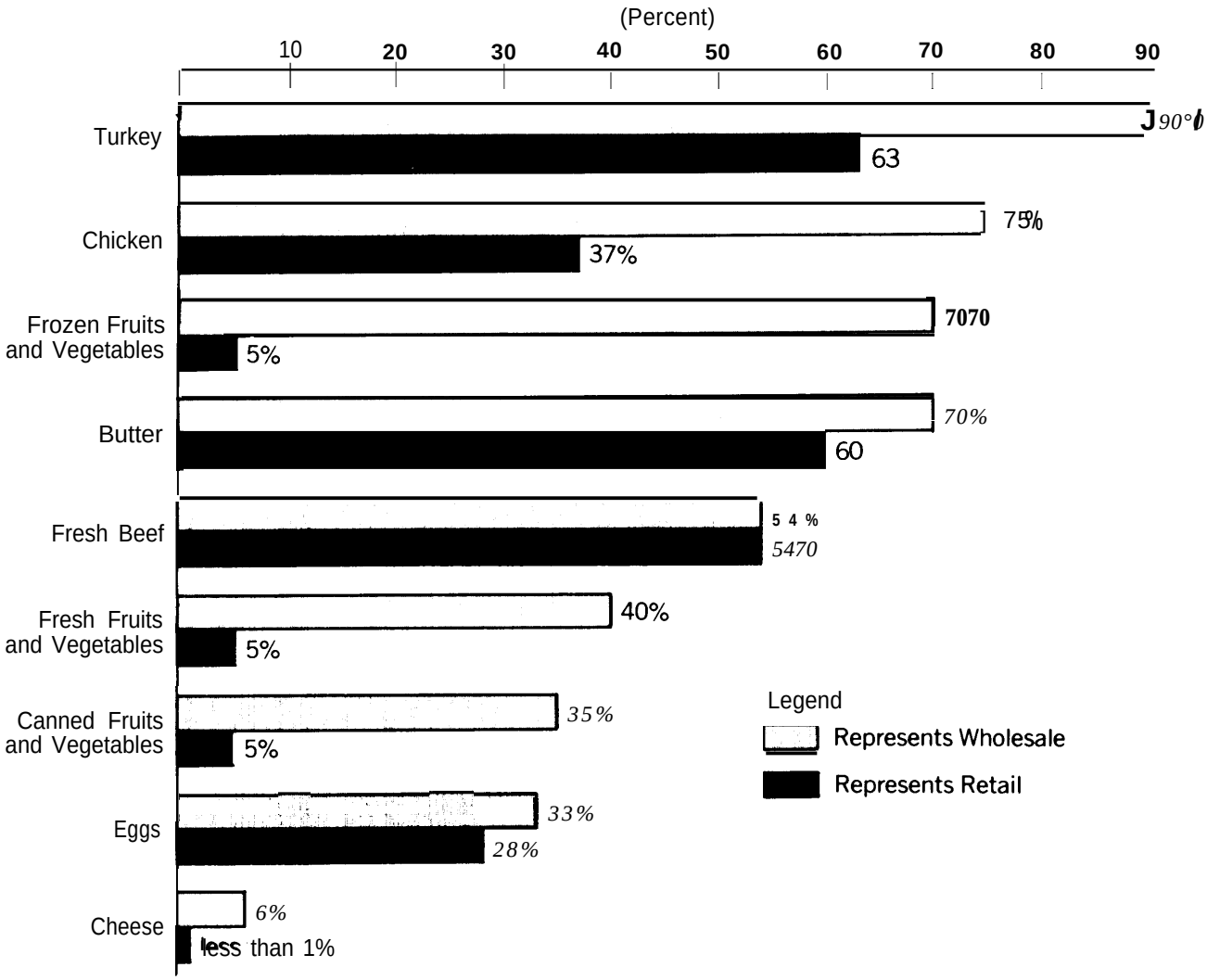
As of February 23, 1976, revised U.S. grade standards for beef became effective. These new standards have four major changes: 1) all beef carcasses graded will be graded for both quality and yield; 2) conformation (shape of carcass) will no longer be a factor of the quality standard; 3) leaner beef, due to a change in the marbling (fat) -maturity (age) relationship for animals less than 30 months old, will now qualify for Prime and Choice; and 4) range of U.S. Good grade is more restrictive than before, since the marbling requirement essentially has been increased for this grade by elimination of conformation as a factor. These changes are discussed in more detail in the fresh meat section of this report.

USE OF CURRENT FOOD GRADES

Information on the proportion of food products graded by USDA at wholesale is available, but only rough estimates are available on the proportion of food products receiving wholesale grades which retain their grades at retail (figure 8). The most extensively graded food products at wholesale are fresh poultry, frozen fruits and vegetables, butter, and fresh beef. The proportion of these retaining the wholesale grade at retail varies by commodity. For example, in fresh beef all the beef graded at wholesale retains its grade at retail. However, in frozen fruits and vegetables, 70 percent is graded at wholesale while a very negligible proportion retains the grade at retail. The only extensive use of grades at retail is in fresh turkey, butter, eggs, and fresh beef. With these few exceptions, grade symbols at retail are infrequent.

Figure 8.

Proportion of Food Products Graded at Wholesale and Retail



Source USDA Estimates

Part V

PERSPECTIVES ON FEDERAL FOOD GRADING: USDA, INDUSTRY, AND CONSUMERS

Part V

Perspectives on Federal Food Grading: USDA, Industry, and Consumers

Issues surrounding the present Federal food-grading system are voluntary or mandatory grading, uniform grade nomenclature, and criteria used for determining grades. This section provides perspectives from the U.S. Department of Agriculture, the food processing industry, and consumers.

U.S. DEPARTMENT OF AGRICULTURE

USDA's perspectives were acquired through interviews with USDA officials, primarily AMS. The following perspectives are drawn from statements made by those interviewed.

Purpose for Grading

Some USDA officials emphasize that grading systems were devised primarily for wholesale use. The 1974 *Yearbook of Agriculture* has a passage which notes:

> They (grading services) were originally established as an aid **in wholesale trading . . . Today, most grading is still done for this purpose, and the consumer is usually the indirect, instead of the direct, beneficiary.**[1]

The 1946 Agricultural Marketing Act so mandates the system. USDA officials who made this point were not suggesting consumers should not benefit from grading, only that grading was established primarily to expedite food industry wholesale transactions.

However, the Agricultural Marketing Act of 1946 does not mandate that the food-grading program serve only wholesale transactions.

The word quality is interpreted by USDA to be a synonym for grades and the modifying clauses are also interpreted by USDA to mean wholesale transaction only. While the General Counsel's Office in USDA recognizes that the wording of paragraph (h) is general and does not restrict food grading to wholesale use, AMS prefers a narrow interpretation.[2] This partially explains the reluctance of USDA to modify food grades.

One USDA official maintains that the use of grades has declined over the past few years for several reasons: (1) Costs charged by USDA for inspecting and grading food products have increased; (2) A result of a 1973 General Accounting Office (GAO) report was the execution of a USDA-FDA Memorandum of Agreements.[3] Under the agreement USDA would have informed FDA of products headed for human consumption that did not meet minimum standards for a grade. Some elements of the food industry apparently did not want to deal with FDA if a product could not meet minimum requirements for a grade, since this might be due to failure to meet minimum sanitation requirements as well as minimum quality standards; (3) The Federal Government has reduced its purchases for the military, specifically the Army, for the School Lunch Program, and for the Needy Persons

[1] Eleanor Ferris, "USDA Grades Can Help Out Food Shoppers," 1974 *Yearbook of Agriculture.* U.S. Government Printing Office, 1974.

[2] Mr. Richard Merryman, General Counsel's Office, Marketing Division, Interview.

[3] *Processed Fruits and Vegetables: Potentially Adulterated Products Need To Be Better Controlled—Sanitation in Some Plants Need improvement,* U.S. Government Printing Office, February 21, 1973.

Program. Thus, grading no longer has significance for sales to Government it once had.

Other USDA officials feel that the food industry generally is against alteration of the present grading system. USDA believes that industry executives fear change because they have no idea how the changes will affect costs or brand share of their products at retail. Food industry people fear losing markets. Fear of the unknown hinders change, although industry occasionally requests changes of USDA if problems cannot otherwise be rectified.[4]

Mandatory Grading

USDA maintains that the cost of mandatory grading would be high. Estimated costs for the present voluntary grading system and for a mandatory grading system for the same products appear in the 1975 GAO food labeling report.* The 1974 cost estimated by USDA for a voluntary grading system for six categories of food products (less than 100 percent of the products in the six categories were graded) was approximately $183 million. If the grading system became mandatory (100 percent graded for the same six categories), USDA estimated cost would increase by about $327 million to a total of $510 millions Inference is that the cost of mandatory grading for all products would be considerably above $510 million. USDA's belief that cost becomes a significant factor during this time of economic difficulty may well be correct. However, at this time there is little documentation of the costs being discussed for mandatory grading.

Grading Designation or Nomenclature

The Department's official position on uniform grade nomenclature is expressed in its comments on GAO's food labeling report, sent to the Senate and House Committees on Government Operations in 1975. USDA's position is that it "continues to support the goal of reducing consumer confusion regarding the use of grade nomenclature, " but it feels there are "too many quality variables among different classes of food products to enable a single system to cover all food products." Instead, USDA prefers to develop "uniform grade designations within several groups of similar products. "

For example, with the position advocated by USDA, the Livestock Division of AMS would have uniform grade designations such as those presently used. However, fresh fruits and vegetables would have a different nomenclature but uniform within that commodity category. There already has been some movement in this direction with the previously mentioned proposal for fresh fruits and vegetables published in the October 6, 1975, Federal Register, Mr. Floyd F. Hedlund, Director of the Fruits and Vegetable Division of AMS, feels, however, that because of food industry resistance to the new grades, it might take up to 10 years for voluntary use by a significant number of firms.

Program Reform

While the Department supports some reform of its grading program, the Office of the Special Assistant to the Secretary of Agriculture for Consumer Affairs under the Ford Administration favored major reforms of the program. Specifically, this office wanted mandatory retail grading with uniform nomenclature for all four AMS divisions presently grading food. The reasoning behind this position was that a grading system aiding the consumer should benefit the marketing system as a whole, from farmer to consumer. The office also felt that if a new grading system did come into being, considerable effort would be needed to educate consumers and that such education should be a requirement in implementing any new grading system.[6]

Congress is looked upon by some USDA officials as the only possible and proper branch of Government to change the present grading structure. Most USDA officials feel that without congressional action grading reform in the manner which consumer groups prefer would be unlikely.

[4] Dr. Clark Burbee, Project Leader, Consumer Interests, Interview.

[5] *Food Labeling: Goals, Shortcomings, and Proposed Changes,* U.S. General Accounting Office, p. 122, January 29, 1975.

*These estimates were supplied by USDA with no supporting data and were not analyzed for their accuracy by GAO.

[6] Mr. Andrew Gasparich, Assistant to the Special Assistant to the Secretary of Agriculture for Consumer Affairs, Interview.

The National Canners Association represents processors. The Canners have a membership of 500 firms that process 85 to 90 percent of all canned foods. Also, the National Association of Food Chains (NAFC) stated in interviews that it supported the position the Canners advocate. Moreover, NAFC represents 200 companies in a country where 50 percent of the value of food for at-home consumption is sold in chain supermarkets. Since the Canners Association is vehemently opposed to any grade labeling at retail, the weight of the food processing industry's opposition to increased food grading at retail is apparent.

Grade Criteria

At present, many food processors maintain that they are not using the USDA grading system at either retail or wholesale. Del Monte and General Foods, major food companies in canning and packaging of fruits "and vegetables, explained that they have their own food quality standards which may differ from the USDA grades. They said their standards of quality were more rigorous than USDA standards. General Foods asserts that this is one reason that Birdseye products, for example, command a premium price. Some firms maintain they have their own quality specifications for raw products in their contractual arrangement, have mechanisms different from USDA's to measure raw product quality, and have stringent quality control requirements. They also admit that in some cases they do use USDA grades.

USDA grades are not used by some firms because they prefer different criteria. As Mr. Angelotti stated:

> **Major food manufacturers may not put the official (USDA) grade on any of their products. They have their own grade standards, and it is their perception of quality which they think the consumer wants or is telling them and they build that into their product. They have their own standards which they apply to their product.**[7]

[7]Workshop, vol. I, p. 97.

One company, for instance, argues that though canned Freestone peaches lack uniform appearance, many consumers prefer their taste to other canned peaches.

An objective test of taste, as a criterion, was attempted at Cornell University Agricultural Station (Paper No. 1, *Merchandising Experiences,* September 1959). After USDA inspectors were presented with eight different applesauce to grade, 652 people tasted all eight applesauce and registered their preferences. The results of the study demonstrated that most people preferred the two applesauce graded USDA Grade C.[8] This study supports arguments of food processors. Industry fears the average consumer will interpret "A" or other higher sounding grade to mean that product flavor is "best" when that may not be true.

Historically, food-processing industry opposition to grading at retail dates back at least to 1935. In hearings that year before a subcommittee of the Senate Commerce Committee, Henry Stude, representing the American Bakers Association, testified against portions of a bill that was to become the Federal Food, Drug, and Cosmetic Act of 1938, He said: "We feel that it is . . . impracticable and unwise to standardize the taste, likes, and dislikes of the consuming public. The result of such an attempt to define standards of quality and identity would be to bring all food makers down to a common denominator. . . ." Inference is that the basis for quality is taste. Mr. Stude also testified that consumers could distinguish by themselves what is good quality.[9]

Mandatory Grading

Some members of the food industry still maintain that mandatory grading may reduce competition by discouraging introduction of superior products. They insist that food manufacturers would have no incentive to im-

[8]Odonna Mathews, *Grade Labeling,* June 14-August 13, 1971.

[9]74th Congress. Hearing before a subcommittee of the Senate Committee on Commerce, Vol. 276, March 2, 1935.

prove products if they are not already in the highest grade. They believe standards could lack flexibility needed to allow industry to seek improvements in growing, processing, packaging, or transportation.[10]

The main food industry objection to mandatory grading is its potential cost. Processors feel that small canning and packaging operations might be unable to meet mandatory inspection and grading costs and be forced to shut down. Larger plants, better able to absorb costs because of lower per unit grading costs, could continue to operate. Although small canning operations are the numerical majority of canning operations in this country, their total output is less than that of the eight largest canning firms. In 1972, of 1,201 canning firms, the eight largest accounted for approximately 50 percent of the Nation's canning production.[11] Industry maintains that many food chains depend on these small manufacturers to process their private labels and that the food distribution system would be hurt by shut downs of small manufacturers.[12] In general, the existence of numerous Federal agencies already regulating food processors in terms of labeling, safety, pollution, backhauling, pesticides, advertising, and energy results in a total cost that helps to drive out small processors.

This position is supported by research completed by C. R. Handy and D. I. Padberg. They found that very large retail chains have their private label stock processed by relatively small firms and that major brands--e.g., Del Monte-are sold primarily through medium sized and small retailers. These relatively small firm processors have little or no marketing capability. If they have a brand, it means little to consumers. Brand development costs are exorbitant for their small volume, and private label programs enable them to specialize in the physical functions of food processing—their primary competitive advantage.[13]

[10] Mr. Robert Wait, Washington Representative for General Foods, Interview.

[11] Bureau of Census: 1970 *Annual Survey of Manufactures Report, Concentration Ratios,* **Table 4.**

[12] **Richard Dougherty, Assistant Vice President, National Canners Association, Interview.**

[13] Mr. C.R. **Handy, and Dr. D. I. Padberg, "A Model of Competitive Behavior** in Food Industries," *American journal* of *Agricultural Economics,* May 1971.

While the cost of mandatory grade labeling is a legitimate concern of the food industry, a recent Grocery Manufacturers of America (GMA) survey (March 6, 1975) concluded that $8.4 billion worth of food products would have nutritional labeling by the end of 1975. The survey indicated that for the $8.4 billion the initial average cost of putting the information on labels per dollar of sales is .004 cents and that the average continuing cost of nutrition labeling is .00016 cents per dollar of sales.[14] One food industry objection to nutritional labeling was its potential high costs. GMA's survey would indicate that industry's concern for nutritional labeling costs was overstated, at least for a voluntary program which currently operates for nutritional labeling. Thus, manufacturers' cost concerns regarding mandatory grading could be similarly overstated.

Arguments about costs hinge on cost/benefit ratios. Some food industry officials interviewed believe consumer benefit from mandatory grading would not be worth costs incurred by the consumer. Food industry position on cost-benefit is based on the following:[15]

(a) The American consumer is already buying high quality foods at reasonable prices; and the quality and variety of this food is the best in the world.

(b) Quality of food is high because industry is regulating itself. The competitive marketplace demands that a given company produce quality food, or the consumer will be dissatisfied and the firm will lose business.

Others would reply that brand names—i.e., Del Monte, Green Giant, and Birdseye--serve a function similar to retail grades. The argument is that brand names have proven themselves to consumers over time as providing high quality products. Consumers can easily identify products by their brand name and compare quality of various brand name products. If consumers like the product, then they would be able to identify the same quality product for future purchases by the brand

[14] *Packaging and Labeling,* Vol. 6, No. 26, July 2, 1975.

15 Richard Dougherty, interview.

name. Brand names thus serve as a means of assuring consistent quality over time, but at some cost to the consumer by having to pay promotion costs of brand names.

Industry also argues that mandatory grading could not accommodate quality differences due to geography. They contend that quality of produce, for example, varies because weather and soil conditions differ in various regions. Some industry people fear mandatory grading could not take this into account. This argument may be valid. However, with regard to soil differences and their effect on product quality, FDA maintained that the nutritional variation of produce due to soil difference is nominal and does not ultimately effect food nutrient differences.[16] In addition to possible soil-related natural quality variation, other factors such as the amount of sunshine and rainfall are important. One national processor indicates that tomato juice made from Midwest tomatoes may have an average Vitamin C content equal to 86 percent of that of juice packed from California tomatoes in the same season due to differences in sunshine. Conversely, juice from their California tomatoes may have only one-half the calcium of the Midwest juice due to harder water present in some Midwest locations.

The food industry representatives interviewed believe the industry will oppose any legislation establishing mandatory grading. They also saw little need for compromise since many feel that costs of a mandatory system would prevent it from being enacted. The National Canners Association supports consumer cost evaluations in the hope that consumers will stop much of the regulatory legislation if they understand how much it costs.

CONSUMER INTEREST GROUPS

Grade Criteria

Consumer groups and advocates, unlike USDA and industry officials, want mandatory quality grading as an information tool for consumers to compare food. Consumer representatives want grading criteria changed to reflect nutrition and "life-giving values.[17] They feel present standards, based primarily on physical appearance, benefit the wholesaler but not consumers. Grades, they contend, should reveal whether the food product is nutritious and wholesome, not merely its appearance.

The term "quality" is loosely defined. Two definitions exist: one is quality based on preferences and sensory characteristics, while another is quality based on nutrition. Consumer representatives want Federal food grades to include the product's nutrition quality in addition to the already defined sensory product quality, with more emphasis on nutrition and less on sensory factors. USDA maintains that both nutrition and sensory characteristics cannot be included in one standard but that nutritional labeling is a supplement to USDA grades.[18]

Both Ms. Ellen Zawal, National Consumers Congress, and Ms. Ellen Haas, formerly of the National Consumer League and presently a staff member of the Community Nutrition Institute, are confident that the grading system they and other consumers advocate can be designed to satisfy everyone concerned. They assert that the problems inherent in developing useful uniform, retail grades in which nutrient values are a factor can be overcome.

Though consumer advocates are quite confident that their positions are well-founded, they have presented little evidence supporting their positions. They want nutritional value to partially determine grades. However, they have little or no supporting evidence that nutritional value can be accurately measured or that such grades can be effectively implemented on a national scale. At the same time, consumer representatives will respond that

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[16] *Federal* Register, January 29, 1973, Vol. 38, No. 13, p. 2150.

[17] Ellen Zawal, National Consumers League, Interview.

[18] Richard L. Feltner, Assistant Secretary of Agriculture. Letter to Senator George McGovern, Chairman, Senate Select Committee on Nutrition and Human Needs, October 8, 1975.

An Alternative to the Present Food Grading Program

Voluntary/ Mandatory System

Processed Food Products

Present—U.S. Grade A

Alternative—U.S. Grade A

Present Grade Criterion:

Canned Tomatoes—These typical samples of U.S. Grade A, U.S. Grade B, and U.S. Grade C canned tomatoes show that in the higher grades, the color is redder and more of the tomato portions are in whole or large pieces.

Alternative:

Same as the present grade criterion,

Present—U.S. Grade B

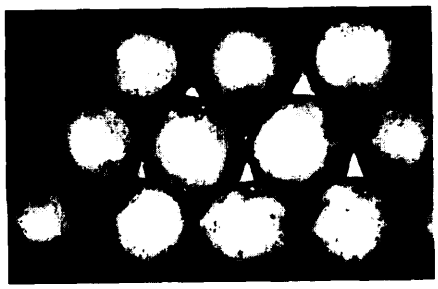
Alternative—U.S. Grade B

Present—U.S. Grade C

Alternative—U.S. Grade C

Us. Department of Agriculture photos.

Fresh Fruits and Vegetables



Present—U.S. Fancy

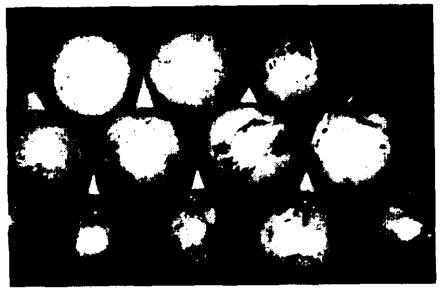
Alternative—U.S. Grade A

Present Grade Criterion:

Florida Grapefruit—These samples of u.S. Fancy, U.S. No. 1, and U.S. No. 2 Florida Grapefruit show that U.S. Fancy grapefruit has better color and shape, smoother skin texture, and is free from bruises and other skin damage.

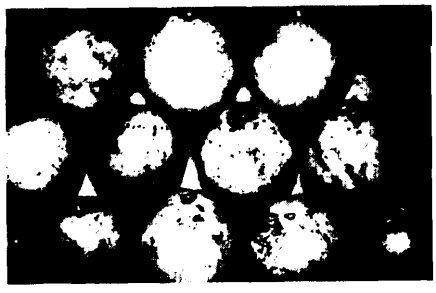
Alternative:

Same as the present grade criterion.



Present—U.S. No. 1

Alternative—U.S. Grade B

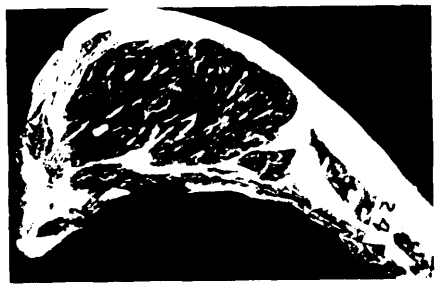


Present—U.S. No. 2

Alternative-U.S. Grade C

U.S. Department of Agriculture photos.

Fresh Red Meat



Present—U.S. Prime

Alternative—U.S. Grade A

Present Grade Criterion—Carcass Grade:

Beef Rib Steaks—These three steaks, all the same cut, show the top three beef grades—U.S. Prime, U.S. Choice, and U.S. Good. As beef increases in quality, it has more marbling (flecks of fat within the lean), is more tender, juicy, and flavorful.

Present—U.S. Choice

Alternative--U.S. Grade B

Alternative:

Retail Cut Grade—Based on yield per lb. or per serving. Yield is the trim or amount of external fat in relation to lean per retail cut. Grade A would have the highest ratio of lean to fat, Grade B the next highest, and Grade C the least.

Present—U.S. Good

Alternative—U.S. Grade C

U.S. Department of Agriculture Photos.

little or no evidence exists which indicates that nutrition cannot be incorporated. In addition, while consumer advocates are concerned about costs of mandatory grading, their concern does not equal industry 's. Consumer representatives believe industry's cost concerns are an expected position for them. In addition, they point to such products as orange juice, eggs, and poultry which use retail grades already without any apparent problems.

Mandatory Grading

Some consumers' representatives want to make grading mandatory. They believe the entire food industry will not use it unless the law requires it to do so. Consumers want retail grades to assist them in their shopping. Interestingly, in 1933 such a system was desired by Mrs. Harris T. Baldwin, the National Vice President of the League of Women Voters. She expressed the hope in a hearing before a Senate Commerce subcommittee with the following statement: ". . . we are looking forward to the day when there will be grade labeling on the food products which we buy in the stores."[19] However, one OTA panelist, Ms. Jennifer Cross, consumerism, Consumer Action in California, perceived no consumer sentiment for mandatory grading:

> **I certainly would not make grades mandatory if they are going to add to the cost of the product, or bog us (consumers) down in a welter of costly regulations. I detect no consumer clamor at all for mandatory grades at least as presently designed. However, I believe shoppers would use a simple national system, e.g., A, B, C, or 1, 2, 3, which gave some weighting to nutritional values.[20]**

The mandatory/voluntary issue is discussed in more depth in later sections of this report.

Grade Designation or Nomenclature

Consumer advocates want uniform nomenclature for various grades which would cover all food categories For example, either a letter or number system would be acceptable, but it must be uniform—A, B, C, etc., or 1,2,3, etc.,—in addition to limiting the number of grades for each product.[21]

Preference for letter grades was indicated by 43.6 percent of those consumers surveyed in a 1970 USDA poll, while 31.6 percent preferred words and 18.2 percent preferred numbers.[22] Consumer groups consider uniform grade designations necessary to allow consumers to easily recognize and understand the grades and thus compare products.

A summarization of desires by consumer advocates with respect to grading was given by Ms. Cross and Mr. Rodney Leonard, consumerist, Consumer Nutrition Institute, during the OTA workshop:

> . . . **There is essential consumer desire for a grading system which generates information on the nutritional quality, the economic value, and the relative safety of the product being offered to the consumer.**
>
> **Such a system should provide at a minimum, first, standard grade nomenclature across the system.**
>
> **Secondly, standard values within the class or category (of food products).**
>
> **And third, mandatory grades, if the processor or retailer wants to use grading, the standard nomenclature should be stated in symbols that communicate known values-that is, 1,** *2, 3,* **or A, B, and C.**
>
> **The standard values within the categories are value judgments and should be determined in a process prior to public hearings where more than half of those who participate do not have a conflicting responsibility.[23]**

---

[19] 74th Congress. Hearing Before a Subcommittee of the Senate Committee on Commerce. Vol. 276, March 2, 1935, p. 38.

[20] Workshop, vol. I, p. 118.

[21] Mr. Jim Turner, Lawyer-Consumer Advocate, Interview.

[22] USDA Consumer Study, "Consumer Knowledge and Use of Government Grades for Selected Food Items," Economic Research Service, April p. 23.

[23] Workshop, vol. V, pp. 86-87.

SUMMARY

As a result of its study, OTA has identified the major issues surrounding the present Federal food-grading system. These are:

- Criteria used for grading,
- Mandatory or voluntary grading,
- Nomenclature used for grading.

Government agencies charged with administering the present grading program, consumer groups, and the food processing industry all have different perspectives on each issue.

Grade Criteria

Present grade standards are disputed by both industry and consumer groups, but for different reasons. Both question how much physical appearance should have to do with grade. Both contend that factors such as color, shape, lack of blemishes, and uniformity are not the most important criteria for grades. Some consumer groups view nutritional content or health value of food as the primary quality factor on which to base grades. Industry views sensory characteristics as the consumer's real criteria for quality and hence grading. USDA maintains that both nutrition and sensory quality cannot be included in one standard and that nutritional labeling should be a supplement to USDA grades. USDA gives no indication that it intends to attempt reform or modification of present grade standards to include nutritional values.

Mandatory Grading

Because they are voluntary, USDA grades do not appear on all products for which grading programs exist at either wholesale or retail. Of the two marketing levels, grades are used least at retail. Industry maintains that grades should not be made mandatory at the wholesale or retail level because it would reduce competition, costs would outweigh benefits to the consumer, and quality difference due to geographic location could not be taken into account. USDA does not favor mandatory grades at either marketing level because it maintains the program would be too costly. Some consumer groups believe grades are needed at retail, and the only way grades would be used at retail is if the law requires industry to use such grades.

Grade Designation or Nomenclature

One of the principal reasons for consumer confusion about food grades is their variety. Consumers are perplexed by the many different letters, numbers, and words and by the fact that there are at least ten different terms denoting the top grade for various food products. USDA's position is that it continues to support the goal of reducing consumer confusion regarding grade nomenclature but feels there are too many quality variables among different classes of food products to enable a single system to cover all food products. USDA prefers to develop uniform grade designations within several groups of similar products, such as within fresh fruits and vegetables.

Part VI

POSSIBLE FUNCTIONS OF A FEDERAL RETAIL FOOD GRADING SYSTEM

Part VI

Possible Functions of a Federal Retail Food Grading System

The discussion thus far has brought issues surrounding food grading into focus. This section addresses what the role of Federal food grades could beat the retail level. First, problems in obtaining consumer input on the subject are discussed, exemplifying the difficulties encountered in determining exactly what kind of retail grading system consumers want. Next, because the issues differ from one food group to another, a separate section is presented for each major food category: processed foods, fresh fruits and vegetables, and fresh red meat. Each section covers the present status of both Government and private industry programs, the potential function of Federal retail grades in light of these programs, and the potential impact of changing the present Federal grading system to a more consumer-oriented one.

OBTAINING CONSUMER INPUT FOR THE DESIGN OF A Retai GRADING SYSTEM

User input for designing a system is highIy desirable. For a retail grading system this involves consumer input. In order to obtain consumer input the most common method employed is consumer surveys.

Two types of situations need to be defined in assessing useful output from surveys of consumer views, preferences, and opinions. The first situation is where the consumer is aware of the topic being surveyed and has "preformed" views and opinions. In this situation, consumers are not asked to think or analyze. The interview process simply inventories attitudes already developed and formed. Surveying preformed attitudes, opinions, or preferences is relatively easy, straightforward, and inexpensive.

Useful output from consumer surveys becomes more difficult, however, when the topic of the inquiry is one with which consumers are generally unfamiliar and therefore they have no preformed orderliness or position. In this situation the interview process may be asking the consumer to do the impossible, Consumers are being asked to give information they do not have. They have only what was given to them by the interviewer. If the proposition is presented so that it is absolutely sterile of value judgments, they may find it very difficult to analyze and say what their feelings or views are. On the other hand, if the proposition is laden with values, the interviewer is very likely to get back those same values or opinions.

Consumer input in the design of Federal retail grades is an example of the second situation. Experts have considerable difficulty conceptualizing the operational mechanics and user implications of retail grades. It may be naive to expect consumers to efficiently and directly advise on how to design such a system that would operate effectively.

Individual consumers desire accountability from the food distribution system. Accountability means that someone, including public representatives as well as private firms, is

paying attention to important matters such as nutrition and safety. Even though individual consumers may not use information such as nutritional labeling routinely as a purchase aid, consumer groups may give careful surveillance to nutritional quality in general and specific terms. The individual sees it as a symbol that this issue is being addressed. Thus, although individual consumers may not possess strong opinions concerning the specifics of retail grades, a more general desire for accountability of the system exists among consumers. For further elaboration on this topic see appendix D.

ASSESSMENT BY MAJOR CATEGORIES

Processed Foods Sector

Present Status of Government Programs

USDA Grading System: The present grading system for processed foods is authorized under the Agricultural Marketing Act of 1946. A processed food is defined as any fruit, vegetable, or other food product which has been preserved by any recognized commercial process, including, but not limited to, canning, freezing, dehydrating, drying, the addition of chemical substances, or fermentation.[1]

The current grading system is voluntary/mandatory and designed to facilitate wholesale transactions without the necessity of onsite inspection, but in some cases the grade appears on the retail package. Grades have been established for canned fruits and vegetables, frozen fruits and vegetables, and dairy products. The grades establish criteria for differentiating these products according to sensory differences. The main criteria for these are color, uniformity of size or shape, flavor, texture, maturity, and number of defects.

Grade designations for processed foods lack uniformity. Designated grades of selected products of canned fruits and vegetables, frozen fruits and vegetables, and dairy products vary substantially (table 4). For most grades of fruits and vegetables there are two sets of nomenclature. For example, either U.S. Grade A or U.S. Fancy can be used to designate the top grade of all processed fruits and vegetables. For the second, third, and fourth grades the nomenclature is not uniform. In some products such as orange marmalade, the second grade is U.S. Grade B or U.S. Choice, while another product such as canned squash has as the second grade, Grade C or U.S. Standard. In the third grade the nomenclature can be either U.S. Grade/U.S. Standard, as the third grade of green olives, or substandard, as the third grade of canned squash. Dairy products, a separate classification, have a nomenclature radically different from the fruit and vegetables nomenclature.

Wholesomeness and Safety Programs: The Food and Drug Administration (FDA), in coordination with the U.S. Departments of Agriculture and Commerce, exercises regulatory control over all processed food products through the authority provided in the several Acts administered by these agencies and departments of the Federal Government. Figures 9, 10, and **11 show Federal Government agencies involved in food programs.**

The Food, Drug, and Cosmetic Act and the Fair Packaging and Labeling Act are the basic Federal food laws of the country and apply to all foods, food ingredients, and packaging that are offered for sale in interstate commerce. These two Acts and the regulations issued under them are intended to assure that foods are safe, wholesome, and nutritious; labeled truthfully; and packaged so that deception relative to quality and quantity of package contents is precluded. The Food, Drug, and Cosmetic Act is both a safety and labeling act, whereas the Fair Packaging and Labeling Act addresses labeling and packaging only.

The Public Health Service Act provides authority for controlling the safety and wholesomeness of food and drink served aboard interstate common carriers and for controlling the sanitary operations of establishments that prepare food intended for

[1] U.S. Government. *Code of Federal Regulations, 7 CFR,* 52.1, p. 39.

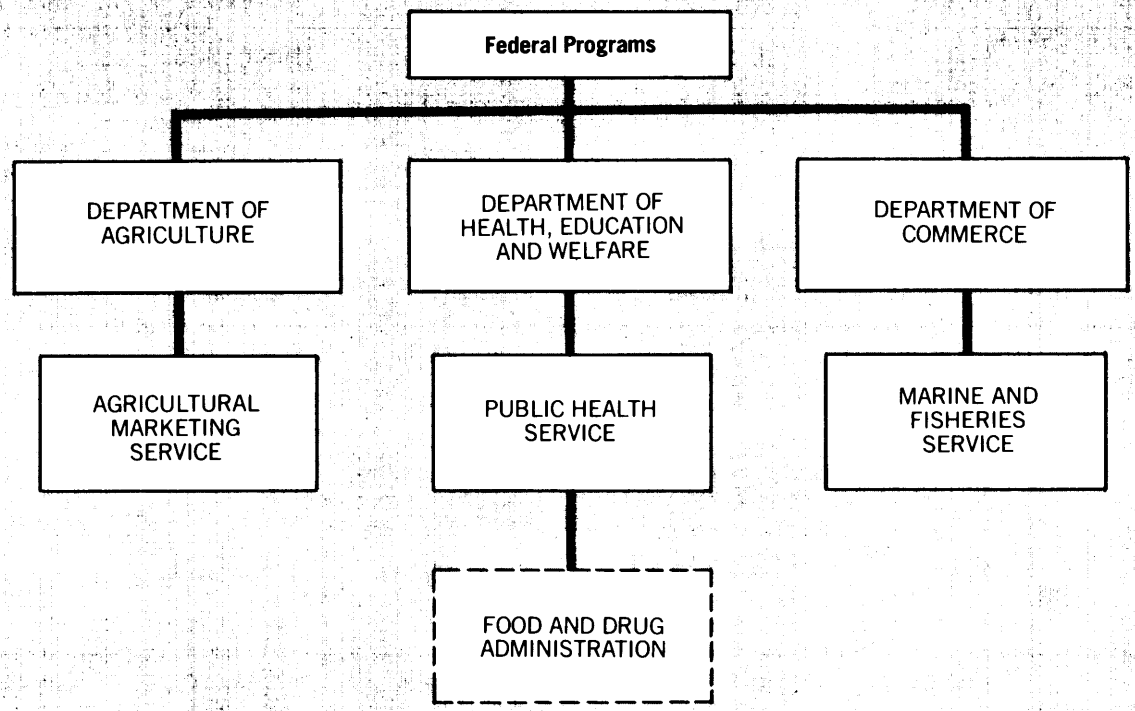
Table 4.

Selected USDA Grades for Processed Food Products

Product Group	Product	Grade Nomenclatures			
		Top Grade	2nd Grade	3rd Grade	4th Grade
Canned Fruits	Fruit Cocktail	U.S. Grade A or U. S. Fancy	U.S. Grade B or U. S. Choice	Substandard	
	Orange Marmalade	U.S. Grade A or U. S. Fancy	U.S. Grade B or U. S. Choice	U.S. Grade C or U. S. Standard	U.S. Grade D or Sub-standard
	Green Olives	U.S. Grade A or U. S. Fancy	U.S. Grade B or U. S. Choice	U.S. Grade C or U. S. Standard	Substandard
Canned Vegetables	Tomatoes	U.S. Grade A or U. S. Fancy	U.S. Grade B or U. S. Standard	Substandard	
	Peanut Butter	U.S. Grade A or U. S. Fancy	U.S. Grade B or U. S. Extra Standard	Substandard	
	Squash	U.S. Grade A or U. S. Fancy	U.S. Grade C or U. S. Standard	Substandard	
Frozen Fruits	Apricots	U.S. Grade A or U. S. Fancy	U.S. Grade B or U.S. Choice	U.S. Grade C or U. S. Standard	Substandard
	Cranberries	U.S. Grade A or U. S. Fancy	U. S. Grade B or U. S. Choice	U. S. Grade C or U. S. Standard	
	Concentrated Orange Juice	U.S. Grade A or U. S. Fancy	U.S. Grade B or U. S. Choice	Substandard	
Frozen Vegetables	Lima Beans	U.S. Grade A or U. S. Fancy	U.S. Grade B or U. S. Extra Standard	Substandard	
	Peas	U.S. Grade A or U. S. Fancy	U.S. Grade B or U. S. Extra Standard	U.S. Grade C or U. S. Standard	
	French Fried Potatoes	U.S. Grade A or U. S. Fancy	U.S. Grade B or U. S. Extra Standard	Substandard	
Dairy Products	Butter	U.S. Grade AA	U.S. Grade A	U.S. Grade B	
	Cheddar Cheese	U. S. Grade AA	U.S. Grade A		
	Instant Nonfat Dry Milk	U. S. Extra Grade	U.S. Standard		

SOURCE U *S* **Government,** *Code of Federal Regu/at/ens, 7* **CFR 52206, Washington, D C, 1976**

Figure 9.
Federal Government Agencies Active in Food Programs



SOURCE: Office of Technology Assessment.

service aboard interstate common carriers. In addition, the Public Health Service Act provides for assistance to the States in the control of communicable diseases transmitted through food and water, and with this authority FDA maintains Federal-State cooperative programs directed toward maintaining safety and wholesomeness of milk, shellfish, and food served in restaurants.

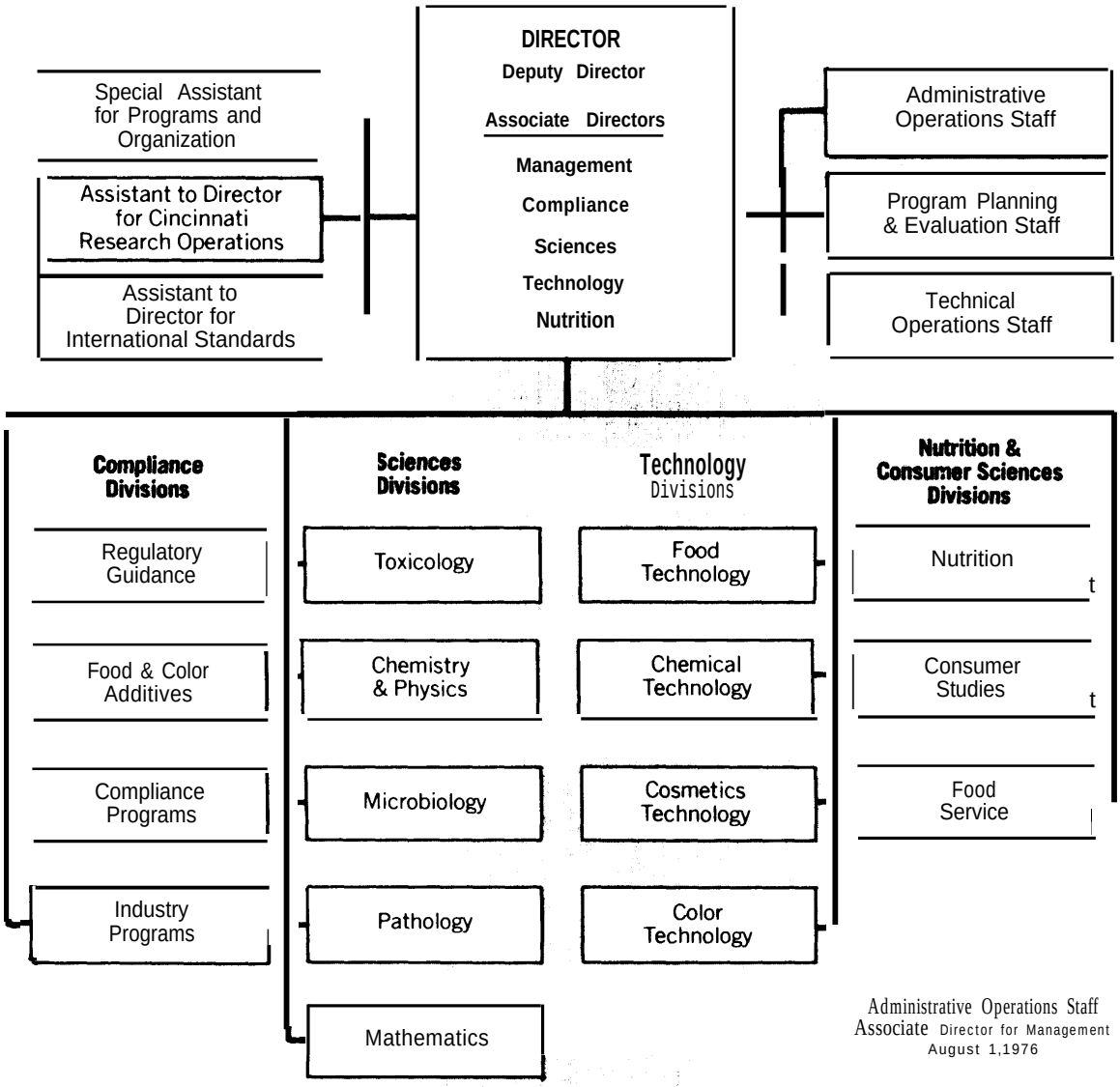
Under the statutes FDA performs inspections of food-processing establishments, warehouses, and distribution systems, and as appropriate, collects samples of products for laboratory analysis to determine that the standards, guidelines, tolerances, and labeling specifications for the products are being met. Imported foods are inspected at dockside and are not released by the Customs Office for entry to the United States until FDA has ascertained that the product meets Federal law requirements.

Certain products, by virtue of their inherent nature or because of the preservation process applied, have greater risk of rapid microbial development that cause human illness. These products and processing establishments are considered high risk and inspected with greater intensity, comprehensiveness, and frequency than establishments processing products in a lower risk category. Examples of high-risk products and establishments include milk, fish, meat, low-acid canned foods, filled pastries and ready-to-eat entrees that require no further cooking.

The inspection tool for the high-risk areas is the Hazard Analysis Critical Control Point (HACCP) inspection designed to identify hazards associated with the product or proc-

Figure 10.

U.S. Department of Health, Education and Welfare--Public Health Service, Food &thug Administration--Bureau of Foods



SOURCE: Department of Health Education, and Welfare-Food and Drug Administration.

ess. In addition to the comprehensive HACCP inspections, other inspections are conducted to record general housekeeping procedures, sanitary operations, control over filth and other defects, and adherences to standards, labeling requirements, food additive tolerances, and good manufacturing practices.

Standards of Identity: The Food, Drug, and Cosmetic Act also provides that standards of quality, identity, and quantity may be established when in the judgment of the Secretary of Health, Education, and Welfare such standards will promote honesty and fair dealing in the consumer interest. So far as is

Figure 11.

Food and Drug Administration Programs Directed to Control of Food and Cosmetics as Authorized by Various Federal Acts

Agency Program	Projects Within Agency Program	Objectives of Projects	Authorizing Act
FOOD SAFETY	Food Sanitation Control	**Inspect establishments** for compliance with regulations, guidelines, standards, etc., and take corrective regulatory action.	Import Tea Act **and FD&CA**
	Chemical Contaminants	Establish safe guidelines and tolerances for industrial chemicals and heavy metals in foods. Regulatory action against products not meeting tolerance or guideline.	FD&CA
	Mycotoxins and Other Natural Poisons	Establish safe guidelines and tolerances for mold toxins (aflatoxins) and plant poisons (solanine in potatoes) in human food and animal feed.	FD&CA
	Food and Color Additives	Process food and color additive petitions and GRAS affirmation petitions for denial or approval of requested safe conditions of use and cyclically review all previously approved substances added to food.	FD&CA
	Quality Control	Promote the adoption and use by industry of quality assurance practices in manufacture and encourage participation in the FDA Cooperative Quality Assurance Program.	FD&CA
	Nutrition	Promote use of sound nutritional principles by public, determine compliance with nutritional labeling, establish regulations for food fortification and regulations for foods for special dietary purposes, regulate micronutrient uses, regulate nutrient quality of new foods (plant proteins).	FD&CA
	Milk Safety	Provide for the safe production, distribution and retail sale of Grade A pasteurized milk and milk products through assistance to the States and through the continuous updating and publication of the Pasteurized Milk Ordinance and Code; administer the interstate Milk Shippers Agreement.	FD&CA and PHSA
	Shellfish Safety	Provide for the safe growing, harvesting, processing and sale of bivalves through assistance to the States and through administration of the national, cooperative industry, state, federal National Shellfish Safety Program.	FD&CA and PHSA
	Food Service	Improve hygienic practices and food protection measures used in the more-than 500,000 food service establishments through assistance to the States and through publication of the Food Service Sanitation Model Ordinance and Code.	FD&CA and PHSA
	Interstate Travel	Prevent the spread of communicable diseases by controlling the safety of food and beverages served aboard interstate carriers and wastes discharged from such carriers.	FD&CA & PHSA
FOOD ECONOMICS	Food Economics (Food Labeling and food standards)	Prevent misleading label statements, fraudulent filling and weight declaration practices, misleading packaging, and degradation of product in the marketplace through ingredient labeling regulations, regulations for standards of identity, quality and fill of container, and regulations for slack fill.	Import Tea Act, FD&CA, and FPLA
COSMETICS	Cosmetics	Remove from the marketplace cosmetics-and cosmetic ingredients that have been demonstrated to be harmful to consumers.	FD&CA
ANIMAL DRUGS AND FEEDS	Safety of Animal derived human foods	Review New Animal Drug Applications and applications for additives to animal feeds to assure that unsafe residues of the drugs or additives are not present in the edible tissues of animals.	FD&CA

SOURCE: Department of Health, Education, and Welfare-Food and Drug Administration.

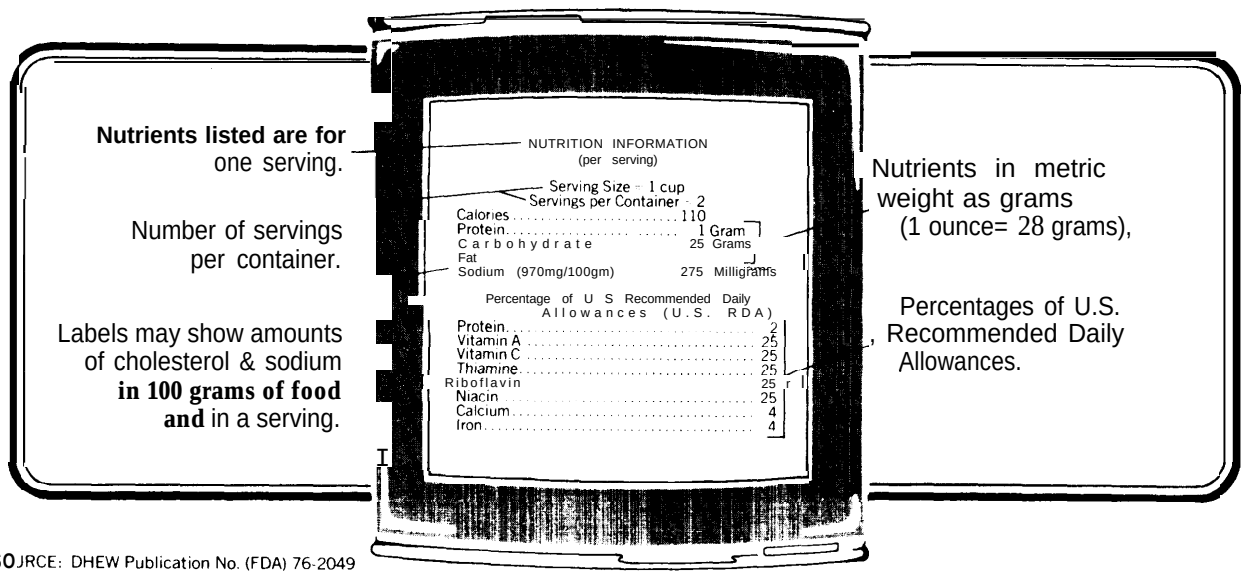
practical, such standards are established under the common or usual name of such foods. Presently, approximately 400 foods have been standardized by regulation under this authority.[2] Some food for which standards have been promulgated include bread products, canned fruits and vegetables, dairy products, nut products, fish products, and jams and jellies.

Food standards mean that for a food product to be sold legally under its common or usual name, it must be made in accordance with certain specifications. The promotion of honesty and fair dealing on behalf of the consumer is accomplished through preventing product degradation in the marketplace. Egg bread, for example, cannot be labeled as egg bread unless it contains a minimum quantity of eggs stipulated in the standards.

Food standards are not only developed in the United States but are also being developed internationally. Codex Alimentarius, translated freely as code of food standards and regulations, is a collection of internationally adopted food standards drafted and presented in a uniform manner. Such standards attempt to protect consumer health by insuring wholesome, acceptable foods, and to promote fair practices in world food trade. Publication of the standards also is intended to harmonize food definitions and requirements in different countries and, in doing so, facilitate international trade. Codex standards eventually will be developed for all principal processed, semi-processed, and raw foods that go in distribution channels for human consumption.

Nutritional Programs: In 1973, FDA announced the Food Nutrition Labeling Regulations, which provided for the voluntary declaration of the calorie, protein, carbohydrate, and fat content and the percentage of U.S. Recommended Daily Allowance (RDA) for protein and seven vitamins and minerals in each processed products. The Food and Drug Administration has established a standard format for the nutritional labels, which include the following items: 1) serving size, 2) servings per container, 3) calorie content, 4) protein content, 5) carbohydrate content, 6) fat content, and 7) the percentage of U.S. Recommended Daily Allowances (RDA) for protein, vitamins, and minerals in each serving (figure 12). Nutrition experts, scientists, doctors, home economists, and industry and

Figure 12.
Nutritional Labeling



SOURCE: DHEW Publication No. (FDA) 76-2049

[2]Dr. Robert Angelotti, *Overview of FDA Food Control Programs,* paper presented at the 36th Annual Meeting of the Institute of Food Technologists, June 7, 1976.

consumer representatives all had input into the development of regulations for nutritional labeling.

Nutritional labeling is designed to provide specific and meaningful information on the identity, quality, and nutritional value of a wide variety of foods to consumers. In addition to the nutrient, vitamin, and mineral labeling required on the FDA-designed format for labels, fats and cholesterol content is shown. The regulation also sets standards for vitamins and minerals sold as dietary supplements and rules for the definition and labeling of imitation food products.

The number of foods that are required to have nutritional labels is limited to only those products fortified by addition of a nutrient or those for which a nutritional claim is made in the labeling or advertising of that food. For most foods nutritional labeling is voluntary, but if processors want to nutritionally label their products, then they must conform to these standards. The voluntary program has been adopted by most large processors, and a significant volume of processed food is currently nutritionally labeled.

Nutritional claims include any references to protein, fat, carbohydrates, calories, vitamins, minerals, or use in dieting. Any such reference makes labeling mandatory. Products marketed as "enriched" or "fortified" also require full labeling. Such items include enriched bread and flour, fortified milk, fortified fruit juices, fortified breakfast cereals, and diet foods.

Present Status of Private Sector Programs

Quality Control Practices in Manufacturing: All processing plants have a quality assurance system to assure that the food products manufactured and shipped are not adulterated or misbranded within the meaning of the Food, Drug, and Cosmetic Act and the Agricultural Marketing Act of 1946. According to Dr. Elaine Wedral, Director of Research and Development, Libby, McNeill, and Libby:

> **We have grade specifics for our own company for, say, fruit cocktail that is ten pages long, These regulations are much tighter than the** USDA standard of grading specifications for fruit cocktails

The basic elements of a quality assurance system include:[4]

- Ingredient inspection and control, which requires testing against written standards.
- Manufacturing control, which requires that hazards be identified and critical control points be established and that these be monitored with the resulting actions duly recorded.
- Distribution control, which requires not only that the integrity of the finished product be protected from the environment in which it is shipped but also that the finished product as sold be unadulterated and properly labeled.

To achieve this system requires a detailed program. These programs may differ among companies. The following is a typical program used by the Pillsbury Company's businesses to assure product safety and regulatory compliance.[5]

1. Product Safety **Analysis.—A product safety analysis must be performed on every new, existing, or modified food product offered for consumption or use. Each business' research and development department has the responsibility of completing the food safety analysis, which includes an assessment of the microbiological, physical, and chemical safety of the product. The formulation, processing, distribution, and recommended end use are evaluated for any possible contribution to an unsafe product situation.**

2. Product Specifications.—There must be a product specification for each product sold or otherwise distributed. The specification must take into full account all safety, quality, and regulatory requirements and specify the use of all ingredients, process and acceptance tests, and packaging materials and labels, as well as a description of the process and of the finished

[3] Workshop, vol. I, p. 239.

[4] Carl A. Smith and James D. Smith, *Quality Assurance System Meets FDA Regulations,* paper presented at Symposium on Impact of FDA Regulations on Quality Assurance, November 1975.

[5] Ibid.

product. The product specification also serves as the vehicle by which Pillsbury's pure food policies and the FDA regulations and standards are communicated to the manufacturing operations.

3. **Physical Systems Hazard Control.—Each business is required to make and maintain an inventory of all food-processing systems and environments and the possible hazards to food safety that could be caused by them. Whereas the product safety analysis and the product specifications are R & D-originated, the physical systems hazard control system is a facility-generated set of documents which the facility must maintain. In order to identify all physical systems hazards, a clear understanding of each step in the processing and packaging of food is necessary. Since flow diagrams aid in defining the total process, and since physical systems hazards can be identified on them, we require each business to:**

   —Develop and maintain flow diagrams on all food processing and physical systems and environments.
   — Identify all physical systems hazards to product safety.
   — Establish and document systems of control for all hazards.
   —Maintain records of control actions for all physical systems hazards that are critical to product safety.

4. **Purchasing Requirements.-Our purchasing requirements dictate that all food ingredients and packaging materials may be purchased only from an approved supplier. An approved supplier is one who has submitted an acceptable continuing guarantee, submitted adequate proof of his ability to furnish products which meet our quality and safety requirements, and passed a plant inspection whenever required by Corporate Quality Assurance. A supplier may be removed from the list for unsatisfactory performance.**

5. **Contractor Requirements.—Any company product manufactured, packed, or supplied by a third party—i.e., contract manufacturers or packers—must be produced in accordance with an approved written contract and appropriate approved specifications and food safety analysis. All facilities to be used in manufacturing or packing of such products must be inspected by qualified personnel for Good Manufacturing Practices compliance and approved by Corporate Quality Assurance.**

6. **GMP Compliance.—Sanitation procedures for assuring Good Manufacturing Practices must be documented and religiously observed at each production, storage, and distribution facility, including the R & D Center. These procedures are "how-to" instructions for complying with sanitation procedures and do not go into the technical aspect of why these practices must be followed. The technical aspects are handled by in-plant training of the affected personnel.**

7. **Product Recall System.—A product traceability system must be in effect and capable of tracing all products or materials sold or distributed which may require recovery. Each of our businesses has documented procedures--some manual, some computerized—for the prompt tracing of products, and each of the plants must establish procedures for accomplishing a product trace. Periodic tests of the traceability systems are conducted and the results are documented.**

8. **Customer Service.—Means must exist to record and immediately respond to consumer and customer complaints as well as to correct any safety or regulatory deficiencies discovered in products as a result of such complaints. A product recall might be one result of an action undertaken because of such a complaint.**

9. **Inspections and Safety Incidents.—Each business must have a means to record and respond to all safety or regulatory incidents that occur. A regulatory incident is defined as a visit by a Federal, State, or local inspector or any regulatory agencies including the FDA, USDA, EPA, OSHA, FEA, military veterinary corps, State and local health inspectors, civil rights inspectors, etc. Our facilities are defined as many of our plants, mills, warehouse, restaurants, R & D centers, etc.**

10. **Auditing.—All processing plants, warehouses, and other storage facilities are routinely audited by Business Quality Assurance personnel to determine their degree of compliance with the business and corporate standards regarding specifications, product safety, and regulatory requirements.**

Date Coding by *Manufacturers:* **Food** manufacturers have dated products for years; however, dates and certain other manufacturer's information usually appear in some form of code. In establishing coding, the food industry was concerned primarily with providing a tool for inventory and quality control. Codes made it possible to trace product

movement, to identify and handle consumer complaints, to rotate stock, and to identify product loss in the event of a recall. As a result of today's increased consumer concern, the food industry is providing clearly identified information on freshness of product when purchased and, in some cases, anticipated home storage life. Figure 13 lists examples of date coding being used by manufacturers.

Private Labeling and National Brands: Information is conveyed on the quality of products sold under manufacturer's brands and products sold under retailer's or other distributor's brands—i.e., private label. Many manufacturers strive to establish strong consumer preferences for their brands and in some branches of the food industry incur substantial advertising and sales promotion costs for this purpose.

Brand names and private labels are an instrument of differentiation, and as such they become a vehicle of change. In merchandising a brand, a company wants to differentiate to make it stand out differently in consumer's perceptions from other brands. This has been very useful in our society because of rising incomes and changing needs of consumers on the one hand and technological changes that enable changing a product's characteristics on the other. Society benefits from product change through new products such as convenience foods.

What brand names and private label products have done over the years is to establish a perceived quality of a product. Thus there is a **function, in an informational sense, of a brand name. As Dr. Angelotti indicated:**

> **You know when you buy Green Giant green beans, your perception of that quality is consistent and you can expect your perception to be met the way you want it to be met each time you buy Green Giant green beans. The variation is minimized.**
>
> **When you start talking about grades, that is where the rub comes in. I buy Green Giant green beans because as I perceive quality, I want that in that product. I might not buy Green Giant's corn because it is not mushy enough for me. It is how I perceive it.**
>
> **If you start talking about grades, what are you going to do with that? The thing that brand**

Figure 13.

Types of Dates

Several types of open dates may be used on food items:

Pull Date–This is the last day the retail store may sell the item as fresh. The date is designed to allow you a reasonable amount of time to store and use the product at home even if it is purchased on the pull date. How long the product should be offered for sale and how much home storage time is allowed are determined by the processor, based on his knowledge of the product and its shelf life. When you see "Sell by Jan. 15" on a package it doesn't imply you shouldn't use the product after that date. The date represents the last day of fresh sale so you will have time to store and use it at home.

Quality Assurance or Freshness Date–This shows how long the processor thinks his product will be at peak quality. Some time after the "freshness date" (and there will always be a cushion of time allowed), the food will no longer be of optimum quality. This doesn't mean that it will be unacceptable or that you shouldn't use it; it does mean that the processor would like you to use the product while it is at its peak. The label on the item might say something like "Better if used by January 1974. "

Pack Date–This is the date of final packaging or processing. Although it is sometimes used, it may not be very helpful to shoppers who don't have the technical expertise to judge the shelf life of thousands of different items.

Expiration Date–This is the last day the item should be consumed. It is virtually never used because quality changes **occur slowly and it is simply not possible to say that an item will be acceptable one day and unacceptable the next.**

Of these **dates,** the "pull date" and the "quality assurance or freshness date" are in most widespread use.

When you see an unexplained date on a food package you might check with the store manager or write to the processor. But it is important to remember that the date is not a "throw away" date.

After you get the food home, a good general rule is to rotate food on your shelves in order of freshness. For peak quality, use the items before or within a reasonable time after the date shown on the package.

SOURCE U S Department **of** Agriculture Economic Research Service

names offer to the population in my view is just that, the selection for them to exercise their perceptions of quality. As they know when they buy this brand, it is consistent over time, and they will always get essentially the same product if they stick to that brand name.[6]

That is one reason why most companies do not use the established grades for their processed products. They have their own standards, and it is their perception of quality derived from consumer surveys that is used to set their own standards. Thus the brand name is doing something useful for the manufacturer and conveying information to the consumer.

Potential Function and Impact of Retail Grading

Grade Criteria: The present public programs, such as the wholesomeness and safety programs and standards of identity programs conducted by FDA, assure the public that the processed food they buy is safe for human consumption. The nutritional labeling program provides consumers with nutritional information. In addition the private sector, through quality control programs and date coding, provides additional assurance that the food consumers buy is safe and wholesome. Given this, the question to be addressed is what additional useful role might grades perform? Whatever role grades might play, most of the food grading workshop participants felt that grades should continue to differentiate sensory characteristics only and not combine with nutritional characteristics as additional grade criteria.

Many problems were raised on the feasibility of combining nutritional characteristics with sensory characteristics. Dr. Wedral stated that:

Sensory characteristics of a product are not related to nutrition. For example in canning peas, there are different grades reflecting different colors or various defects, but they may all have the same nutrition. With orange juice, some of the earlier products or crops of oranges may be higher in vitamin C; however, they have less appeal from a color or flavor standpoint. That is why earlier varieties are not preferred. The product may be the most nutritious, but has the most defects, or the most off color or be the least uniform. How can you say this is Grade A and this is Grade B?[7]

Other problems expressed were those involving the time factor. Most participants in the workshop agreed it is impossible to analyze the products coming into a canning plant for nutrient qualities. Dr. Wedral stated:

In nutritional labeling, companies have been permitted to establish nutrient data banks in order to support their claims. (In other words, the nutritional information on this year's package represents information collected over many years.)

If a grading system were adopted that incorporated nutritional characteristics (and data banks were utilized), the grade on the product would be reflective of previous years' grades. Thus, for example, canned tomatoes packed and labeled Grade B due to information in the data bank might in reality be Grade A.

Thus, if a grading system were adopted that incorporated nutritional characteristics, the grade on the product would be reflective of the last year's grade. For example, canned tomatoes from a plant are Grade B this year when this year's might really be Grade A.[8]

Voluntary or Mandatory: Grades carry information to the consumer, as do brand names and private labels. However, there is a school of thought that believes brand names are a vehicle for change and cause new processed products to evolve. Grades, on the other hand, have just the opposite effect. According to Professor Daniel I. Padberg, Department of Agricultural Economics, University of Illinois:

Brand names through differentiation in the marketplace have become a vehicle of change. Grades on the other hand have the opposite effect-one of stabilizing, one of identifying a level of characteristic, requiring it and thereby stabilizing.[9]

Further, Dr. Timothy Hammonds, Vice President for Research, Food Marketing Institute, indicated mandatory grades may limit consumer choice in the longer run:

Mandatory grading would be a way of choosing among those products that are in the market

[6]Workshop, vol. I, p. 96.

[7]Workshop, vol. I, pp. 69-70.
[8]Ibid., pp. 70-72.
[9]Workshop, vol. I, p. 79.

place when in fact it is going to reduce the variety of products in the marketplace. And I think 'that is an unexpected consumer result of it.'[10]

So, if society looks at the choice of whether or not to institute retail grades, an important implication of that choice is the product it wants to stabilize in terms of characteristics and the product it leaves open for evolution. When grading is instituted, an inevitable consequence would be **to** suppress differentiation or variability and evolution of product characteristics.

According to Professor Padberg:

I **am** assuming there **are** subsets of the food industry **where differentiation may become a social detriment. That is to say the canned peas are not that different today than they were 30 years ago. And we are now supporting several different labels with minimum differences.**

If we had grades, then what would happen? What I would suspect will happen is that Del Monte or Green Giant who are now spending money on marketing peas, which is a standardized product, would use their research and development capabilities in other areas that were more amendable to development.[11]

Thus the potential for grades as a consumer information vehicle is not a universal product; it is a very selective one. It makes more sense in some products and relatively less in others. Sorting them out may be difficult. It means selecting those products where the differentiation cost is currently greater than benefits of differentiation to consumers.

Uniform *Nomenclature:* Based upon workshop evidence, concern regarding uniform nomenclature was in two categories. One was simplicity in terminology. A second was whether terminology could be devised which does not imply rank. Each of these concerns will be discussed in the following paragraphs.

Optimum terminology would be both simple and meaningful to consumers. However, there appears to be a tradeoff between meaningfulness and simplicity in terminology. For example, the simplest system would merely be an A, B, C or 1, 2, 3 system; but that system would not be meaningful in terms of conveying grade criteria or standards to consumers. One would not know whether A, B, C reflected nutritional information or other characteristics such as size and flavor or defects. To this end, descriptive labeling or grades have been suggested in processed food products. This system would mean that peas might be graded and given a descriptive term such as "young, tender peas" or "mature peas." Descriptive terminology, however, is best suited to processed products rather than fresh, since the characteristics of those commodities in processed form are less available to the consumer at the point of purchase than in the case of fresh. Terms that might be used for a particular fresh product grade may already be apparent.

Another difficulty is that all nomenclature implies rank, with the possible exception of a designation such as circle, triangle, square. The latter terminology represents an effort not to imply rank in the grade. Objection to implied rank is that second or third grade may in fact be superior for some end uses, or at some particular relative price, to the top grade. However, the circle, triangle, and square terminology would not imply grade criteria or standards.

Regardless of the terminology, the likelihood of most retailers offering all qualities or grades of a particular commodity is slight. Mr. Kimbrell expressed the feeling of most workshop participants when he stated that:

Any grading system, of course, is only as good as the selection it offers the consumer-that is, a retail grading system. And without some kind of a system that will be used that will offer a selection, then the effects of that grading system are going to be lost,

The people that are going to use it have to be getting something from it such as the retailers themselves. And in order to set up some kind of an advertising program, some kind of a system to incorporate a grading nomenclature therein, you are going to have to remove some of the stigma of the lower grades.

In this case, B is derogatory or C is derogatory, 3 is derogatory, 2 is derogatory. So you need some kind of a system.

[10] Ibid., p. 232.
[11] Ibid., pp. 172-173.

I am talking about the practical aspects of getting a system accepted by all parties and not just the consumers. And you are going to have to offer something to those people that are going to make use of it. And I think that they are going to have to get some kind of advantage.

In order to do this and for them to get away from strictly an A system, nobody is going to advertise that they sell B anything. They are not going to set up a system that will advertise a B or 2.[12]

In summary, the question of what terminology to choose is an unsettled issue. Even though optimum terminology is unsettled, strong support for uniform terminology was evidenced.

Summary

The potential role of retail grades for processed food products can only be defined in light of the current Government and private sector programs and their respective functions. Currently, Government programs regulate food products for wholesomeness and safety, provide standards of identity, fair labeling and packaging, nutritional information, and a grading system designed primarily for wholesale transactions. Most manufacturers have elaborate quality control programs that assure compliance with Government regulations and have insituted a voluntary date coding to ensure product freshness for consumers.

Terminology of current grades for retail processed products is confusing. For grades to be used more extensively at retail, uniform terminology across grades that is simple to understand is a basic need.

National brand names and private labels have substituted for grades at retail. They have established a perceived quality of a product for the consumer through time. Brand names and private labels have allowed society to exercise its perception of that quality by selection of one brand name over another. That is one reason most companies do not use established grade standards for their processed products. They have their own grade standards which are more detailed than current Federal grade standards.

[12]Workshop, vol. V, pp. 45-46.

The consensus of workshop participants was that whatever role retail grades play in processed foods, possible grade criteria should not include differentiating products based on a combination of sensory and nutritional characteristics. It is impossible to establish a meaningful grade when incorporating nutritional characteristics with sensory characteristics. Problems include an inverse relationship between sensory characteristics and nutritional characteristics for some food products. Such a relationship would mean that a grade would reflect an average value between sensory characteristics and nutrition and therefore not adequately reflect either. Also a problem is the time lag between establishing the nutritional content and labeling the product. Consensus of workshop participants was that nutritional labeling is the most appropriate vehicle for conveying information to the consumer.

Establishing retail grades for processed products would likely have a stabilizing effect on product characteristics. There would be less evolution of new products. Thus, if society looks at the choice of whether or not to institute retail grades, an important implication of that choice is what products should be stabilized in terms of characteristics and what products should continue to evolve. This means sorting out those products where currently the differentiation cost is greater than benefits to society of differentiation.

Congressional Options

Some of the options available to Congress for grading processed or manufactured food products include:

- Congress could standardize nomenclature for the first, second, third, and fourth grades for processed products so they would be consistent from one product to another.
- Congress could direct the Food and Drug Administration to disseminate information to consumers concerning the current programs that are in operation which assure the safety, wholesomeness, labeling, and identity of most manufactured or processed food products.

- Congress could support or provide incentives for educational programs by Government agencies or the private sector which inform consumers about nutrition of processed food products and interpretation and use of the current nutritional labeling program and/or grades for processed food products.
- Congress could make designation of the current processed grades mandatory for selected food products. Such a program should not be instituted, however, prior to standardizing nomenclature for the first, second, third, and fourth grades.

Fresh Fruits and Vegetables Sector

Present Status of Government Programs

As reviewed earlier in this document, grading programs of fresh fruits and vegetables are under the auspices of the Agricultural Marketing Service (AMS), U.S. Department of Agriculture. Current grades have evolved over a number of years. Specific fruit and vegetable product grades were developed primarily at the request of the various food industries involved.

Grades for fresh fruits and vegetables are based primarily on sensory criteria typically involving color, uniformity, exterior blemishes (in some cases), size, texture, and maturity. As previously reviewed, the criteria currently used for fresh fruits and vegetables are designed to facilitate wholesale rather than retail exchange. These grades essentially serve the purpose of facilitating wholesale exchange without necessitating onsite inspection.

Few commodities in the fruit and vegetable category carry their grade, if graded, all the way through to the retail shelf. Thus, little information is provided by the current grading system as to sensory characteristics, nutritional aspects, or wholesomeness and safety of the produce on the shelf.

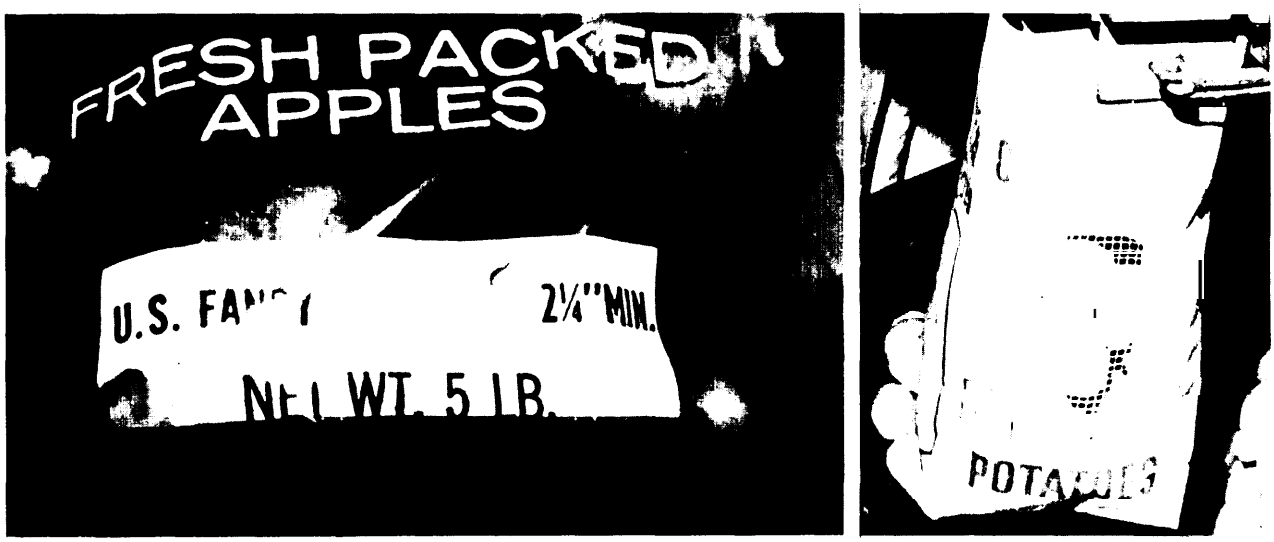
The function of grades in processed products is conceptually different from the function of grades in fresh products. The information role for grades in processed products may revolve around ingredient or identity standards because sensory quality of processed products is not obvious when that product is in a container. For example, attributes of peaches in a can are more difficult to determine prior to purchase than a fresh peach. Some argue that fresh produce is either obviously good or poor and that the grading system therefore need not deliver information, prior to purchase, concerning product sensory quality. On the other hand, some argue that the role of the grading system in the case of fresh produce is delivery of information concerning flavor and nutritive content. Both of these latter pieces of information would, presumably, aid consumers prior to purchase.

The Current Standards of Identity Program administered by the Food and Drug Administration substantially lessens the need for information concerning wholesomeness, safety, and sensory characteristics of processed products to be conveyed through retail grades. Commodities may be modified rather dramatically when processed. A strong need for consumer information concerning wholesomeness, safety, and sensory characteristics of these commodities in their processed state has been recognized through FDA programs. Contrast this with fresh produce, which basically is not altered from its natural state. In the latter circumstance, information concerning certain quality attributes is available through observation at point of purchase. Some argue this lessens the need for any Federal Government involvement in fresh fruits and vegetables.

Few fresh fruit and vegetable commodities are branded, or carry a brand name designation. This is especially true of produce sold in bulk at retail. There is a trend, however, toward fewer bulk retail sales and more packaged sales—i.e., bags, boxes, or other containers (figure 14). With packaging, brand names become more prevalent. So if the trend toward more packaged retail containers continues, brand names may become more prevalent for fresh products. Currently, though, the information role of brand names is not as strong in fresh produce compared to processed foods.

With respect to pesticides and other chemicals on fruits and vegetables, the Environmen-

Figure 14.
Examples of Fresh Fruit and Vegetable Packaging



USDA Photos

tal Protection Agency establishes a safe tolerance level for pesticides, which FDA enforces.[13] Because potentially harmful pesticide residues are already controlled through these Federal agencies, it is not a potential function for a grading system for fruits and vegetables.

Potential Function and Impact of Retail Grading

Grade Criteria--Nutritional Base: Consumer groups, as previously discussed, would like to see grading criteria changed to reflect nutrition of the commodity rather than merely physical appearance. Consumer representatives want Federal grades to include nutritional quality in addition to the already defined sensory characteristics such as appearance or size.

This does not seem to be possible in fresh fruits and vegetables, based upon workshop evidence. Within a particular fresh commodity such as lettuce, nutrition does not **serve as a useful basis for discriminating or sorting one head of lettuce from another because the commodities tend to be basically the same in nutritive content. There may be** significant differences between, for example, lettuce and carrots in terms of nutritive content; but a grading system can serve to differentiate only within a commodity category rather than across commodities. Nutritional information on fresh produce may be useful on an intercommodity basis and be meaningful to consumers, but not useful on an intracommodity basis. Nutritional information simply will not serve as a base for sorting within a commodity because nutrition is essentially invariant within a commodity.

Along these same lines, Mr. Eddie Kimbrell, Assistant to Administrator of USDA's Agricultural Marketing Service, stated:

> **Normally a grading system is something that separates commodities within a group. For example, within apples, there would be a set of apples that are different than another set of apples. And grading in this sense would separate those two categories within the same commodity.[14]**

However, there does seem to be a desire on the part of the industry to have a program comparable to the nutritional labeling of processed products. Professor Thomas Clevenger, Department of Agricultural Economics of

[13]Workshop, vol. I, p. 165.

[14]Workshop, VO1. I, p. 57.

New Mexico State University, indicated that:

> **There is a desire by the (fruit and vegetable) industry to have nutritional labeling in that the nutritional labeling at this point in time would probably be on a commodity-only basis. That is, there would not be different nutritional labels for say, a Grade A if we had one versus a Grade B or a Grade C. And that the implementation of that might have to be in terms of some posting of nutritional labeling regarding that commodity at the point of purchase as opposed to, say, placing a nutritional label on every banana.**[15]

As further clarification of nutrition serving as a base for grading, Dr. Angelotti pointed out :

> **As a rule, on a weight-for-weight basis there is no significant difference in nutritional quality of raw agricultural commodities.**[16]

Even if it were possible, a potential problem of a grading system at retail based upon nutrition is indicated by Dr. Wedral:

> **Would the consumer think a peach that is Grade A would supply the same amount of nutrients as a green bean that is Grade A? I think it (nutrition basis for grades) would create a tremendous amount of confusional T**

Dr. Wedral continued by indicating difficulties concerning laboratory techniques used to analyze particular nutrient values. She said:

> **Variability in laboratory techniques used in determining nutrient content can alone account for differences in label claims. In one collaborative study involving several laboratories, the average vitamin A content of samples of tomato juice taken from the same lot was determined to be 20,9 percent RDA with a standard deviation of 6.3 percent RDA. This means that depending upon the lab that ran the analyses, someone could claim as little as 15 percent or as high as 25 percent RDA for vitamin A. And really both claims would be based on tests on the same tomato juice.**[18]

The significance is that fresh produce would be subject to the same variability in laboratory technique if graded based upon nutrition content.

Other Bases: For fresh fruits and vegetables two potential information needs arise for consumers. One is information prior to purchase concerning yield per pound or the amount of edible product. A second potential information need is with respect to variety.

One possible basis for reflecting grade at retail is a per-serving basis on commodities such as lettuce, oranges, grapefruit, bananas, peaches, avocados, cantaloupes, and watermelons. These commodities have in common values which vary from one another on a cost-per-ounce serving basis. However appealing such a basis may be for a grading system, problems that are practically insurmountable would be experienced in implementation. One difficulty would be in the technology and testing necessary to determine the amount of edible product per unit of each and every individual commodity. A second factor is that subjective judgment can be constantly exercised during the purchase decision concerning product value (on a per-serving basis). For example, consumers can and do make subjective judgments concerning the value of particular produce from a bulk display at retail. Hence, a retail grade based upon yield (edible servings per unit such as pound, head, or bunch) may be of marginal benefit to consumers in aiding purchase decisions.

A second possible criterion for grades on fresh fruits and vegetables would be labeling with respect to variety. The idea of variety labeling would be to convey information regarding such aspects as use or flavor of the product. For example, in strawberries or apples the variety would convey to an informed consumer some characteristics concerning flavor and, in the case of apples, appropriate end use for that commodity. However, the variety labeling idea for conveying information at retail is limited. There are a number of commodities for which knowing variety may not assist in a purchase decision. In addition, an adequate job is probably being done in-store at point of purchase regarding the variety of product. As an example of this, apples are commonly labeled according to their variety at the point of purchase. Thus, the

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Sworkshop, VO1. V, p. 30.

[16] Workshop, Vol. 1, p. 58.

[17] Ibid., p. 73.

[18] E.R. Elkins, "Interlaboratory Variability in Nutrient Analyses: Two Cooperative Studies," *Journal of the AOAC,* Vol. *57, No. 5, 1974, p. 1193.*

variety labeling concept has limited usefulness.

Voluntary or Mandatory Systems: The question of voluntary or mandatory grades on any commodity basically revolves around expected use at retail. Net benefit to consumers from voluntary programs would, of course, vary greatly depending upon the extent of use that was assumed for a voluntary system.

There seems to be a significant difference between the expected adoption of voluntary or voluntary/mandatory grades compared to a voluntary/mandatory program such as nutritional labeling. Voluntary grades may not be expected to be used the same way as nutritional labeling, indicated Professor Padberg:

> One thing would be markedly different in grading consumer products from the nutritional labeling experience is that, if voluntary, it (voluntary grades) would not be taken up at all. A very minor take, That is very different than nutritional labeling. Nutritional labeling gave large processors a great stake in consumer reaction, a vehicle that was perceived in our research and their research as being useful.
>
> It is also extremely flexible. It doesn't categorically restrict what they can do. They just have to tell about it. And so in their process of differentiation, that enables them (processors) to give Government legitimatized information about their differentiating activities. So it has been a very functional part of their marketing activities, where grades are quite counter to that. I think grades, although discussed as a vehicle or choice, would be restrictive on items in the market.
>
> Can you imagine being a produce buyer for a large chain trying to stock stores with two or three grades of cantalope? There would be a preferred grade in everything and the producer or grower is going to learn how to meet that preferred grade.
>
> So voluntary grades have different meaning than voluntary nutritional labeling and I think voluntary grading systems for consumer products is no system at all.
>
> Maybe that is all right, but I think in terms of implementation, 1 would get a very different take on the part of the large firms as compared to nutritional labels.[19]

In essence, the expectation would be that voluntary or voluntary/mandatory grading systems for fruits and vegetables carried to the retail level would not be adopted to the same extent that nutritional labeling has been adopted on a voluntary/mandatory basis for processed foods,

There are three basic systems under the voluntary/mandatory issue. One is a completely private voluntary system. A second is a combination voluntary/mandatory system, with a third being a completely mandatory system. With a completely private system, the standards and the adoption of those standards is done on a private basis and voluntarily. Under the voluntary/mandatory system, a Government standard is established, and then anyone who grades produce would be required to adopt the system. However, grading, for any particular firm, would be on a voluntary basis. The mandatory system would establish Government standards, and all produce would be required to be graded. From a consumer information viewpoint, the only serious systems would be the last two—that is, either a voluntary/mandatory or a mandatory system. The completely voluntary and private system would be of little use in providing consumer information with respect to purchase decisions.

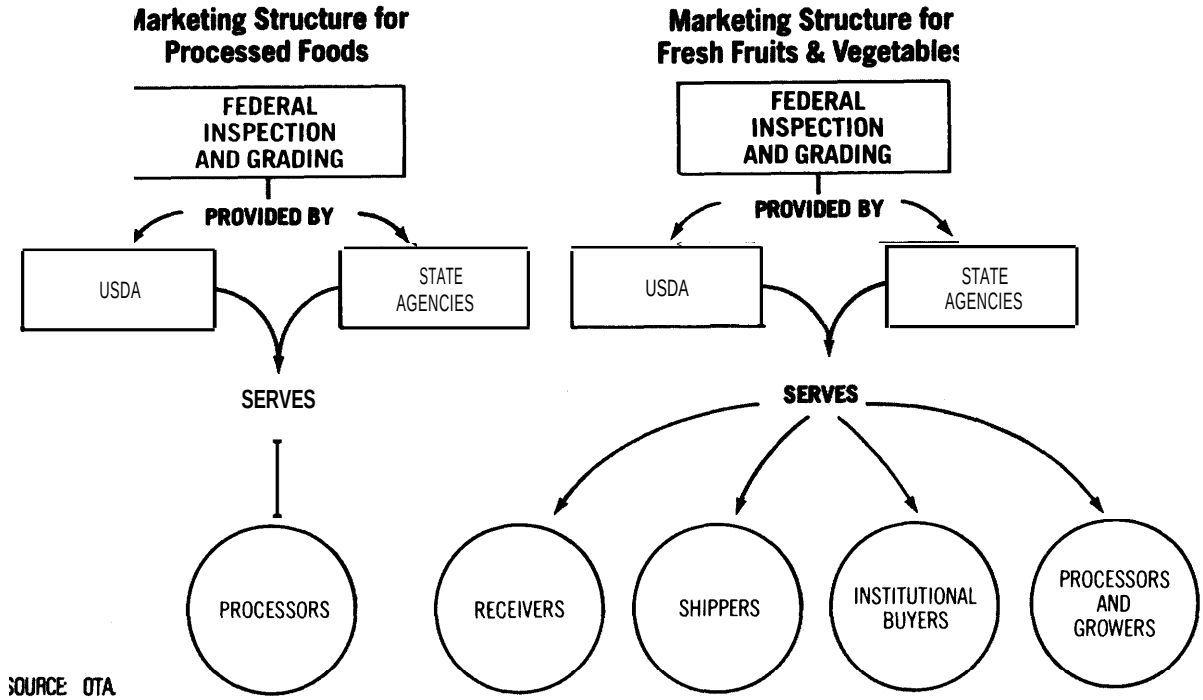
There are some general cost considerations relevant to a mandatory grading system. The structure of the marketing channel in fresh fruits and vegetables (see figure 15) is significantly different from the marketing channel for processed food products. In the latter marketing channel, there are points of concentration, particularly at the processor level. There are no similar points of concentration in the fresh fruit and vegetable marketing channel. The impact of this structural difference in the marketing channel from production to consumption is that no convenient place exists in the fresh fruit and vegetable channel to intercept a large proportion of the commodity so that it can be economically graded. As Mr. Kimbrell indicated:

> Unless there is an assembly point in the marketing channel, then grading by a third party may really be a problem.[20]

[19] Workshop, Vol. 1, pp. 230-231.

[20] Workshop, Vol. III, p. 3.

Figure 15.



However, there are alternatives to the third party method of grading, as Professor Clevenger indicated:

> The options might be to consider the possibility of not grading by a third party, but a third party acting only as a referee.[21]

Further elaboration of this option was given by Mr. Kimbell:

> There is one of the options that we have had wherein there may be more of a quality control kind of system on the part of industry with the industry doing the sorting and grading itself under the same kind of standard and supervision applied by other parties, State government agency or Federal Government agency, or someone who has no financial interest in the product.[22]

This system is commonly referred to as a voluntary/mandatory system wherein there are standards established by a third party. A third party does the monitoring of the system to be sure that misrepresentation is not permitted, but the industry does the grading on a voluntary basis. This contrasts to the mandatory system wherein a third party does all the grading using Federal standards and all produce is graded.

Because of this structural distinction between fresh produce marketing channels and processed marketing channels, there is a serious question as to the applicability of any grading system to all fresh produce. Professor Padberg elucidates:

> Now the problem with the grading system is that it favors a centralized commercial operation. To get Federal grading on produce moving through small local markets would be very expensive.
>
> We have a high price set on human labor, and we have adjusted our whole system to that. It favors durable and commercially grown produce. While there is local stuff that has quality anybody would recognize, a grading system just

[21] Ibid., p. 4.
[22] Ibid., p. 4.

doesn't fit it. That is a sad fact. But grading is not going to change that, I don't think.[23]

Thus, the structure of the industry is directly related to its geographic dispersion and the lack of concentrated points through which the product flows. A strictly mandatory system of grades would be extremely expensive due to this dispersion.

In terms of use of grades on a voluntary basis, incentives for grading by industry were not clear. Professor Clevenger addressed this issue in general:

> What incentives would be there if grading were voluntary? Grades would really have to convey some specific types of information that are not now communicated to differentiate products if it (grading system) were to be implemented on a voluntary basis.
>
> And I don't think that we are positive that in fact we could devise a grading system that would do that in the case of fresh fruits and vegetables.[24]

At **a different point** in the workshop proceedings, Professor Clevenger continues on the same topic but with specific reference to fresh fruits and vegetables:

> It seems to me there is an excellent option for getting to be voluntary and for industry to use it as a competitive device just as we have in nutrition labeling. The same argument we applied to nutrition labeling we could once again apply here.[25]

The cost of a system is sometimes felt by consumer representatives to be an excuse for certain courses of action. As Ms. Cross indicated:

> I can't quite go to the actual cost because I know if industry doesn't want to do it, they will talk about the cost, and if they do want to do it as a voluntary nutritional labeling program, they are not complaining about the cost.[26]

However, the analogy between the cost incurred in nutritional labeling versus the cost in grading fresh fruit and vegetables does not seem to hold. As Dr. Thomas Sporleder, agricultural economist from Texas A&M University, indicated:

> There is a tremendous difference, though, in the cost, it seems to me. In nutritional labeling there is a big start-up cost, and after the system becomes operational on a permanent basis it is not very much.
>
> When you are talking about grading fresh fruits and vegetables, it is a continuous cost. There is no start-up and then dribbling out (of costs) afterwards. It is just constant, continuing.
>
> **And so there is a tremendous difference** in the costs we are talking about. It would be more expensive to grade fresh fruits and vegetables than it is to institute nutritional labeling on canned products.[27]

Uniform Nomenclature: As previously discussed in this report, consumer advocates want uniform nomenclature for various grades which might cover all commodities graded under Federal standards. With respect to fresh fruits and vegetables, existing regulations could be changed to make grade terminology uniform and easier for consumers and industry to understand. This could assist consumers' use of the current grading system.

The structure for the terminology makes U.S. Fancy, U.S. No. 1, U.S. No. 2, and U.S. No. 3 the four designated terms applying uniformly to fresh fruits and vegetables that are graded. With the new simplified terminology, the criteria on which an individual product is graded may remain unchanged. The program announced by the U.S. Department of Agriculture potentially will take several years before the new uniform nomenclature is adopted.

From the food grading workshop, no argument or disagreement prevailed concerning whether or not there was a need for uniform nomenclature. There was overwhelming agreement that uniform nomenclature would be desirable from consumers' viewpoint and would not be contrary to the interest of industry, However, there was disagreement on what the uniform nomenclature should be, Concerns about the aspects of uniform nomenclature have at least two dimensions. One is the need for simplicity in any uniform nomenclature scheme. **A** second concern is implication of rank that comes from most

[23] Workshop, Vol. V, p. 39.
[24] Workshop, Vol. III, p.35
[25] Ibid., p. 63.
[26] Ibid., p. 66.
[27] Workshop, Vol. III, pp. 66-67.

uniform nomenclature system, which has interesting potential consequences on industry merchandising practices.

There is no reason that uniform nomenclature should not be implemented for fresh fruits and vegetables. Consensus was that uniform nomenclature could be relatively easily instituted and would be relatively low cost compared to other possible changes in the current Agricultural Marketing Service grade standards. As previously mentioned, the U.S. Department of Agriculture has announced a uniform nomenclature program for fresh fruits and vegetables. However, implementation of this uniform terminology may take several years.

Fresh fruits and vegetables and processed product sectors are similar with respect to the uniform nomenclature issue. In both sectors, workshop participants expressed concern both about tradeoff between simplicity and meaningfulness in terminology and that all nomenclature implies rank. More detailed discussion of these issues appeared previously in the Processed Products section of this chapter. In regard to fresh fruits and vegetables, the question of what terminology to choose is an unsettled issue, However, participants voiced strong support for uniform terminology for fresh fruit and vegetable grades regardless of the terminology chosen.

Summary

In terms of consumer information considerations, uniform terminology across grades that is simple to understand is the most basic need. Although some question exists concerning optimum terminology for any uniform nomenclature, no reasons seem to exist for not instituting uniform nomenclature across fruit and vegetable commodities regardless of the standard terminology chosen.

A second area of consumer information concern is nutrition. Nutritional information apparently cannot be combined with grade criteria or serve as the basis for grading, since nutritional content is similar within any particular product. This means that nutritional information cannot serve as a base for sorting among various products within a category, such as heads of lettuce. Nutritional information could be provided among categories of products—that is, lettuce versus carrots—by placing average nutritional information for each type of produce at the point of purchase in retail stores.

Other potential bases for grades do exist for fresh fruit and vegetables. One possible basis discussed by workshop participants was a grading system that reflects a per-serving basis, A second possible basis discussed was standard labeling with respect to variety. Although some may not consider such bases as a grading system per se, such systems potentially would provide additional consumer information and thus serve the same function as retail grades or be a substitute for retail grades. However, both the variety labeling concept and the yield-per-serving concept were judged by most workshop participants to have limited usefulness for fresh fruits and vegetables.

In terms of the three systems for implementing grading system—namely, voluntary, voluntary/mandatory, and mandatory--only the voluntary/mandatory system seems to be appropriate for fresh fruits and vegetables. Evidence exists that a voluntary system would be no system at all, On the other hand, a mandatory system would not likely produce a positive net benefit to consumers, since costs would be substantial in a mandatory system, while the information provided would be of marginal benefit to most consumer purchase decisions.

Congressional Options

The following are some of the options available to Congress for grading fresh fruit and vegetable products:

- Congress could direct USDA to immediately adopt the new simplified grade terminology for fresh fruits and vegetables as announced by USDA in July 1976. This would mean that program adoption would not remain at the initiative of growers or processors of these commodities.
- Congress could support or provide incentives for educational programs by

Government agencies or the private sector which inform consumers about nutrition of fresh fruit and vegetable products and the differences in nutritive content from one commodity to another.

- Congress could direct USDA to administer a standard labeling and variety identification program for fresh fruits and vegetables which are sold in retail packages.
- Congress could direct USDA to facilitate adoption of a voluntary/mandatory nutritional labeling program for fresh fruits and vegetables.
- Congress could make the current wholesale grade designation mandatory at retail for fruits and vegetables that are currently graded.
- Congress could make grading mandatory for all fresh fruits and vegetables using the current wholesale grading criteria and designate such grades at retail.

Fresh Red Meat Sector

Fresh red meat refers primarily to beef. This is because beef accounts for the largest proportion of consumer expenditures on meat. In 1976 it accounted for 54 percent of the $46.1 billion consumers spent on all meat. Poultry is excluded from this decision because: 1) in relation to beef it accounts for a small proportion of consumer expenditures on meat (12.5 percent in 1976); and 2) the present carcass grading system for poultry is suitable for consumer purchase decisions since most poultry is sold by carcass at retail. [28]

Present Status of Government Programs

There are two Government programs which influence meat grades at retail. The best known system which currently exists for red meat is a carcass-grading system sponsored by the U.S. Department of Agriculture and reviewed earlier in this document. This system is not a retail grading system, but again is oriented to facilitating wholesale exchange of meat products. The current grades are carcass grades and not retail cut grades.

A second major Government program is a combination of Federal and State inspection of meat carcasses. This inspection essentially assures safety in the food product. The inspection system is mandatory for meat. Thus, all red meat in commercial channels sold through retail outlets is inspected under this program.

The extent of use in the US. Department of Agriculture grading system is widespread but not total. About 50 percent of the commercial cattle slaughtered were federally graded in 1975 (see figure 16). Of this total that was federally graded, 5.1 percent was Prime, 77.3 percent was Choice, 12.9 percent was Good, 0.7 percent was Standard, 0.4 percent was Commercial, 3.1 percent was Utility, and 0.5 percent was Cutter-and the Canner grade was insignificant.[29]

Two concerns emerge for consumers in terms of the present Government programs relating to grading of meat. One is that the grading system is not used for all beef and, secondly, the grading system is still oriented toward wholesale exchange and therefore not carried to retail shelf in a manner that optimally assists consumer purchase decisions.

Present Status of Private Sector Programs

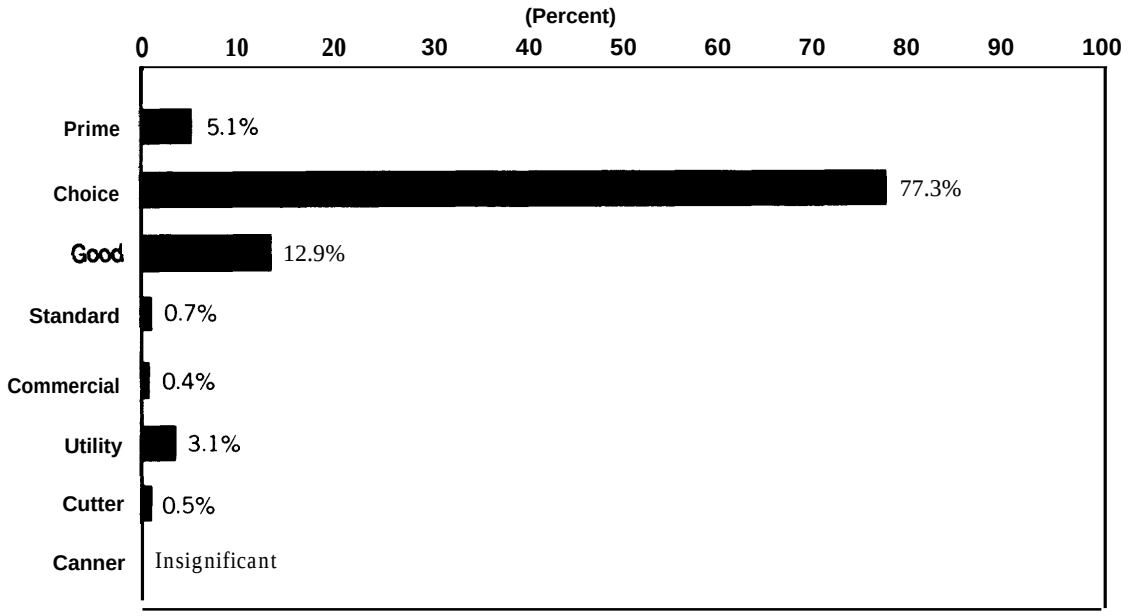
An active trade association in meat is the National Live Stock and Meat Board with headquarters in Chicago, Ill. In September 1973, the National Live Stock and Meat Board announced voluntary meat identification standards. An industrywide Cooperative Meat Identification Standards Committee developed fresh meat identification standards in an effort to eliminate confusion at the meat counter (see figure 17). This committee reduced 700 frequently used names to 314, of which about 150 were expected to be used by the average retailer, The project was coordinated by the National Live Stock and Meat Board in cooperation with the Food Marketing Institute National Association of Retail Grocers of the United States, and the National Association of Food Chains, as well as other interested

[28] USDA, *National Food Situation*, Economic Research Service (ERS), December 1976.

[29] Workshop, Vol. I, p. 251.

Figure 16.

Breakdown of Meat Grades of Federally Graded Commercial Cattle, 1975*



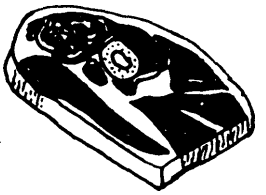
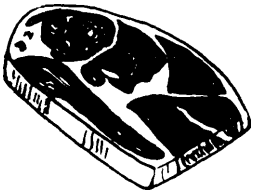
● MY about 50% of the cattle slaughtered in 1975 were federally graded.
SOURCE: Office of Technology Assessment.

groups representing various industry segments. Under the voluntary identification system, each fresh meat label at retail would indicate the name of the species—i.e., beef—the primal or wholesale cut from which the retail cut is derived—i.e., round-and a standardized retail name—i.e., round steak, This voluntary program is gaining widespread acceptance and has even been adopted as a law by some State legislatures. Basic to any retail-oriented grading system would be uniform identification of the retail cut. This voluntary program provides a basis for that uniform identification.

Another program of the private sector that potentially may evolve is a national educational and research program sponsored by beef producers. Enabling legislation to establish such a national program through funds provided by producers has passed Congress and has been approved by the President. Some **time early in 1977, a referendum will be held among beef producers to either approve or disapprove the financing of such a program through contribution of beef producers on a volume basis. If the program is approved, educational material and services could be initiated through this national program which would provide nutritional information, and other consumer-oriented information** (such as cooking and preparation ideas for particular end uses).

There are some brand names at retail for fresh meat. The informational role of these brand names would be consistency in quality over time. That is, they would assist consumers in the sense that the same brand name would be of comparable quality from one purchase to the next. However, these brand names would not assist a consumer in making a decision among brand names at a particular

Figure 17.– Selected Examples of Voluntary Meat Identification Standards

Commonly Used Name(s) and Other Information	Illustration	Recommended Name and Cooking Method(s)
Arm Chuck Steak Arm Steak Beef Chuck Arm Swiss Steak Chuck Stk. for Swissing Round Bone Steak Round Bone Swiss Stk.	a 	**BEEF CHUCK ARM STEAK (Braise)**
Boneless Arm Steak Boneless Round Bone Stk. Boneless Swiss Steak	a 	**BEEF CHUCK ARM STEAK BNLS** (Braise)
Barbecue Ribs Braising Ribs English Short Ribs Extra Lean Fancy Ribs Short Ribs	b c 	**BEEF CHUCK SHORT RIBS** (Braise, Cook in Liquid)
English Steak Shoulder Steak Shoulder Steak, Bnls. Shoulder Steak, Half Cut	d 	**BEEF CHUCK SHOULDER STEAK BNLS** (Braise)

SOURCE National Live Stock and Meat Board

time. Few brand names exist for fresh meat as compared with those for processed products.

Potential Function of Retail Grading

Grade Criteria: A common dilemma among all three commodity categories considered in this report is that current grading is not indicative of value differences to the consumer. Meat grading is done on wholesale cuts but not retail cuts, although sometimes the retail package carries the grade designation of the carcass from which it was cut. For grades to be meaningful, grade distinctions should be made in terms of value differences.[30] In an effort to make meat grades deal only with the fabrication of retail cuts, Professor Padberg argues:

> The concept of retail meat grades should have two criteria: parent material, one; and two, what happens in the fabrication of retail cuts, the trim, yield question,
>
> When you get down to parent material, there is little problem in that, one, the parent material is not a very good predictor of consumer values in the first place. The amount of consumer value you get from going up the grades in parent material is small. And, two, there are a lot of innovative opportunities for changing the parent materials.[31]

Professor Padberg continues:

> What Prime, Choice, and Good have told the consumer is something pertaining not to their market but somebody else, And if you are going to have grade to deal with their values, it would be less confusing instead of more to have a new set of names because you are talking about a different set of values and a different set of tranformations.[32]

Another concern specifically related to meat is the relationship between nutrition and the current wholesale grading system. Concern about fat content, both in terms of trim and intramuscular, have led some to question whether or not grades in meat could be based on nutritional content. Workshop evidence on that point indicates overwhelmingly that nutrition would not serve as a useful basis for grades when combined with palatability considerations. Professor Zane Palmer addressed this issue:

> Marbling is almost always positive in its relationship to palatability but is not the indicator of tenderness, juiciness, and flavor that we once thought it was.[33]

Professor Palmer continues along a similar line:

> Nutritional superiority and palatability do not necessarily have to go hand in hand; they can sometimes go in opposite directions. So how can you average out the two extremes and come out and say it is average in nutrition and average in palatability when that represents neither extreme value? And for this reason I think you are averaging apples, doughnuts, and coming out with oranges, and it is just not valid to do that.[34]

Mr. Kimbrell agreed, saying:

> It would be much better to have both the grade and fat designation if you want nutritional labeling, but you would confuse the issue if you combined them into one designation.[35]

Thus the workshop consensus was that nutritional labeling may be a desirable program for retail cuts of meat but that it should not be combined with or in any way considered as a grade criteria. The primary reason for this is the confusion which would result from such combinations.

Another consideration in attempting to make nutritional content the basis for grade was indicated by Professor Padberg:

> Another thing that has been a very great difficulty in labeling problems is the basic topic of nutrition itself. We have a conception of nutrition that deals with diet. Now to go from a diet to a food product is a very basic difficulty.
>
> We can conceive of nutritious diet, but the concept of a nutritious food product has not ever been developed. There are many components of a nutritious diet and the concept of getting them all in a product is very repulsive to nutritionists, and I think the populace in general. So here is a very great difficulty in nutrition labeling. Any product is a component of a diet, and it maybe a useful component although it is very lopsided in its individual characteristics. What makes a nutritious product is what other products it is

[30] **Workshop**, Vol. IV, p. 35.
[31] **Workshop**, Vol. IV, pp. 64–65.
[32] **Ibid.**, p. 72.
[33] **Ibid.**, p. 5.
[34] **Ibid.**, pp. 2-3.
[35] **Workshop**, Vol. 1, p. 151.

combined with in a day or a period of several days. We have a conception of nutritional diet; we do not have a conception of nutritional product.[36]

Dr. Angelotti summarized this point by saying:

We ought to be thinking about nutrition information and nutrition labeling as something different from grading. We want it, people should have it, they should learn to use nutritional labels, and that should be an independent consideration at this point in time from grading.[37]

When nutrition is considered in terms of vitamin and mineral content of food, the above discussion applies. That is, if nutrition is conceived as the content of a particular product in terms of vitamins and minerals, then workshop consensus was that such information would best be supplied on a separate label on a fresh meat package. There is concern by some that the percent of fat to total weight on fresh meat may be nutritionally significant from a health standpoint. Along these lines, workshop participants discussed two possible systems for retail grading of fresh meat. The systems are yield, either on a per-pound basis or per-serving basis, and uniform mandatory labeling. Each will be discussed in turn in the following paragraphs.

The potential system of yield per pound or per serving is conceived as dealing with trim (or the amount of external fat in relation to lean per retail cut) in grade standards. In addition, intramuscular fat or marbling may or may not be included as part of the grade criteria. Such a conceptual system may increase the relationship between grade values and nutritional values. An illustration of how such a conceptual system might work is given by Professor Padberg:

A grade standard might include two or three things. One might be that the first grade (a retail cut) might come from Prime carcasses and then it might have other criteria to deal with trim or internal fat as well.

Maybe grade two would come from a Choice carcass and perhaps have the same trim standards, but not the internal fat, so you would end up with some retail grade that deals with consideration of value to the consumer, of which trim is probably the most important.

What this would do would certainly give the market system a lot better information. Because you would have a price for Grade 1 and different price for Grade 2. Now, you have the scramble for the difference, and you do not know what economic values accrue to different trim. So in terms of making a market work better and marking products described better, in terms of functions of grade, I think this would identify the functions of a grade.[38]

It would be necessary to define retail cuts through some standard uniform system before such grading could be operational. This means that a system such as the current voluntary system of the National Live Stock and Meat Board[39] would need to be universally adopted before a yield-per-pound or per-serving grade would be feasible.

Another difficulty with such a system would be the logistic of implementation. Professor Palmer addressed this point:

Composition of a meat product is not determined until you finish the fat trim and know how much bone you are going to remove. So on fresh meats, it would be extremely difficult to develop meaningful information on composition, on say a steak, or a roast, or pork chop, or what have you.

And therefore it is so variable and the shelf life is only 72 hours after you cut it anyhow, which means that you have a deadline between the time that you set up exactly what the retail cut is until the time that it is sold, so most of it is sold before that time period. So as I see it in fresh meat, to have nutritional information on that specific cut can be virtually impossible. But, what you might want to do if you wanted to do anything would be to say what it (nutrition) is in general,

The best you could hope to do on an individual retail cut is to determine in general nutrition if on a fat constant basis or a fat and bone constant basis.[40]

This also illustrates the logistic difficulty of grading individual retail meat cuts. Shelf life

[36] Workshop, Vol. I, p. 136.
[37] Ibid., p. 143.
[38] Workshop Vol. IV, pp. 8–9.
[39] *Uniform Retail* Meat *Identity Standards*, National Live Stock and Meat Board Publication, Chicago, Ill. 1973.
[40] Workshop, Vol. I, p. 131.

on fresh retail cuts of meat is typically no more than 3 to 4 days. This is an extremely important physical characteristic of fresh meat compared to either processed products of fresh fruits and vegetables.

Other Bases for Grading: Another system is one involving uniform mandatory labeling of fresh meat at retail. Although some may not consider this to be a grading system per se, such a system would provide consumer information via labels and in that sense serve the same function as grades. This concept amounts to making a system mandatory at the Federal level such as the National Live Stock and Meat Board meat identification standards, Some suggest that the primary consumer information need with respect to fresh meats at retail is a standard identification of retail cuts over time and over geographically separate markets. The contention is that consumers can readily determine value of individual retail cuts by simply looking at the amount of external fat in relation to total weight. If this contention is accepted, then uniform mandatory labeling would provide unique and distinct information which consumers cannot otherwise determine.

An extension of this second system may or may not involve mandatory wholesale grade identification for individual retail cuts. As mentioned previously, with the current beef grading system, carcasses are graded but individual cuts are not. Of course, carcasses are the parent material from which retail cuts are derived (see figure 18). Mandatory display of the grade of a carcass from which a retail cut is derived could be part of a uniform mandatory labeling program. Such extension of the present wholesale grading system would provide more uniform consumer information with respect to grade than is currently available.

Potential Impact of Retail Grading

Costs for any fresh meat grading system applicable to retail cuts depend upon the distribution system which is assumed prior to calculating costs, Three distinct and separate distribution systems can be defined, One is the current distribution system using current technology. A second is centralized processing of fresh retail cuts, while a third is centralized processing of frozen retail cuts. Each of these systems is explained in turn.

Current technology is to fabricate retail cuts at the retail store level. This means that primals, subprimals, or carcasses are transported through the marketing channel from either packing plants or distribution centers to retail stores. In the meat workrooms of retail stores, individual retail cuts are cut and packaged. This distribution system is the one used for most distribution today.

Centralized processing of fresh meat cuts implies that the fabrication of individual retail cuts is not done at the retail store level but at a more centralized location such as retail chain distribution center or even a packing plant. However, because of the physical limits on shelf life of individual fresh retail cuts, there is a time limit on handling and transporting fresh cuts. If these cuts are fabricated at the distribution center or packing plant, shelf life may be a limiting factor on feasibility of the system. Shelf life on individual fresh retail cuts may be extended by rather sophisticated packaging techniques (such as vaccum packaging), but this is relatively expensive packaging compared to conventional packaging. Some experimentation has been done with centralized processing of fresh retail cuts, but due to the shelf life limitations mentioned, the system has not been widely adopted.

A third distribution system is centralized processing of frozen retail cuts. The obvious factor mitigated by freezing is shelf life. Freezing extends shelf life while preserving product quality, so that transportation and storage time are eliminated as a problem. Freezing is most useful for beef but may not be as advantageous for other red meats.

Current freezing technology for beef is to flash freeze individual retail cuts with either nitrogen or carbon dioxide. With this system, beef is cut centrally, frozen at the central location (either distribution center or processing plant), shipped in freezer vans, and sold in a frozen state at the retail case. This system potentially offers cost savings over the previous two systems described, even though it is relatively energy intensive. The system has

Figure 18

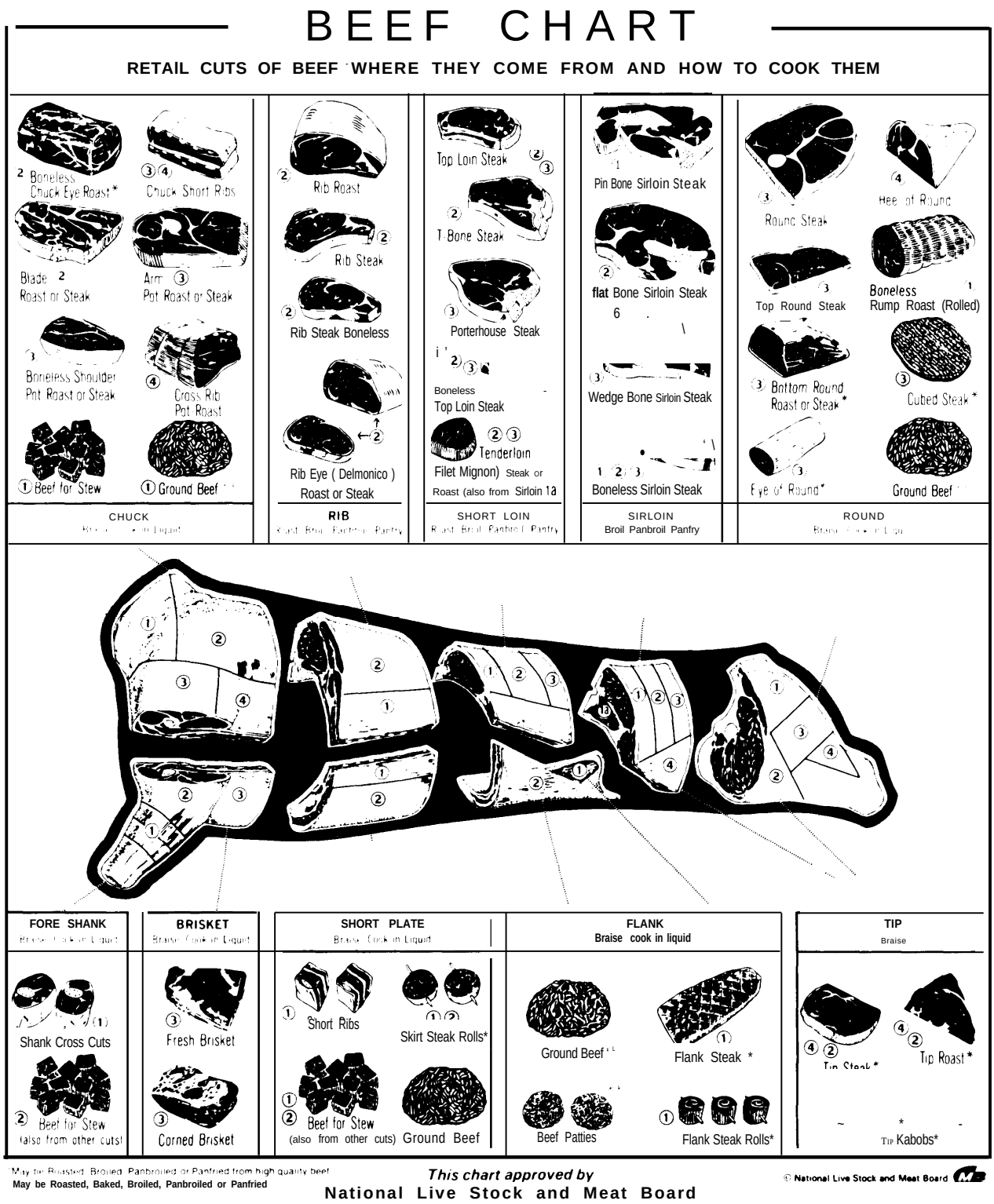


Photo: National Live Stock & Meat Board, Chicago, Ill.

been used on an experimental basis for beef and is currently being used by some processors and retailers, but the system has made no major inroads in the mass distribution of beef.

There is a direct relationship between the type of distribution system and the cost of any retail grading system. The cost of any mandatory retail grading system would be prohibitive under the current distribution system where retail cuts are fabricated at the retail store level. Professor Palmer elucidates:

> **Naturally, if you do it at each individual retail market, your cost of grading service is** going to be prohibitive. Right now you have one grader out in Iowa, for example, and I suppose that one grader would grade 800 or 1,000 carcasses a day. And if you go to a retail store, it would take one retail grader per store and he would be grading every few carcasses.[41]

This means that the cost of that grading service on a per-unit basis increases substantially when the grade is established at retail compared to a product concentration point, such as a packing plant. Any centralized distribution system would alleviate this burdensome cost at retail and be significantly less expensive than grading at the retail level without changing consumer benefit from the grading system.

Costs involved in actually grading products, via inspection costs, are sensitive to the above distribution systems. However, the enforcement aspect implied by voluntary or mandatory grading programs may not be as sensitive to the type of distribution system. The workshop provided no indication as to the magnitude of enforcement cost on any voluntary or mandatory system. However, this is a substantial cost consideration which would need extensive investigation before any particular system could be fully evaluated in terms of cost.

Technology in Relation to Tenderness in Beef

There are several ways to influence beef tenderness; some methods of tenderization are of long standing, others relatively new. Use of protelytic enzymes as a tenderizing process is patented by a proprietary meat packer, and fresh beef so processed is currently at retail under a brand name of the packer. The technique was developed several years ago.

A newer technology, currently being researched at several universities, is post-mortem but pre-rigor electrical stimulation of beef carcasses with, for example, 320 volts at 5 amps for 20 seconds. Although this technique is still in the experimental stages, results thus far indicate such treatment significantly tenderizes beef of several grades. Another technology for tenderization of beef is termed "mechanical tenderization." The process has increased in application during the past several years. This technology uses a machine with tiny blades or knives which significantly tenderizes the meat.

There is a relationship between such technologies and the function of retail grades. If significant new technologies are developed which tenderize meat on a rather uniform basis regardless of grade, then the necessity for grade being based on tenderness (and therefore maturity and marbling) would be significantly reduced. Similar technologies have already altered the functions of grades but future impact is not clear at this point.

Summary

The fresh meat industry currently uses the grade system best known to consumers, although it is basically a wholesale-oriented system. The system is voluntary/mandatory, and there is uniform grading terminology across fresh meat products. However, the current grading system is voluntary and not used for all meat. Nor is the carcass grade necessarily identified on an individual retail package.

One of the most significant needs for consumer information regarding fresh meat at retail is identification standards for retail beef cuts devised by the National Live Stock and Meat Board that provide standardized identification and labeling. This program has even been adopted as law in some States.

Concern about fat content, both in terms of trim and intramuscular, raises the question

[41] Workshop, Vol. IV, p. 30.

concerning retail meat grade criteria based on nutritional content, Workshop evidence indicates overwhelmingly that nutrition would not serve a useful basis for grades when combined with palatability or other sensory characteristics. The primary reason is that nutritional superiority and palatability are not necessarily positively correlated, Combining the two would result in confusion. Most workshop participants thought nutritional labeling separate from grade criteria was a more desirable program for retail cuts of meat.

A prerequisite to adoption of an individual retail cut grading system would be standardized fabrication, retail cut nomenclature, and labeling procedures. Given standard identification of retail cuts, a grading system based on yield of edible meat on a weight basis would be possible. Such a system would have both advantages and disadvantages, as discussed above.

Cost and net consumer benefit would depend significantly on the type of meat distribution system that existed. **In essence, the technical feasibility of reflecting the composition of meat—that is, fat, vitamins, and/or minerals—exists. Net consumer benefit, however, varies greatly by type of grading system and by type of distribution system. Further detailed analysis would be necessary to determine net consumer benefit for any combination of grade system and distribution system.**

Congressional Options

The following are some of the options available to Congress for grading fresh meat:

- Congress could make the current voluntary program on meat identification standards mandatory for all retail meat cuts. This would facilitate uniform identification of retail meat cuts.
- Congress could direct USDA to facilitate the adoption of a voluntary/mandatory nutritional labeling program for fresh retail meat cuts.
- Congress could direct USDA to institute a voluntary/mandatory program of retail meat grades where grade criteria are based on yield per pound or per serving, Such a program should not be instituted, however, prior to a program that would assure uniform identification of retail meat cuts.
- Since net benefit of any retail grade scheme is highly dependent upon the type of meat distribution system in existence, committees of Congress with jurisdictional authority could examine the potential for lowering the distribution costs of meat from various systems (such as conventional compared to centralized frozen) in oversight hearings. Such hearings could produce further evidence on the potential impacts and benefits of retail grade alternatives for meat.
- Congress could make grading mandatory for all fresh red meat using the current carcass grade criteria and designate such grade on all individual retail meat cuts.

APPENDIXES

AND GLOSSARY OF TERMS

APPENDIX A

RECENT STUDIES MENTIONING FOOD GRADING

Though the food-processing industry is strongly against changing the present USDA grading system, other sectors of the economy, several Federal reports, and some individuals within the Federal Government favor changes in the grading system. Changes have been advocated in such Government reports as the Report of the National *Commission on Food Marketing,* dated June 1966; the *Report of the 1969 White House Conference on Food, Nutrition, and Health;* the *Report of the Consumer Panel of the National Nutrition Policy of 1974,* conducted by the Senate Select Committee on Nutrition and Human Needs; and the 197.5 *GAO Report on Food Labeling.* This section reviews changes proposed by these reports without judgments on the merits of the proposed changes.

The Report of the National *Commission on* Food Marketing

The Commission on Food Marketing, established by Public Law 88-354, began its work in January 1965. The bipartisan Commission was chartered to study and appraise the marketing structure of the food industry.

Of the various reports mentioned above that dealt with food grading, the Food Marketing Commission was the only report which treated economic and marketing consequences of food grades in detail. The Commission said that Federal grades was one of the several factors which contributed to the rapid reconcentration in cattle slaughtering after World War 11 because the wide use of Federal grades for beef made it easier for new firms to compete for customers on equal terms with packers whose names were already well known.[1] It noted that eggs and butter use retail grades and have low firm concentration, In early 1966 the top 13 firms produced only 10 percent of the fresh U.S. table eggs, and butter was the least concentrated of any dairy product.[2] The Commission report's implication is that grades seem to produce less concentration and therefore more competition for products carrying retail grades,

The Commission's majority opinion concluded that consumer grades should be developed and required to appear on all foods for which such grades are feasible, that are sold in substantial volume to consumers, and that belong to a recognized product category. Besides providing consumers with the choices and unbiased information they need to get the most satisfaction for their money, the Commission also hoped that consumer grades would reduce the excessive use of promotion and contribute to a better performance of the food industry. The Commission also concluded that uniform nomenclature in the form of A,B,C should be utilized except for foods for which other nomenclature is well established.[3]

However, a minority opinion felt there was insufficient evidence to allow the Commission to recommend development and implementation of consumer grades. The minority opinion maintained that administrative rigidity would make meaningful consumer grades unfeasible, that quality judgments are personal, and therefore meaningful Federal quality standards for consumers could not be devised, and that the Commission had no evidence to support its view that the cost for consumer grades would be nominal. Finally, the minority disagreed with the majority conclusion that consumer grades would reduce the amount of advertising. They felt, rather, that consumer grades would increase the amount of advertising to offset the "equalizing" effect of grading. The minority opinion concluded that not having studied what the result would be, the majority is guilty of willfully tampering with an important component of our economy without knowledge.[4]

The Report **of the** 1969 ***White House*** **Conference on Food, Nutrition, and Health**

The White House Conference convened representatives of all sectors of food production and distribution system to investigate America's food supply, nutritional needs, and nutritional capabilities in order to recommend a national food policy. Food

[1] USDA *publication. Report of the National Commission on Food Marketing, Food from Fanner to Consumer,* June 1966, p. 25.

[2] Ibid., pp. 33-45.

[3] Ibid., p. 109.

[4] USDA Publication, *Report of the National commission on Food Marketing, Food From Farmer to Consumer,* June 1966, p. 130 and 153.

grading was among the many subjects discussed, and the following recommendations were made by the panel on food quality:[5]

(1) **That designations for the grades be standardized so that a simple system is used and is consistent for all types of food for which grades are appropriate.**

(2) That grading standards should be evaluated periodically to determine that they continue to aid the consumer in understanding food quality.

(3) That grading standards should be adopted to give consideration where feasible to the nutritive content.

(4) That a single code of regulatory requirements pertaining to grading standards prevail in all jurisdictions; i.e., Federal, State, and municipal. The term "requirements" would imply that the panel was recommending that these standards be mandatory for all foods graded.

The members of the panel on food quality believed that quality should be available without requiring employment by the consumer of technical knowledge of nutrition or elaborate facilities for home preparation.[6]

The Report of the *Consumer Panel of* the National Nutrition *Policy* Study of 1974

Members of the Senate Select Committee on Nutrition and Human Needs accepted recommendations of the consumer panel during the period June 19-21, 1974. Among the many recommendations made are several on food grading (written by Syd Margolius, consumer author).[7] The report concluded that consumers are unable to compare food quality and that grade labeling continues to be one of the consumer's main wants. The panel's recommendations for change were seen as necessities if the consumer is to use grades for comparing food products. The report recommended the following:

(1) Quality grades need to be simplified, and the nomenclature needs to be uniform. Present grades were recognized as confusing for consumers.

(2) Mandatory retail grades are needed on products which have their wholesale grades used by **growers and processors** in their transactions. This would exclude some foods from retail grading.

(3) Changes in the present standards must be made. The panel believed that too much emphasis is given to uniform appearance and color rather than to nutritional considerations or even eating qualities such as taste and tenderness.

The report also disputed industry's claims that Government grades would inhibit manufacturers from trying to develop new products or better and more exciting variations. Products that have been sold with grades at retail--such as meat, poultry, and juice concentrates—have been improved or had new variations developed. Products with grades have achieved consumer acceptance and confidence, and producers and processors have been encouraged to improve quality in order to achieve a higher quality grade. Both consumer and wholesaler gain from use of grades at the retail level, the report concluded.

The 1975 GAO *Report* on Food *Labeling*

This report devoted a chapter to the USDA quality grading program.[8] It recognized that the absence of clear and meaningful information concerning the quality of food hinders consumer efforts to compare the values of competing products.

Consumers, the report noted, are presently having difficulties in comparing the value of products because the nomenclature is often very technical and difficult to understand and grade designations vary from product to product. The report concluded, however, that despite the problems which hamper consumer use of USDA grades, those consumers who understand the system seem to find it useful in comparing the value of competing products.

Based on their findings, GAO recommends that the Secretary of Agriculture revise existing regulations to make grade designations uniform and easier for consumers and industry to understand, in order to assist consumers trying to use the USDA grading system. While the report does support uniform grades, it does not commit itself to a recommendation that such grades be mandatory at the retail level because of the possible increase in food costs, nor does the report assess the present USDA grade standards as being a valid measurement of food quality.

[5] White House Conference on Food and Nutrition, "Food Quality: Guidelines and Suggested Administrative Structure," p. 144.

[6] Ibid., p. 142.

[7] U.S. Senate, Select Committee on Nutrition and Human Needs, *National Nutritional Policy Study—1974,* pp. *1980-1983,*

[8] *Food Labeling: Goals, Shortcomings, and Proposed Changes,* U.S. General Accounting Office, January 29, 1975, pp. 36-42.

APPENDIX B

CONGRESSIONAL INTEREST IN FOOD GRADING

Several food labeling bills were introduced in the 93rd Congress; one of them—H.R. 1656, the Consumer Food Grading Act-dealt with food grading. H.R. 1656 was introduced by Congressman Rosenthal (D-NY) and referred to the Agriculture Committee. The bill, which sought a uniform system of quality grades for consumer food products, died in committee without any hearings or other action.

In the 94th Congress, Congressmen Karth (D-MN) and Price (D-IL) have each introduced identical bills, H.R. 3011 and H.R. 1367, both titled *Consumer Food Grading Act* and both awaiting action in the Domestic Marketing and Consumer Subcommittee of the House Committee on Agriculture. In addition to calling for uniform nomenclature at the retail level, the bills give the food industry the option of stating the correct grade on the product label or including the statement: "Not quality graded by the United States Department of Agriculture."

Congressman Rosenthal has introduced another bill, H.R. 42, the *Consumer Food Labeling Act*. This bill had 58 co-sponsors and at the close of the 94th Congress was awaiting action before the following Interstate and Foreign Commerce subcommittees: Consumer Protection and Finance, chaired by Congressman Van Deerlin (D-CA); and Health and Environment, chaired by Congressman Rogers (D-FL). Both subcommittees expressed interest in H.R. 42, but neither subcommittee considered this bill by the close of the 94th Congress. While portions of the bill could be considered within the jurisdiction of the House Agriculture Committee, Chairman Foley would have to wait until the bill reaches the House floor before this possible claim of mutual consideration could be decided. If Chairman Foley's claim of mutual consideration is granted by the full House, then either all or portions of H.R. 42 would be sent back to the Agriculture Committee.

Title V of the bill was labeled the "Consumer Food Grading Act," and the content and wording of Title V was identical with H.R. 3011 and H.R. 1367. Food grading, however, was only one of the many labeling issues which H.R. 42 considered, while H.R. 3011 and H.R. 1367 dealt only with food grading.

Congressman Gilbert Gude (R-MD) had a bill, H.R. 472, before the Interstate and Foreign Commerce Committee that would have amended the Federal Food, Drug, and Cosmetic Act to establish a uniform grading system based on the nutritional value of foods which would be applied to all food sold in interstate commerce. The grading code was to be "simple and easily understandable," and a program of consumer education about the new system was to be triggered if the bill was enacted. This system would take into account the nutritional or non-nutritional value of the product being graded. This bill also died in the previously mentioned subcommittees of the Interstate and Foreign Commerce Committee.

Congressman Gude's bill was introduced as a result of a consumer questionnaire he circulated in his Maryland district. The Congressman discovered that consumers are not using existing grades to compare products but that some effort is being made by some consumers to use the nutritional information provided to them. Consumers indicated they were interested in quality rating based primarily on nutrition as well as in more nutritional information, and they favored the same quality grades for a variety of food products.

Legislation on food grade labeling was not introduced in the Senate for the 94th Congress. Neither of the two Senate Committees—Labor and Public Welfare, and Commerce, which have jurisdiction over any food labeling bills—had any legislation introduced to them.

All of these food grading bills appear intended to help consumers in food shopping at a time when food costs are rising, Some bills seek to make the grading nomenclature uniform, others call for grade standards to incorporate nutritional factors of a product, and still other bills limit revising the standards for a particular product, primarily beef. In all, at least 13 bills were introduced in the House during the 94th Congress; none of them, however, were reported out of committee.

Bills Affecting Federal Food Grades in the 94th Congress

Bill	*Sponsor*	*Title*	*Committee*
H.R. 42	**Rosenthal**	**Nutritional Labeling Act**	**Interstate& Foreign Commerce**
H.R. 472	**Gude**	**Nutritional Grading**	**Interstate&Foreign Commerce**
H.R. 836	**Peyser**	**Nutritional Grading**	**Interstate&Foreign Commerce**
H.R. 995	**Rosenthal**	**Truth in Food Labeling Act**	**Interstate& Foreign Commerce**
H.R. 1367	**Price**	**Consumer Food Grading Act**	**Agriculture**
H.R. 3011	**Karth**	**Consumer Food Grading Act**	**Agriculture**
H.R. 3547	**Rosenthal**	**Marketing Practices Disclosure Act**	**Interstate& Foreign Commerce**
H.R. 3986	**Oberstar**	**Marketing Practices Disclosure Act**	**Interstate&Foreign Commerce**
H.R. 4401	**Barrington**	**Food Labeling Act**	**Interstate& Foreign Commerce**
H.R. 5266	**Peyser**	**Beef Grading Restriction**	**Agriculture**
H.R. 6606	**Rosenthal**	**Consumer Food Labeling Act**	**Interstate&Foreign Commerce**
H.R. 9268	**Rosenthal**	**Consumer Food Labeling Act**	**Interstate& Foreign Commerce**
H.R. 10776	**Richmond**	**Consumer Beef Grading Act**	**Agriculture**

APPENDIX C

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APPENDIX D

CONSUMER INPUT FOR DESIGNING A RETAIL GRADING SYSTEM*

The proximity and success of wholesale grades is probably an important factor in leading people to conclude grades would work effectively at retail. Yet some rather startling contrasts occur when the extension of the grading concept is set in the transaction between the retailer and the consumer, rather than in the transactions among middlemen back in the system. Some of these contrasts may be useful in appraising some particular problems associated with getting user input into the process of determining and using retail grades.

User input has been an important aspect of creating grades and grading programs at the wholesale level. At this level, users are experts, spending their life in the practical or theoretical study of the market transactions under consideration. **When public agencies developing grading systems or enforcement procedures need information on any aspect of market behavior, they can simply telephone active traders and ask them.** In addition, the hearing process is an effective way for public agencies to acquire information. Since users are experts and would be directly affected by any program, they are motivated to inform themselves of imminent public decisions about grades and to respond to hearing calls.

In **addition to the availability of expert information and the willingness of experts to respond, the subject matter of importance in transactions among experts is objective facts about the products. Sometimes these objectives facts may be difficult to measure, such as color, but even this attribute of some products is quantifiable electronically. Unlike the characteristics of final consumer products—** such as style, convenience, and other rather subjective attributes—the expert's primary focus is on objective characteristics of the product.

Private product definitions, particularly product brands, have relatively small meaning and importance to transactions among experts. Experts tend to develop and execute transactions on the basis of objective information and product definitions or ratings. Competing private product definers are therefore less developed and have less momentum. The formulation of grades simply amounts to the groupings of objective product attributes already understood and used by traders into uniform product definitions. Users are often motivated to cooperate because, being experts, they can perceive advantages in a uniform system to themselves and their trading partners.

Special Problems Related to User Inputs for Retail Grades

In the transaction between the retailer and the final consumer, objective information about product characteristics may be important, but it shares the stage with many other subjective characteristics. The image of a product, as well as its technical characteristics, affects its value. While experts are rationally motivated to give meticulous care to buying products at the lowest price, consumers may be rationally motivated toward very different objectives. Consumers are exposed to thousands of items on a shopping trip. A careful analysis of the best buys would take many minutes and perhaps hours. Even after such analysis, it is questionable whether or not the technically best buy would be sufficiently cheaper than the product purchased by habit to justify such time expenditure. So it may be quite rational for consumers to have a purchase pattern in which consumption habits and spontaneity are more important determinants of choices than analysis of objective facts about products. Also, consumers are accustomed to making product judgments and evaluations based on private communicators such as brand names, and considering a new public system is somewhat foreign to them.

It goes without saying that obtaining user input for defining the most appropriate and functional system of retail grades is very different from the simpler counterpart process for wholesale grades. Consumers are not sufficiently interested or aware to respond in large numbers at hearings, as experts would. They may find it very difficult to answer questions about their attitudes toward or preferences for a retail grading system which is generally unfamiliar to them. This means that, even with special initiative on the part of the public, it may not be easy to accurately reflect con-

*This section is based on a paper written for the Office of Technology Assessment by D. I. Padberg entitled "Consumer Input for Consumer Grades and Product Labels, " October 1976.

sumers' long-term interest pertaining to retail food grades.

Reasonable Expectations for Consumer Surveys

In our complex society, more and more important determinations are taken by the action of groups and less and less by the action of individuals. **As** food products have grown in number and changed in character, the primary initiative in the design and selling of a food product is taken by producers or manufacturers. The consumer as an individual reacts passively. In this situation, manufacturers must go to consumers in some survey method and probe the consumers' interests for potential products. The public, in designing grading systems for food products at retail, must similarly go the passive consumer for information useful in designing a functional grading system.

Two types of situations need to be defined in assessing useful output from surveying consumers' views, preferences, and opinions. The first situation is where the consumer is aware of the topic being surveyed and has "performed" views and opinions. In this situation, the survey objectives and methods are relatively simple. Little time is needed in conversing with the consumer as to background or definitions of the topic or product being surveyed. Consumers are frequently and conveniently surveyed in the supermarket with a questionnaire requiring five to ten minutes. Telephone surveys are also quite credible in this situation. Reactions to political candidates or preferences pertaining to known products are examples of situations where this relatively shallow inventory of preformed attitudes and reactions is effective and useful.

In this situation, consumers are not asked to think or analyze. The interview process simply inventories attitudes already developed and formed. In short, surveying preformed attitudes or opinions or preferences is relatively easy, straightforward, and inexpensive.

Useful output from consumer surveys becomes more difficult, however, when the topic of the inquiry is one about which consumers are generally unfamiliar and therefore about which they have no preformed positions. In this situation, a much more delicate interview process must be followed. First, the consumer has to have the topic introduced. Introducing a new topic to a consumer for which and about which a reaction is to be solicited is precarious. It is most difficult to describe a topic such as retail grades without conveying an emotional approval or disapproval. In terms of consumers' reaction to this introduction of the topic, their ability to receive and appraise it depends considerably on their previous experience. If similar concepts and activities are within their experience, it will be much easier for them to receive, classify, and react to the topic. On the other hand, consumers who do not find through experience a functional context in which to receive, analyze, and react may be unable to give a useful interpretation. In this latter case, they will be searching most actively for clues from the person introducing the topic on how to evaluate it. The interviewer is trying to be neutral: the interviewee is searching for clues.

In this situation, the interview process may be asking the consumer to do the impossible. Consumers are being asked to give information they do not have. They only have what was given them. If the proposition is presented so it is absolutely sterile of value judgments, they may find it very difficult to analyze and say what their feelings or views are. On the other hand, if the proposition is laiden with values, the interviewer is very likely to get back those same values or opinions.

The implications for the process of obtaining consumer input in the design of Federal retail food grades is clear. Experts have considerable difficulty conceptualizing the operational mechanics and user implications of retail grades. It may be naive to expect that consumers can efficiently and directly advise on how to design such a system that would operate effectively.

The pivot point of this argument turns on what you expect the consumer knows about the subject of retail food grades specifically or "product information on product labels" generally. Experts who have spent their professional lives dealing with food product characteristics have the tendency to assume: 1) that these characteristics are important to consumers; 2) that consumers in large numbers are concerned and worried about these matters; 3) that consumers have preformed attitudes about the ideal kind of information they want on labels; and 4) that consumers would use such informative labels. After conducting thousands of interviews relating to consumer reactions to unit pricing and nutritional labeling, Padberg feels such "face value" interpretations of the meaning to consumers of informative labels are naive. Informative labels have meaning and usefulness to consumers, but meaning and use are different than experts anticipate.[9]

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[9]R.J. Lanahan, J.A. Thomas, D.A. Taylor, D.L. Call, and D.I. Padberg, Consumer *Reaction to Nutritional Information on Food Product Labels Search,* Vol. 2, No. 15, Cornell University, 1972.

What Do Consumers Want?

In today's affluent society food consumed at home is by and large a maintenance activity, necessary but not the central focus of life. The "good life" involves creative, humanitarian, and other fulfilling activities. From a very young age, we leave the household frequently for extended periods of time to find these activities. Consumers want (and are willing to pay for) many kinds of professionals to do the work of preparing food for consumption inside or outside the household. They are even willing to pay professionals to suggest things for them to buy. Consumers want to react rather than to plan.

Consumers want to purchase food quickly and have assurances that this maintaining substance is safe, wholesome, nutritious, and economical. While consumers do not want to analyze product quality definitions or ingredient labels as a part of the purchase decision, they want to feel that someone is accountable for the nutrition of the product they will offer their family. In other words, they want to be able to hold the food distribution system accountable. Accountability used to be a personal matter in the small business world of the past, where the grocer, local butcher, or baker was also a neighbor. The gigantic modern firms shipping food all over the country and around the world are extremely impersonal. The impersonal nature is not a particular problem because consumers have their own hierarchy of preferences for personal interaction. The grocer may not be high on this list. Nonetheless, the consumer still wants accountability.

The important function of informative labels and public initiative in defining products is essentially twofold. To the consumer it means accountability. It means that someone, including public representatives as well as private firms, is paying attention to important matters such as nutrition and safety, etc. To manufacturers its meaning is much more complicated and comprehensive. Nutritional labels, for example, stimulated manufacturers to a great deal more nutritional sensitivity than they had previously. It provided a basis of comparing their product values which did not previously exist, and they were most sensitive to it. That comparison became not the sole element but another important element in their competitive rivalry with other food manufacturers. Even though individual consumers may not use this information routinely as a point of purchase aid, consumer groups may give careful surveillance to nutritional quality in general and specific terms, So, in this case as usual, the important actions and determinations are the results of initiatives of groups rather than individuals. The individual sees it as a symbol that this issue is being addressed. The initiative, action, and changes result from interactions of various groups-competing firms, consumer groups, or governmental agencies.

In summary, individual consumers desire accountability from the food distribution system, but it may be naive to expect consumers to have input into the design of a retail grading system for food. Useful input into the design of the mechanics or implications of various retail grade schemes is not likely to come from individual consumers, since consumers would be asked to give feelings and information about their desires which they do not possess. Although individual consumers **may not possess** strong opinions concerning the specifics of retail grades, a more general desire for accountability of the system exists among consumers, A retail grade system could be a part of the accountability which consumers desire.

Grade criterion—the standard on which the sorting process separates a product into two or more groups.

Grade designation or nomenclature-a set of terms used to signify the various grades.

Grading--a sorting process which separates a product into two or more groups through the use of a base criterion.

Mandatory system-grades are establ ished by **the Federal Government and use** of these **grades would be required by law.**

Nutrition labeling-a voluntary declaration of the calorie, protein, carbohydrate and fat content and the percentage of U.S. Recommended Daily Allowance for protein and seven vitamins and minerals in each proc-essed food product.

Private voluntary system—grades are established by industry and used voluntarily.

Processed foods--any fruit, vegetable or other food product which has been preserved by the recognized commercial process, including, but not limited to, canning, dehydrating, drying, the addition of chemical substances, or fermentation.

Retail—that level of the marketing system which sells goods to ultimate consumers for personal or household consumption,

Safe—refers to a food product possessing no defects or impurities which present a health hazard.

Standards of identity—regulation issued under the Food, Drug and Cosmetic Act which states that for certain processed food products to be sold legally under its common or usual name, it must be made in accordance with certain specifications.

Variety identification program--a potential criterion for grading fresh fruits and vegetables based on labeling with respect to variety. This criterion would convey information regarding such aspects as appropriate end use or flavor of the product.

Voluntary / Mandatory system—grades are established by the Federal Government and any business firm that elects to enroll in the program must adopt the established grades.

Wholesale—that level of the marketing system which sells in quantity usually for resale.

Wholesome-a term which refers to defects in food products which are not a health hazard to consumers.

Yield per pound or per serving-a potential criterion for grading fresh meat based on the amount of external fat in relation to lean per retail cut,

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