Impact of Science on Development of Global Food Standards

Food & Agricultural Products Center

Oklahoma State University

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IFT President Elect, 2012-2013

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The miracles of science™

Regulatory Issues Overview

- Regulators and Regulations
- US Regulatory Agencies
- US Regulatory Environment
- Global Regulatory Considerations
- What about Science and Risk-Based Regulation?

Key US Food Legislation

Pure Food and Drug Act (1906)

Meat and Poultry Inspection Acts (1907+)

Federal Trade Commission Act (1914)

Food Drug and Cosmetic Act (1938+)

Fair Packaging and Labeling Act (1966)

Bioterrorism Act (2002)

Food Allergen Labeling and Consumer Protection Act (2004)

Food Safety Modernization Act (2011)--*prevention*

Pure Food and Drug Act

Addressed adulterated food by USDA

- If quality lowered or injuriously affected by mixing or packing the product
  - Did not establish explicit standards
  - Difficult to enforce; No real regulation of food
  - Criminal sanctions; seizure authority

Congress authorized amendments to strengthen the Act

Food Drug and Cosmetic Act Amendments

Amendments- to increase consumer protection, extend coverage of the Act, and enlarge FDA authority over particular products

- **1968 Animal Drug Amendments**
- **1976 Vitamin and Minerals Amendment**
- **1980 Infant Formula Amendment**
- **1986 Interstate Sale of Confections w/Alcohol**
- **1990 Nutrition Labeling and Education Act**
- **1994 Dietary Supplement Health and Education Act**
- **2004 Food Allergen Labeling and Consumer Protection Act**

US Food Safety Policy Metamorphisis: Imagine Cement Mix in Your Milk

- **Safety Mandate– Federal Food Drug and Cosmetic Act (recent Food Safety Modernization Act)**
- **Food Adulteration**
  - Intentional- economic
  - Accidental- commingling on processing line
- **Food Inspection- Amendments for meat, poultry**
- **Food Standards- USDA and international**
- **Food Labeling- FDA, USDA/FSIS and international**

Key US Food Regulatory Agencies

USDHHS- Food and Drug Administration

USDA- Food Safety and Inspection Service

US Department of Commerce

Consumer Product Safety Commission

Federal Trade Commission

Environmental Protection Agency

What is the Role of Regulators

Watch dog

Policeman

Rules maker

Enforcer

Regulators do not set policy

Regulatory Imperatives

US Transparency in the Administration (2010)

EFSA Transparency Initiative (2013)

- **Increase understanding**
- **Strengthen scrutiny**
- **Build confidence**
- **Open meetings of scientific committees and panel meetings**

Generally Recognized as Safe (GRAS) Program

New Issues with Food Ingredients

Generally Recognized as Safe

- Food additives
- Food ingredients
- New technologies

What is GRAS: History of Use and Recognition

- PEW study: Question regulatory imperatives and processes
  - Standard of assessment for food
  - Fundamental to assessment– equivalence, substantial equivalence and compositional comparison
  - Who says its safe
  - FDA role

Food Safety Interests

Food Production and Processing

- **Canning, freezing**
- **Food additives and ingredients**
- **Genetic engineering**
- **Food Safety**
- ***"Don't fiddle with my food"***

FDA: The food industry has responsibility for product safety, nutritional content and claims

Food Technology and Ingredients

- Preservation
- Packaging
- Food Ingredients- Ingredient Technology
- Food Safety
  - Extend shelf life, reduce water availability
  - Anti-microbials- and films, contact surfaces
- Nutritional Attributes
  - Fortification
  - Enrichment
  - Reduced fat
  - Zero *trans* fat
- Health Benefits of Food Additives and Ingredients

Global Concerns for Food Additives

- **Food Additive Function**
  - **Safety Imperative**
  - **Technology Opportunities**
- **Food Additive Benefits**
- **Consumer Interest**
- **Food Labels- and Claims**
- ***Interest in Regulatory Oversight***

In Food We Trust: Issues of food integrity

US specific information

- Level of trust in the food industry is diminishing
- Food industry responsible for non-communicable disease
- …and other ailments that plague society!

- *Industry support for research and communication is suspect*

And so…we (industry) react…

- *trans* fat reduction– tropical oils
- high fructose corn syrup
- Sodium
- Sugar
- Gluten
- Allergens- and thresholds

Its All About Consumer Perception

Little is known/understood by consumers

2012 Edelman Trust Barometer

- **25 countries; 30,000 consumers**
- **72% swing respondents**
- **Preferred sources of information**
  - **Trusters- news, TV, radio, magazines**
  - **Non-trusters- on-line search engines; 'people like myself'**

What they support:

- **High quality and services**
- **Listening to customers**
- **Treating employees well**
- **Putting customers first**
- **Ethical business practices**

Communication about food

What they ask

Communication about food

What they ask: What we say

Communication about food

What they ask: *What we say*

They ask 'what'.. and we reply 'science,' and 'safe'

Role of media- Dr. Ivan Oransky

- **Media calls and you always say the same thing**
- **Social media and blogs**
- **Expert voices**
- **People like me**

Edelman 2012 Food to Fork Survey

US consumers

55% think US food system is on the wrong track

Three key areas where consumer expectations could increase trust:

- Product portfolio
- Transparency
- Shared value

➢75% want nutrition information that's easy to use

➢70% want to know where the food comes from

➢65% want to know how the food was processed

➢86% believe businesses should place equal weight on societal issues

So what are we choosing to eat

MSI (2012) study of consumers

- **80% adults making effort to eat 'fresh' instead of processed**
- **60% avoid food with chemical additives/preservatives**
- **52% making changes in food choice for food safety**

Technomics (2011): Over 70% think fresh is healthier

- **70%- fresh**
- **60%- prepared that day**
- **50%- made from scratch; and never frozen**

International Trade

Move to considerations about global trade

Consider the 'politics' of food trade

US Labeling Policy Regarding Products of Biotechnology

US food labeling policy for foods derived from modern biotechnology is the same as the policy for packaged foods

Mandatory labeling elements exist

Voluntary labeling information (including claims) must be truthful and not misleading; and must be verifiable

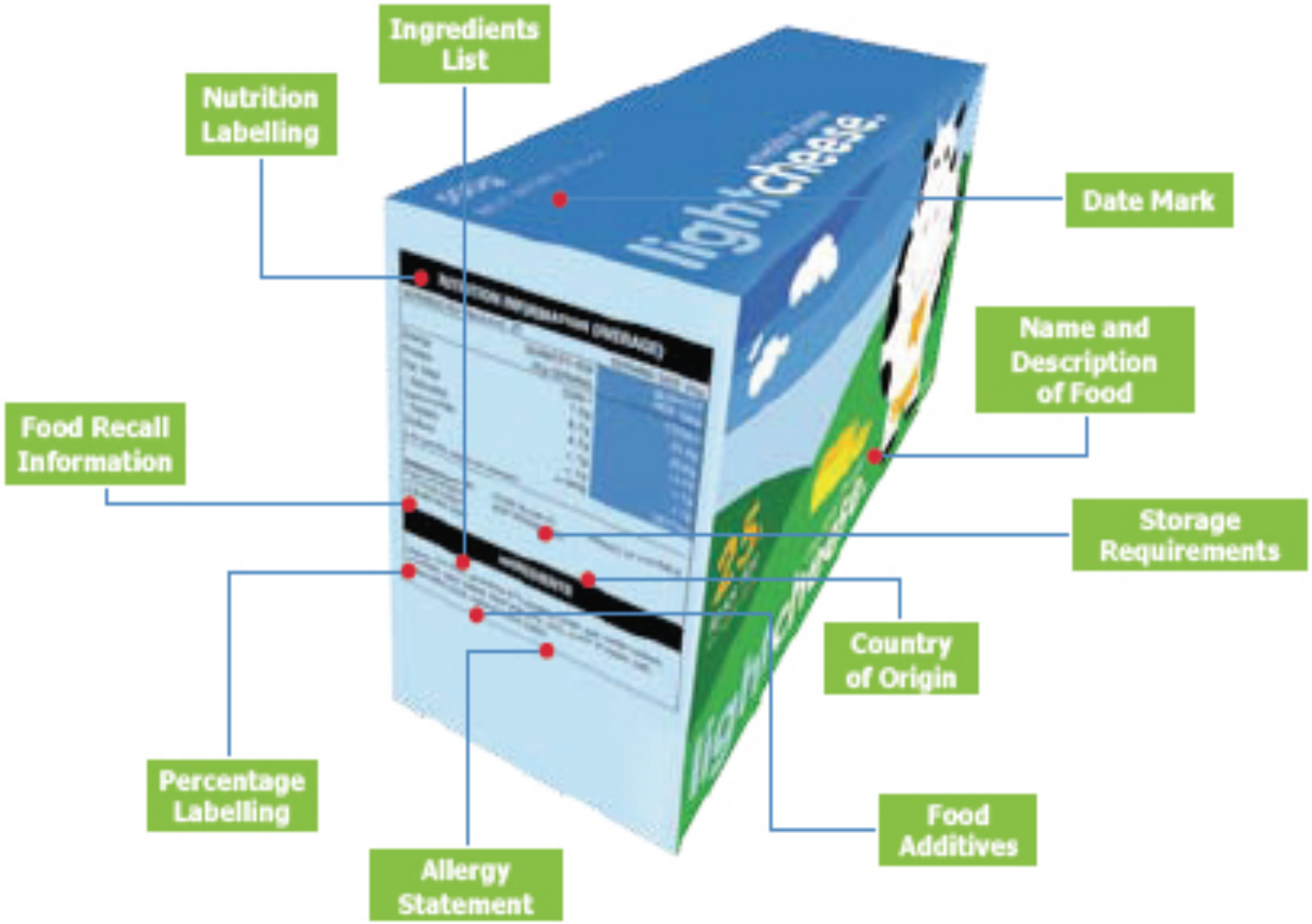
- verification through documentation, certification, analysis
- not misleading either through words used or comparisons made

If a food producer/manufacturer wanted to label foods as to the fact that they were produced using genetic modification, it could do so now under existing FDA labeling policy that includes mandatory and voluntary elements.

Labels Can Get Messy: How Much Information is Enough?

"I read all package labels for my health. Now my eyes are shot!"

US Requirements for Prepackaged Food Labeling (nonmeat)



General Mills with Whole Grain

GOOD SOURCE OF FIBER

1g 1 GRAM OF SUGAR

100 100 CALORIES PER SERVING

Cheerios

Toasted Whole Grain Oat Cereal

Clinically PROVEN to Help Reduce Cholesterol! See back

Three grams of soluble fiber daily from whole grain oat foods, like Cheerios, in a diet low in saturated fat and cholesterol, may reduce the risk of heart disease. Cheerios provide 1 gram per serving.

NET WT 14 OZ (396g)

INGREDIENTS: WHOLE GRAIN OATS, MODIFIED CORN STARCH, SUGAR, OAT BRAN, SALT, CALCIUM CARBONATE, OAT FIBER, TRIPOTASSIUM PHOSPHATE, CORN STARCH, WHEAT STARCH. VITAMIN E (MIXED TOCOPHEROLS) ADDED TO PRESERVE FRESHNESS.

VITAMINS AND MINERALS: IRON AND ZINC (MINERAL NUTRIENTS), VITAMIN C (SODIUM ASCORBATE), A B VITAMIN (NIACINAMIDE), VITAMIN B_6 (PYRIDOXINE HYDROCHLORIDE), VITAMIN B_2 (RIBOFLAVIN), VITAMIN B_1 (THIAMIN MONONITRATE), VITAMIN A (PALMITATE), A B VITAMIN (FOLIC ACID), VITAMIN B_{12}, VITAMIN D.

DIST. BY **General Mills Cereals, LLC**
GENERAL OFFICES, MPLS., MN 55440 USA

May be mfg. under U.S. Pat. Nos.: 5,433,490; 5,523,109; 7,021,525

Exchange: 1½ Starch

Exchange calculations based on the *Exchange Lists for Meal Planning*. ©2003 the American Dietetic Association, the American Diabetes Association.

Nutrition Facts

Serving Size 1 cup (28g)
Children Under 4 - ¾ cup (21g)
Servings Per Container about 14
Children Under 4 - about 19

Amount Per Serving	Cheerios	with ½ cup skim milk	Cereal for Children Under 4
Calories	100	140	80
Calories from Fat	15	20	10
	% Daily Value**		
Total Fat 2g*	3%	3%	1.5g
Saturated Fat 0g	0%	3%	0g
Trans Fat 0g			0g
Polyunsaturated Fat 0.5g			0g
Monounsaturated Fat 0.5g			0g
Cholesterol 0mg	0%	1%	0mg
Sodium 190mg	8%	10%	140mg
Potassium 170mg	5%	11%	130mg
Total Carbohydrate 20g	7%	9%	15g
Dietary Fiber 3g	11%	11%	2g
Soluble Fiber 1g			0g
Sugars 1g			1g
Other Carbohydrate 16g			12g
Protein 3g			2g
			% Daily Value
Protein	-	-	9%
Vitamin A	10%	15%	10%
Vitamin C	10%	10%	10%
Calcium	10%	25%	8%
Iron	45%	45%	50%
Vitamin D	10%	25%	6%
Thiamin	25%	30%	35%
Riboflavin	25%	35%	35%
Niacin	25%	25%	35%
Vitamin B_6	25%	25%	45%
Folic Acid	50%	50%	60%
Vitamin B_{12}	25%	35%	30%
Phosphorus	10%	25%	8%
Magnesium	10%	10%	10%
Zinc	25%	30%	30%
Copper	2%	2%	2%

*Amount in cereal. A serving of cereal plus skim milk provides 2g total fat (0.5g saturated fat, 1g monounsaturated fat), less than 5mg cholesterol, 250mg sodium, 370mg potassium, 26g total carbohydrate (7g sugars) and 7g protein.

**Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

	Calories	2,000	2,500
Total Fat	Less than	65g	80g
Sat Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Potassium		3,500mg	3,500mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

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International Food Regulation

US regulation of imports and exports

Trading partners (NAFTA, MERCOSUR, EU, ASEAN)

Increasing bilateral trade agreements

World Trade Organization (WTO) considerations [www.wto.org]

- Sanitary and Phytosanitary Agreements (SPS)
- Technical Barriers to Trade (TBT)

Codex Alimentarius Commission (FAO and WHO) [www.fao.org; www.who.org; www.codexalimentarius.org]

International Standards Organization (ISO)

Codex Alimentarius Commission- 1962

Develop international food standards, codes of practice and guidelines (and the food standard when trade disputes arise under WTO)

-began as food quality; then to safety; then to trade

- **Protect health of consumers and ensure fair practices in the food trade**
  - ***Science-based standards for food trade***
- **Promote coordination of food standards**
- **181 member countries; over 100 international non-governmental organizations**

Codex Alimentarius Commission

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- **Protect health of consumers and ensure fair practices in the food trade**
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Scientific Advice for International Trade

United States

Canada

European Commission

Codex Alimentarius

International Standards Organization

Scientific Advice for International Trade

Public Meetings
Federal Register
Advisory Committees

Non-governmental Organizations
International Non-governmental Organizations

United States

Canada

European Food Safety Authority

Advisory Committees
Public Consultations

European Commission

Codex Alimentarius

Expert Panels
Committees

International Standards Organization

Expert Committees
Food and Ag Organization
World Health Organization

Global Regulatory Issues- Scientific Impact

Ensuring safety of foods within countries

Ensuring safety/inspection equivalence with trading partners

Ensuring safety of imported foods/food ingredients

Minimizing trade barriers

- Sanitary/Phytosanitary
- Technical Barriers

Labeling and tracing requirements between countries

Every Day in the News

Food Safety, Food Safety, Food Safety

Food Nutritional Quality- relative nutrients

Global Food Availability

Non-Congruent Regulatory Systems

Move to 'Natural' and 'Organic' and 'Green'

Environmental overlaps

Thank You

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Institute of Food Technologists, President-Elect

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