Coming Clean: What Clean Label Means For Consumers and Industry

Catherine Adams Hutt, R.D., Ph.D., C.F.S.
A. Elizabeth Sloan, Ph.D.
Global Food Forum Clean Label Conference
March 31, 2015
The Bottom Line

- Consumer interest in “clean labels” is increasing in the U.S. -- driven by general distrust of processed foods, desire for transparency, and increasing interest in healthfulness of the diet. It is closely linked with the trends for natural, organic, local, and sustainable. It is also tied to a small but emerging interest in an anti-inflammatory diet.

- Interest in natural labeling is declining, likely due to legal and regulatory complexities of “all natural” label claims, and overuse by the industry.

- However, other terms (e.g., “pure”, “simple”) are being used to fill the space being vacated by “natural”, that convey clean label attributes, e.g., few ingredients, no artificial ingredients, minimally processed.

- Clean label may or may not include non-GMO – but interest in non-GMO is higher than most want to believe. Products that can go non-GMO are going there.

- The most popular clean labels include in descending order: all natural ingredients, no artificial ingredients, no artificial preservatives, no high fructose corn syrup, organic, and no artificial colors.

- Interest in “natural” skews to the younger consumer; “clean label” attributes appeal primarily to older consumers, due in part to health concerns of aging.
What is Clean Label and What’s Driving Interest?

Attributes of Clean Label

Entangling Alliances with Natural, Organic, Local, Sustainable and Non-GMO

Consumer Behavior in Relation to Demographics

“Nearly Clean” - Ingredients with Issues
1 What is Clean Label and What’s Driving Interest?
What Is “Clean Label”?

• There is no legal or regulatory definition for “clean label”. Clean label is defined by consumers and stakeholders, and has multiple dimensions for its many connotations. Retailers, including Whole Foods, Safeway, and Kroger, have the most concrete definition of clean label foods through in-store bans for specific food ingredients.

• However, it is generally agreed that clean label may be used in reference to foods that are minimally processed; devoid of artificial flavors, artificial colors, and synthetic additives; and absent any unexpected allergens.

• Clean label foods are consumer-recognized as simple, wholesome, authentic, and real. They should be made from food ingredients that are free of synthetic hormones and growth-promoting antibiotics. They are not necessarily organic, and may or may not meet consumer expectations of natural foods.

• Many clean labels voluntarily label GMO status.

• Clean label conveys notions of quality, trust, and transparency.
Industry Self-Definition of “Clean Label”

• In the absence of any industry-wide guidance, Ingredion Europe developed its own proposed definition, which was published in *International Food Ingredients* magazine (June 2010), to assist its customers in understanding and aligning their product development with this important trend.

• The aim was to help manufacturers to develop suitable formulations with appropriate ingredient lists and make front-of-pack claims that appeal to consumers.

• The definition was developed based on a combination of focus groups, accompanied shopping visits and expert interviews in the UK, US, and Germany.

• The definition is based on three consumer expectations revealed by their research:
  – *Free from additives: remove or replace food additives*
  – *Simple ingredient listing: choose recognizable ingredients that do not sound chemical or artificial*
  – *Minimally processed: process foods using traditional techniques that are understood by consumers and not perceived as being artificial.*
Specific “Definitions” Include:

- Clean Label Magazine: Clean Label is about “consuming food that is in its most natural state, or as close to it as possible”.

- National Starch Food Innovation: “free of chemical additives, simple ingredient listing that consumers understand, and foods processed using traditional techniques or that are minimally processed”.

- Safeway: “We believe that food should be simply prepared, the way you’d make it at home”; and made from ingredients you would find “in your kitchen cupboard”.

- Whole Foods: 84 ingredients are unacceptable to be in any food sold in their stores; including artificial sweeteners, artificial colors, artificial flavors, non-natural preservatives, DATEM, irradiated foods, bleached flour, HFCS. Note that carmine, a natural color ingredient, is also not allowed.

- Kroger’s “Simple Truth” Natural product line: bans 101 ingredients, including artificial colors, artificial flavors, artificial sweeteners, DATEM, HFCS, and bleached flour.

- Safeway’s Open Nature simple, real, 100% Natural product line: bans 130 artificial ingredients, including DATEM; and others, including caffeine, shortening, and margarine.
Clean Because I Say So

• Some manufacturers are trying to explain ingredients in order to make them acceptable to consumers, despite their chemical sounding names.

• Campbell Soup Company’s Select Harvest 100% Natural Soup uses some controversial ingredients, but tried to explain them on the label as a means to make them acceptable to consumers: (now only offered for foodservice and Campbell’s offers an Organic soup)

  » Carragennan – a natural ingredient that adds texture
  » Maltodextrin is a carbohydrate that comes from potato or corn starch

• Nestle uses a similar approach to convey clean label ingredients:

  – Milkybar ingredients include: “whey powder (from milk), vegetable fat (from tropical plants), emulsifier lecithin (made from soy beans and holds the ingredients together)”
Changing Names…

- Some manufacturers are trying to use more consumer friendly names for chemically altered, synthetic, or otherwise unacceptable ingredients; but name changing efforts have not been game changers.

- For example:
  - Corn sugar for HFCS – rejected by the FDA
  - Corn fiber for Modified Corn Starch – several types of corn fiber exist and it is not clear that corn fiber should represent modified corn starch alone
Healthfulness is Increasingly Becoming a Factor in Americans’ Food and Beverage Selections

- Of all demographics, older Americans are most likely to be interested in healthfulness of food (ages 65-80).
- But the greatest increase in interest (2013 - 2014) is for younger consumers (ages 18-34) and for men.
- 83% are making an effort in the past year to increase the amount of fruits and vegetables in their diet.
Half Consumers Look at the Ingredient Listing When Buying Food/Drink

What information do you look at on the food or beverage package when deciding to purchase or eat a food or beverage?

<table>
<thead>
<tr>
<th>Information</th>
<th>2006 (n=1,060)</th>
<th>2007 (n=1,000)</th>
<th>2008 (n=1,000)</th>
<th>2009 (n=1,064)</th>
<th>2010 (n=1,006)</th>
<th>2011 (n=1,000)</th>
<th>2012 (n=1,057)</th>
<th>2013 (n=1,006)</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expiration date</td>
<td>65%</td>
<td>69%</td>
<td>69%</td>
<td>67%</td>
<td>66%</td>
<td>63%</td>
<td>76%</td>
<td>82%</td>
<td>52%</td>
</tr>
<tr>
<td>Nutrition Facts panel</td>
<td>58%</td>
<td>66%</td>
<td>63%</td>
<td>69%</td>
<td>68%</td>
<td>68%</td>
<td>66%</td>
<td>67%</td>
<td>20%</td>
</tr>
<tr>
<td>Servings size and amount per container</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>52%</td>
</tr>
<tr>
<td>Brand name</td>
<td>38%</td>
<td>44%</td>
<td>40%</td>
<td>50%</td>
<td>50%</td>
<td>50%</td>
<td>46%</td>
<td>53%</td>
<td>52%</td>
</tr>
<tr>
<td>Ingredients list</td>
<td>57%</td>
<td>59%</td>
<td>51%</td>
<td>49%</td>
<td>47%</td>
<td>49%</td>
<td>51%</td>
<td>53%</td>
<td>52%</td>
</tr>
<tr>
<td>Cooking instructions/preparation time</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>45%</td>
</tr>
<tr>
<td>Calorie and other nutrition information</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>45%</td>
</tr>
<tr>
<td>Statements about nutrition benefits</td>
<td>48%</td>
<td>44%</td>
<td>43%</td>
<td>29%</td>
<td>29%</td>
<td>31%</td>
<td>42%</td>
<td>43%</td>
<td>20%</td>
</tr>
<tr>
<td>Statements about health benefits</td>
<td>30%</td>
<td>28%</td>
<td>27%</td>
<td>20%</td>
<td>22%</td>
<td>24%</td>
<td>30%</td>
<td>29%</td>
<td>52%</td>
</tr>
<tr>
<td>Country of origin labeling</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>29%</td>
</tr>
<tr>
<td>Statement about the absence of certain food ingredients</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
<td>23%</td>
</tr>
</tbody>
</table>

Consistent Use on Ingredient Listing- Past 9 Years but Lower vs. Mid-2000s

International Food Information Council Foundation, Food & Health Survey, 2014
Clean Cues Now Dominate Consumer Perception of What is a Healthy Food/Drink

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Importance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ingredients added for special health benefit (e.g., added calcium or fiber)</td>
<td>64%</td>
</tr>
<tr>
<td>Higher in nutrients (e.g., protein, fiber, whole grains, Omega-3, etc.)*</td>
<td>61%</td>
</tr>
<tr>
<td>Ingredients I recognize</td>
<td>60%</td>
</tr>
<tr>
<td>No trans fats</td>
<td>60%</td>
</tr>
<tr>
<td>Lower in calories (due to fat, carbohydrates or sugars)</td>
<td>57%</td>
</tr>
<tr>
<td>Lower in salt</td>
<td>57%</td>
</tr>
<tr>
<td>Made with simple, real ingredients</td>
<td>56%</td>
</tr>
<tr>
<td>Made with natural ingredients</td>
<td>54%</td>
</tr>
<tr>
<td>Absence of artificial ingredients</td>
<td>50%</td>
</tr>
<tr>
<td>Absence of artificial sweeteners (e.g., aspartame, Splenda, saccharin)</td>
<td>49%</td>
</tr>
<tr>
<td>No high fructose corn syrup</td>
<td>48%</td>
</tr>
<tr>
<td>Absence of preservatives</td>
<td>46%</td>
</tr>
<tr>
<td>Absence of artificial flavors</td>
<td>45%</td>
</tr>
<tr>
<td>Absence of artificial colors</td>
<td>41%</td>
</tr>
<tr>
<td>Shorter list of ingredients</td>
<td>41%</td>
</tr>
<tr>
<td>Absence of ingredients I'm allergic to (e.g., gluten, nuts, dairy)</td>
<td>36%</td>
</tr>
<tr>
<td>Made with local ingredients</td>
<td>33%</td>
</tr>
<tr>
<td>Made with seasonal ingredients</td>
<td>32%</td>
</tr>
<tr>
<td>Made with organic ingredients</td>
<td>32%</td>
</tr>
</tbody>
</table>

Supported by 2014 IFIC Survey

37% in IFIC, 2014

56% Look for Unprocessed Cues

The Hartman Group, Re-imagining Health & Nutrition 2013 - How important are the following attributes to making a FOOD PRODUCT good for your HEALTH AND WELLNESS? [Top-2 box (Extremely/Fairly important) in 5-point scale.]; IFIC, 2014
Emerging Interest in Anti-Inflammatory Diet

• Inflammation is the adaptive immune system response to noxious stimuli and activates release of cytokines, chemokines, and reactive oxygen species. Chronic or persistent inflammation results in tissue destruction and failed attempts to repair cells.

• Chronic inflammation is linked with the effects of aging and development of chronic diseases, including Type 2 Diabetes, Atherosclerosis and heart disease, Rheumatoid Arthritis, allergies, bowel disease, and cancers.

• Inflammation claims on foods in the U.S. are perceived as drug claims by FDA today, which will limit consumer recognition of the term, but interest may grow among healthy foodies, extreme athletes, and older demographic.

• Anti-inflammatory foods:
  – Omega-3
  – Fruits and Vegetables (polyphenols)
  – Whole grains (fiber)
  – Minimally processed grains (retaining polyphenol and fiber content)
Regulatory

• There is no regulatory definition of clean label. There are no enforcement concerns.

• If claims for clean label are made, they should be truthful and not misleading.

• Enforcement will be through civil lawsuits, and not regulatory channels.
Attributes of Clean Label
Consumers Are Concerned About Transparency

- Natural?
- GMO?
- Allergens?
- Gluten-Free?
- Country of Origin?

Signposts

- “Pink Slime”
- Unlabeled Horsemeat
- Unlabeled Donkey Meat
a. Fewer Ingredients
“Pure” & “Simply” Now Mainstream Front-of-Pack Descriptors

- More products and brands launched with tag words: “simple,” “pure,” “simply”, “wholesome”
Avoidance: Artificial Ingredients, Additives, and Preservatives
Confidence in the Safety of the Food Supply Continues to Fall

3 in 10 Not Too or Not at All Confident in the Safety of their Food

International Food Information Council Foundation, Food & Health Survey, 2014
Chemicals Were #1 Reason For Worry

Over the past year, how much thought have you given to the following issues?

<table>
<thead>
<tr>
<th>Issue</th>
<th>A lot</th>
<th>A little</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemicals in food</td>
<td>40%</td>
<td>44%</td>
<td>84%</td>
</tr>
<tr>
<td>Foodborne illnesses from bacteria</td>
<td>34%</td>
<td>45%</td>
<td>79%</td>
</tr>
<tr>
<td>The safety of imported foods</td>
<td>36%</td>
<td>39%</td>
<td>75%</td>
</tr>
<tr>
<td>Pesticides</td>
<td>33%</td>
<td>42%</td>
<td>75%</td>
</tr>
<tr>
<td>Animal antibiotics</td>
<td>25%</td>
<td>32%</td>
<td>56%</td>
</tr>
<tr>
<td>Undeclared allergens</td>
<td>16%</td>
<td>27%</td>
<td>43%</td>
</tr>
</tbody>
</table>

2013 All (n=1,006)
HFCS is now tied with sodium as an ingredient to avoid. Consumers are also avoiding saccharin, aspartame, and sucralose. Growth hormones and hydrogenated oils are other ingredients avoided by consumers.
C. Less/Minimally Processed
Shoppers Increasingly Looking for More “Minimally Processed”

<table>
<thead>
<tr>
<th>Shopping Behavior</th>
<th>2013</th>
<th>2010</th>
<th>2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>That are good for my heart</td>
<td>30%</td>
<td>29%</td>
<td>27%</td>
</tr>
<tr>
<td>That are minimally processed</td>
<td>28%</td>
<td>21%</td>
<td>19%</td>
</tr>
<tr>
<td>That contain only ingredients I recognize</td>
<td>26%</td>
<td>19%</td>
<td>17%</td>
</tr>
<tr>
<td>That are locally grown or produced</td>
<td>25%</td>
<td>13%</td>
<td>20%</td>
</tr>
<tr>
<td>With the shortest list of ingredients</td>
<td>25%</td>
<td>24%</td>
<td>15%</td>
</tr>
<tr>
<td>With added vitamins and minerals</td>
<td>27%</td>
<td>25%</td>
<td>25%</td>
</tr>
<tr>
<td>That help lower my cholesterol</td>
<td>24%</td>
<td>23%</td>
<td>24%</td>
</tr>
<tr>
<td>Endorsed by health organizations I recognize</td>
<td>24%</td>
<td>24%</td>
<td>19%</td>
</tr>
<tr>
<td>That are labeled &quot;organic&quot;</td>
<td>16%</td>
<td>11%</td>
<td>11%</td>
</tr>
<tr>
<td>That are non-GMO certified^</td>
<td>19%</td>
<td>15%</td>
<td>13%</td>
</tr>
<tr>
<td>That are fair trade certified ^</td>
<td>16%</td>
<td>16%</td>
<td>16%</td>
</tr>
</tbody>
</table>

Minimally processed, recognizable ingredients, locally grown and shortest ingredient lists are cues that consumers use to determine higher-quality foods.

The Hartman Group, Health + Wellness: A Culture of Wellness, 2013
Unprocessed Food Considered Tastier

Now please indicate how you think these terms typically relate to the taste of food.
(Top two box = slightly and much more tasty)

Food described as ____ is...

- Having no artificial sweeteners: 47% (Slightly and much more tasty), 37% (Does not affect taste), 16% (Slightly and much less tasty)
- Hormone-free: 35% (Slightly and much more tasty), 60% (Does not affect taste), 5% (Slightly and much less tasty)
- Natural: 45% (Slightly and much more tasty), 51% (Does not affect taste), 4% (Slightly and much less tasty)
- Organic: 34% (Slightly and much more tasty), 53% (Does not affect taste), 14% (Slightly and much less tasty)
- Preservative-free: 28% (Slightly and much more tasty), 63% (Does not affect taste), 9% (Slightly and much less tasty)
- Unprocessed: 49% (Slightly and much more tasty), 41% (Does not affect taste), 10% (Slightly and much less tasty)
Entangling Alliances with Natural, Organic, Local, Sustainable, and Non-GMO
a. Natural and Organic
Issue: “Natural”

• Not a regulatory definition, but FDA is clear on their expectation:

From a food science perspective, it is difficult to define a food product that is 'natural' because the food has probably been processed and is no longer the product of the earth.

That said, FDA has not developed a definition for use of the term natural or its derivatives. However, the agency has not objected to the use of the term if the food does not contain added color, artificial flavors, or synthetic substances.
Issue: “Natural”

- USDA issued Guidance to the Industry in April 2013, stating:

While the term "natural" has not been defined by FDA and FTC, USDA's Draft Guidance explicitly details processes that create non-synthetic or natural substances.

Agricultural materials that are chemically changed due to allowed agricultural processing methods (e.g., cooking, baking, etc.) do not result in classification of the processed agricultural product as synthetic, nor do products of naturally occurring biological processes, such as fermentation and composting. Moreover, heating or burning of biological matter (e.g., plant or animal material) is also a natural process that does not result in classification of ash as synthetic. **On the other hand, heating or burning of non-biological matter (e.g., minerals) to cause a chemical reaction triggers the synthetic substance definition.**

Additionally, materials produced by separation techniques are classified as natural or non-synthetic if the extract results in a material that meets three criteria. First, at the end of the process, the material must not be transformed into a different substance via a chemical change. Second, the material may not be altered into a form that does not occur in nature. Finally, any synthetic materials used to separate, isolate or extract the substance must be removed from the final substance (e.g., evaporation, distillation, precipitation, etc.) such that they have no technical or function effect in the final product.
Issue: “Natural”

- USDA-FSIS Controls Use of the Term “Natural” through Prior Label Approval Regulatory Requirements.
Organic Labeling

• Regulated by the National Organic Program (NOP), administered by USDA. The NOP is administered by the USDA Agricultural Marketing Service. The NOP regulations (7 CFR Part 205) govern the production, processing, handling, labeling, and marketing of organic products.

• Products of bioengineering are not permitted for organic certification.

• The four basic National Organic Program Organic Categories are as follows:
  – "100% Organic" has all organic ingredients.
  – "Organic" has at least 95% organic ingredients.
  – "Made with Organic [Ingredients]" has at least 70% organic.
  – Products containing less than 70% organic ingredients and products that are not processed by a certified organic handling operation may only disclose organic content in a non-conspicuous "Ingredients Statement".
Natural: What Happens to Food/Bev After It is Grown/Made (e.g., processing steps, additives)

Organic Pertains to What Happens to Food at Origin (e.g. the Farm, the Plant, the Animal)

#1 Difference Natural & Organic: Natural Has No Additives
73% Consumers Occasionally Buy Organic

Occasionally Use (past 3 months)

- Total Organic Users
  - 73%

Millenials (18-35)

- 86%

Gen X (36-49)

- 72%

Boomers (50+)

- 63%

Use Daily (past 3 months)

- Total Organic Users
  - 9%

Millenials (18-35)

- 12%

Gen X (36-49)

- 8%

Boomers (50+)

- 7%
A Natural Claim Provided a Strong Healthy Halo in 2013, Better Than Organic

### How important are the following attributes to making a FOOD PRODUCT good for your HEALTH AND WELLNESS? [Top-2 box (Extremely/Fairly important) in 5-point scale.]

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Importance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ingredients added for special health benefit (e.g., added calcium or fiber)</td>
<td>64%</td>
</tr>
<tr>
<td>Higher in nutrients (e.g., protein, fiber, whole grains, Omega-3, etc.)*</td>
<td>61%</td>
</tr>
<tr>
<td>Ingredients I recognize</td>
<td>60%</td>
</tr>
<tr>
<td>No trans fats</td>
<td>60%</td>
</tr>
<tr>
<td>Lower in calories (due to fat, carbohydrates or sugars)</td>
<td>57%</td>
</tr>
<tr>
<td>Lower in salt</td>
<td>57%</td>
</tr>
<tr>
<td>Made with simple, real ingredients</td>
<td>56%</td>
</tr>
<tr>
<td>Made with natural ingredients</td>
<td>54%</td>
</tr>
<tr>
<td>Absence of artificial ingredients</td>
<td>50%</td>
</tr>
<tr>
<td>Absence of artificial sweeteners (e.g., aspartame, Splenda, saccharin)</td>
<td>49%</td>
</tr>
<tr>
<td>No high fructose corn syrup</td>
<td>48%</td>
</tr>
<tr>
<td>Absence of preservatives</td>
<td>46%</td>
</tr>
<tr>
<td>Absence of artificial flavors</td>
<td>45%</td>
</tr>
<tr>
<td>Absence of artificial colors</td>
<td>41%</td>
</tr>
<tr>
<td>Shorter list of ingredients</td>
<td>41%</td>
</tr>
<tr>
<td>Absence of ingredients I’m allergic to (e.g., gluten, nuts, dairy)</td>
<td>36%</td>
</tr>
<tr>
<td>Made with local ingredients</td>
<td>33%</td>
</tr>
<tr>
<td>Made with seasonal ingredients</td>
<td>32%</td>
</tr>
<tr>
<td>Made with organic ingredients</td>
<td>32%</td>
</tr>
</tbody>
</table>

*Higher in nutrients (e.g., protein, fiber, whole grains, Omega-3, etc.)*

The Hartman Group, Re-imagining Health & Nutrition 2013 - How important are the following attributes to making a FOOD PRODUCT good for your HEALTH AND WELLNESS? [Top-2 box (Extremely/Fairly important) in 5-point scale.]

---

**Note:** The percentages indicate the level of importance for each attribute, with higher percentages indicating greater importance. The chart visualizes the data, with the most important attributes highlighted.
Are “Natural” Claims The “Big Tobacco” of the Food Industry?

- Controversies (and lawsuits) involve these ingredients that have been presented as “Natural”:
  - GMOs
  - Erythritol – derived from GM corn dextrose
  - Maltodextrin (in Stevia)
  - High Fructose Corn Syrup (HFCS)
  - Alkalized Cocoa
  - Sodium Benzoate
  - Ascorbic Acid
  - Ingredients extracted using hexane
  - Hydrogenated oils
  - Natural colors from beets, carrots, cabbage, bugs
Differences Between Natural and Clean Label

• Consumer perceptions and any existing “definitions” for either term position “natural” and “clean label” close together.

• However, there are key differences:

  – FDA’s expectation statement and USDA’s guidance on ”natural” clearly restrict additives for color, despite their natural or synthetic origins.

  Natural colors, including carotenoids, beet, anthocyanins, chlorophyll, are not permitted in a “natural” food product, but are acceptable in a “clean label” product.

  – Natural products must also be free of preservatives, although many natural ingredients have antimicrobial properties. Natural antimicrobials/preservatives, including cultured dextrose, cultured vegetable juice, cherry powder, vinegar are not permitted to be added to foods carrying a “natural” claim, but are acceptable for clean label products. (Note that ingredients added for “flavor” that have antimicrobial properties are acceptable in natural foods.)
Organic Is Not Clean Label

- The National Organic Program allows the use of some compounds not considered clean label, including:
  - Potassium bicarbonate
  - Ammonium bicarbonate
  - Calcium hydroxide
  - Xanthan gum
Is Organic Going to War with Non-GMO?

- Organic definition includes absence of bioengineered products.

- Non-GMO certifications and proponents have drawn the ire of the organic community:
  - Drafting off the organic perception by consumers?
  - Forcing non-GMO certification in addition to organic status?
Local and Ethical
Clean Label Linked with Ethics/Close to the Farm

**Hot Culinary Themes 2014 (Full Service)**

<table>
<thead>
<tr>
<th>CULINARY THEMES</th>
<th>HOT TREND</th>
<th>Yesterday's News</th>
<th>Perennial Favorite</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Environmental sustainability</td>
<td>79%</td>
<td>7%</td>
<td>14%</td>
</tr>
<tr>
<td>2. Gluten-free cuisine</td>
<td>76%</td>
<td>12%</td>
<td>12%</td>
</tr>
<tr>
<td>3. Hyper-local sourcing (e.g. restaurant gardens)</td>
<td>75%</td>
<td>12%</td>
<td>13%</td>
</tr>
<tr>
<td>4. Children's nutrition</td>
<td>74%</td>
<td>7%</td>
<td>19%</td>
</tr>
<tr>
<td>5. Nose-to-tail/root-to-stalk cooking (e.g. reduce food waste by using entire animal/plant)</td>
<td>71%</td>
<td>13%</td>
<td>16%</td>
</tr>
</tbody>
</table>

- 72% Humane Treatment Important Shop for Food
- 41% Humane Treatment Imp. Restaurant Food
- 52% Bought Fairtrade Coffee or Tea Last Year
- 44% Farm-Raised Important Shop for Food
- 36% Bought Fairtrade Chocolate
- 27% Bought Wild Caught Fish
- 20% Cage-free, Humane-raised Eggs
- 19% Grass-fed Beef
- 19% Vegetarian Foods

**Geico Insurance’s “Free-Range Chickens Roam Free – It’s What You Do…”**

NRA, What’s Hot for 2014 Chef’s Survey; Technomic, 2013
C. Non-GMO
4 Out of 10 Consumers Are Avoiding Foods with Bioengineered Ingredients

Primary Concern is About Personal Health and Well-being

Hartman, 2015
Non-GMO

- 52% Consumers Say They Understand What GMO Is
- Less than 1/3 Know What Crops Are Likely to Use Them

**Foods Common for GMO**
- Alfalfa
- Canola
- Corn
- Cotton
- Papaya
- Soy
- Sugar beets
- Zucchini
- Yellow squash
- Summer squash

**Ingredients Common for GMO**
- Amino acids
- Aspartame
- Ascorbic acid (+ other forms vitamin C)
- Citric acid
- Sodium citrate
- HFCS
- Hydrolyzed vegetable protein
- Lactic acid
- Maltodextrin
- Molasses
- Sucrose
- Textured vegetable protein
- Xanthan gum
- Vitamins
- Yeast products

Hartman, Organic and Natural Report, 2014
Non-GMO Certification Schemes

Opportunities are Increasing with New Certification Organizations, with Key Differences

- Launched 2009
- Original certification for Non-GMO; spawned from Whole Foods Pledge (labeled GMO ingredients by 2018) and state labeling proposals
- Detectable GMOs not to exceed 0.9% (EU law)

- Launched March 2013
- Offers one-stop shopping for multiple certifications (e.g., Kosher, Organic, Vegan, Gluten-free)
- “Cost-effective Turnkey Solution”
- Detectable GMOs not to exceed 0.05%
- “Any program that says it can guarantee that there is no trace of GMO in any given product is false in its claim.”
FDA Is Not Going to Regulate GMO Foods More Than Today. *Full Stop*

- On record…
  - Food resulting from biotechnology “does not differ from other foods in any meaningful or material way” or present any difference or greater safety concerns than foods developed by traditional plant breeding methods.

- State labeling initiatives emerging:
  - Vermont Act 120 - mandates GMO labeling; currently in lawsuit with GMA over First Amendment rights
  - Maui County, Hawaii – 2014 passed ban on cultivating GMO crops
  - Oregon – 2014 proposition to label on the ballot; close vote but failed
  - Colorado – 2014 proposition on the ballot; huge industry PR campaign, 66% voters said no to labeling
Industry Response – If I Can Maybe I Will…

- Unilever – Reformulated *I Can’t Believe It’s Not Butter* with non-GMO soybean oil

  ![I Can’t Believe It’s Not Butter](image1)

  **We source ingredients that are not genetically modified. However, in the field-to-tub journey of making our buttery spread there is some contact with genetically modified vegetable oils, resulting in a small amount in this product. Get more information here.**

- General Mills – 2014 Launched *Original Cheerios*
  - With Non-GMO corn and non-GMO pure cane sugar

  ![Cheerios](image2)

- Post Foods – Original *Grape Nuts*

- Boulder Brands – reformulated *Smart Balance* spreads to be non-GMO
Consumer Behavior in Relation to Demographics
Reasons for Avoiding Products with Chemical/Artificial Ingredients

- Reasons for avoiding artificial ingredients differ sharply by age with older (age 50+) consumers most strongly motivated by health concerns. They are at an age when many age-related ailments have cropped up, which explains their interest in labels touting low sodium, no added sugar, whole grains, etc.

- Younger adults are most often motivated by a strong preference for “natural” products, followed by concern about children’s health. As such, they are more attracted to clean labels such as all natural, organic, hormone-free, short list of ingredients, free-range, etc.

### The 2013 Gallup Study of Clean Food & Beverage Labels

Multi-sponsor Surveys, Inc.
Food/Beverage Label Terms/Descriptions and Impact on Purchases

- To test the appeal of specific clean label descriptors, respondents were asked (in a split sample format) to rate a series of terms/descriptions as to whether it would increase or decrease their purchase interest for foods and beverages.

- Labels more attractive to . . .
  - **Young adults** = all natural, organic, hormone-free, short list of ingredients, free-range, gluten-free, dairy-free.
  - **Older adults** = contains whole grains, no added sugar, no HFCS, low sodium, natural low/no-calorie sweetener.

### Leading Terms/Descriptions that Would "GREATLY INCREASE" Purchase Interest
- Recognizable ingredients (46%)
- High in fiber (42%)
- Contains whole grains (41%)
- No artificial ingredients (41%)
- Grown without use of pesticides (40%)
- All natural ingredients (39%)
- No added sugar (39%)
- Made with healthy fats or oils (38%)
- Protein-rich (37%)
Clean Label Attributes That Are Most Appealing to Older Adults

- For label terms/descriptions related to possible health issues, 50-64 year olds and/or those 65+ are more likely to be influenced. Note that often interest peaks with the 50-64 age group and then drops off.

Label Terms/Descriptions That Would “Greatly Increase” Purchase Interest
(Among total adults, split sample, n=1050)

<table>
<thead>
<tr>
<th>Contains Whole Grains</th>
<th>No Added Sugar</th>
<th>Low Sodium</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-34 Years</td>
<td>18-34 Years</td>
<td>18-34 Years</td>
</tr>
<tr>
<td>39%</td>
<td>33%</td>
<td>29%</td>
</tr>
<tr>
<td>37%</td>
<td>34%</td>
<td>32%</td>
</tr>
<tr>
<td>50%</td>
<td>49%</td>
<td>35%</td>
</tr>
<tr>
<td>42%</td>
<td>42%</td>
<td>44%</td>
</tr>
<tr>
<td>65+ Years</td>
<td>65+ Years</td>
<td>65+ Years</td>
</tr>
</tbody>
</table>

The 2013 Gallup Study of Clean Food & Beverage Labels Multi-sponsor Surveys, Inc.
Clean Label Attributes That Are Most Appealing to Younger Adults

- For label terms/descriptions relating to natural, organic, food sensitivity, and values; the appeal is much stronger for younger consumers and declines with age.

Label Terms/Descriptions That Would “Greatly Increase” Purchase Interest
(Among total adults, split sample, n=1050)
Clean Label Attributes With Similar Appeal Across Age Groups

- The appeal of no artificial ingredients or colors is fairly level across age groups, though 18-34 year olds are slightly less moved by those terms.

Label Terms/Descriptions That Would “Greatly Increase” Purchase Interest
(Among total adults, split sample, n=1050)

<table>
<thead>
<tr>
<th>No Artificial Ingredients</th>
<th>18-34 Years</th>
<th>35-49 Years</th>
<th>50-64 Years</th>
<th>65+ Years</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>39%</td>
<td>41%</td>
<td>43%</td>
<td>40%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No Artificial Colors</th>
<th>18-34 Years</th>
<th>35-49 Years</th>
<th>50-64 Years</th>
<th>65+ Years</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>24%</td>
<td>29%</td>
<td>28%</td>
<td>27%</td>
</tr>
</tbody>
</table>
“Nearly Clean” - Ingredients with Clean Label Issues
Ingredients Blacklisted Due to Bad PR

- Carrageenan
- Xanthan Gum
- HFCS

“It’s hard to fight consumer perception, even if they are not based on facts.”

Dr. Jane Schulenburg, Global Marketing Director, Kelco
The Issues Facing Carrageenan

- Carrageenan is a natural seaweed-based ingredient used as a thickening, gelling and emulsifying agent in a wide variety of foods.

- In 2008, Dr. Joanne Tobacman, a researcher at the University of Illinois, filed a citizen’s petition with FDA to ban carrageenan on the basis that it degrades to toxic poligeenan in the gut and promotes inflammation of the GI tract that ultimately results in diseases, including ulcerative colitis and colon cancer.

- In June 2012, FDA officially rejected the petition on the basis that her data were all in vitro studies exposing human colonic epithelial cells to carrageenan and had “limited value” relative to the physiologic effect of ingesting carrageenan in foods.

- Both FDA and the World Health Organization (WHO) have verified the safety of carrageenan in the food supply. A group called the Cornucopia Institute continues the organized attack and has been successful in getting adverse public attention on carrageenan.

- Carrageenan should be an ingredient to include in a clean label, but negative PR is restricting some companies from using it. FAO/WHO’s Joint Expert Committee on Food Additives (JECFA) concluded in 2014 that carrageenan is safe for use in products intended for vulnerable populations, infants and those with special medical needs, at concentrations up to 1000 mg/L. This recent finding indicates the amount of scientific evidence demonstrating that carrageenan is safe.

www.foodsciencematters.com
The Issues Facing Xanthan Gum

- Xanthan Gum is a plant-based polysaccharide used as a thickening and stabilizing agent. To create xanthan gum, the *Xanthomonas campestris* bacterium is allowed to ferment on a sugar. The result is a gel that is then dried and milled to create the powder substance.

- Xanthan gum has been called out as an issue for clean labels, but only because it has an unfortunately chemical-sounding name. It does not appear on unacceptable ingredient lists for Whole Foods, Safeway’s Open Nature brand, or Kroger’s Simple Truth brand.

- The source of the sugar used in fermentation to produce xanthan gum may be important for allergen labeling, since it may be a soy, wheat, dairy, or corn source.
The Issues Facing HFCS

• High Fructose Corn Syrup (HFCS) is a fructose-glucose liquid sweetener alternative to sucrose (common table sugar) first introduced to the food and beverage industry in the 1970s.

• It is not meaningfully different in composition or metabolism from other fructose-glucose sweeteners like sucrose, honey, and fruit juice concentrates. But it is being blamed for obesity...

• HFCS appears on the unacceptable lists for:
  – Whole Foods
  – Safeway’s Open Nature brand
  – Kroger’s Simple Truth brand

• Despite the fact that many argue HFCS is minimally processed, and USDA-FSIS routinely allows, through their prior label approval process, HFCS in products labeled “natural”; there are many that view HFCS as “off” the clean label list.
Contact Information

630-605-3022

Dr. A. Elizabeth Sloan
lizsloan@sloantrend.com

Dr. Catherine Adams Hutt, R.D.
catherineadamshutt@gmail.com