

# Women's Perceptions of Food Production Labeling: A Q Methodology Study

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## Abstract

*Consumers' perceptions of the terminology used on food production labels may lead to a perceived risk, which influences their grocery shopping decisions. Risk perception is the consumers' belief that he or she may be exposed to something that is harmful or uncertain. Women are more aware of food labels due to their perceived risk associated with health and the environment. This study used Q methodology to describe a variety of viewpoints related to women's grocery shopping decisions. Using a Q set of 36 statements, 18 women sorted based on the condition of instruction, "How do you make food decisions?" Factor scores, field notes, and post-sort interviews were used to interpret the arrays as the Frugal Shopper, the Price Conscious Shopper, and the Engaged Shopper. The Frugal Shopper was interpreted to be an economical shopper with little concern for food production methods. The Price Conscious Shopper is concerned for the effect on various production methods, but price is the main priority. The Engaged Shopper is willing to pay higher prices to have more choices when grocery shopping. Improved communication and a deeper understanding of consumers' perceptions of food labels may help decrease the perceived risk associated with various food production methods.*

**Keywords:** food labels; shopper; consumer preferences; perceived risk; food production methods; agricultural terms

## Introduction

A recent increase in awareness of agricultural terms amongst consumers (Olynk, 2012), may be due to an increasing gap between producers and consumers, differences in individual experiences, or exposure to positive or negative communications (Goodwin, Chiarelli, & Irani, 2011). Consumers often look to the media when searching for information related to the association between food purchases and agriculture (Meyers & Abrams, 2010). Additionally, consumers often associate agricultural terms in a positive or negative frame, based on the terms' portrayal in media sources (Rumble et al., 2014).

The original purpose of food labeling was to provide consumers information relating to brand, nutritional facts, expiration date, and ingredients (Verbeke, 2009). Labels have long been used as a marketing tool to influence consumers to purchase one product over another in their grocery decisions (Brooks & Ellison, 2014). Another purpose of labels is related to food production methods, or food-labeling claims, and has become a form of communication between producers, retailers, and consumers (Brooks & Ellison, 2014). Food production labels are claims related to production methods and on-

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farm practices (Ellison, Brooks, & Mieno, 2017) informing consumers of how or where the product was produced. Claims may include references such as organic, all natural, genetically modified (GM), hormone-free, antibiotic-free, cage-free, or free range. Yet, the agricultural meaning of these labels varies from person to person depending on their perception of certain words (Rumble, Holt, & Irani, 2014). For example, Estes, Edgar, and Johnson (2015) found consumers to have various perceptions of production methods within the poultry industry. Furthermore, researchers have found consumers have varying perceptions of the term “organic” (Hill & Lynchehaun, 2002).

Perceptions of agricultural terms may influence the purchasing decisions of consumers. While production practices vary among food sources and types of food animals, consumers are often unaware of these differences (Brooks & Ellison, 2014; Estes et al., 2015). An overuse of labels can cause confusion or present conflicting information (Rumble et al., 2014). Marketers have recognized the influence of labels with wording such as “no,” “without,” or “free” (Abrams, Meyers, & Irani, 2010; Hartmann, Hieke, Taper, & Siegrist, 2017). To make an informed decision, the consumer must be knowledgeable of the ingredients listed as “free from” on the label (Hartmann et al., 2017). Additionally, these terms may lead consumers to believe there is a risk associated with production characteristics such as antibiotics, hormones, or genetic modification; therefore, individuals may be more likely to purchase items containing “no” phrases to avoid any risks (Abrams et al., 2010). Douthitt (1995) and Grobe and Douthitt (1995) wrote that certain production labels on milk packaging may be marketing tools misleading consumers or intentionally increasing the perceived risk for consumers who may not have full knowledge of agricultural production practices. The use of non-GMO labels may also persuade consumers. Hartman et al. (2017) stated the use of GMO-free labels on products does not provide additional information for the consumer, especially for those who live in states or countries in which products containing GMOs must include a label stating so.

Additionally, a risk may be associated with products that have simple packaging or do not contain labels providing any information (Jaafar et al., 2012). Consumers may believe the product to contain antibiotics, hormones, or genetically modified ingredients if it is not explicitly stated on labeling that the product does not include these items. For example, the label “no added hormones” on meat and dairy can cause confusion for those who are unaware of the regulations associated with livestock production (Douthitt, 1995). Risks may include the fear of negative effects due to pesticide residue, growth stimulants or hormones, and fertilizers (Abrams et al., 2010). Producers can provide information related to production practices through food labels, but food labels are only effective if the consumer trusts and understands the label (Olynk, 2012).

Consumers are often drawn to certain labels because they perceive the product to be healthier, safer for the environment, or associated with higher animal welfare standards (Brooks & Ellison, 2014). However, labels such as “all-natural” may have varying definitions within the production process or manufacturing, which often creates confusion for the consumer (Abrams et al., 2010; Ellison, Brooks, & Mieno, 2017). Abrams et al. (2010) found participants in a focus group had varying perceptions of the term “all-natural.” One participant stated that all-natural means “no preservatives, no additives, no antibiotics,” while another participant stated, “I don’t think they need guidelines for all-natural” (Abrams et al., 2010, p. 369). Because there are so many influences involved in grocery shopping, more information is needed regarding food choices, values related to food choices (Lusk & Briggeman, 2009), and the influence of labels (Jaafar, Lalp, & Mahommed, 2012).

In the U.S., women are responsible for the majority of household grocery shopping and food choices (Goodman, 2008). Additionally, women may be less accepting of genetically modified foods and biotechnology; therefore, women’s perceived risk associated with health and the environment may lead them to be more aware of food labels (Grobe & Douthitt, 1995; Moerbeek & Casimir, 2005). Hallman, Adelaja, Schilling, and Lang (2002) concluded those who are responsible for caring for others are less likely to adopt genetically modified foods. Harper and Makatouni (2002) conducted a focus

group consisting of parents with children between the ages of 4 and 11. Several participants in that study stated one of the reasons they purchased organically produced foods was the fear of their children becoming immune to antibiotics and the effect of hormones on their children's health.

### Theory of Risk Perception

The areas of influence involving risk when shopping for food were the foundation for the theoretical framework of this study. Risk is related to uncertainty of the product, which includes intrinsic characteristics, extrinsic characteristics, and consumer attitude (Jaafar et al., 2012). Risk perception is the consumer's belief that he or she may come into contact with something that is harmful or uncertain (Pennings, Wansink, & Meulenberg, 2002). Slovic (1987) defines risk perception as "the judgements people make when they are asked to characterize and evaluate hazardous activities and technologies" (p. 236). In addition, Hallowell (2010) defines risk perception as "the subjective judgment that one makes about the frequency and severity of particular risks" (p. 404).

Intrinsic characteristics, extrinsic characteristics, and consumer attitude drive consumers' purchase intentions (see Figure 1). Intrinsic characteristics are related to the consumer's actual experience with a product. Intrinsic characteristics include perceived quality, perceived risk and perceived value (Jaafar et al., 2012). Lower quality may be associated with products having simple packaging or no labels, as a decrease in information may lead consumers to believe products contain perceived risks (Chaniotakis, Lymperopoulos, & Soureli, 2010; Jaafar et al., 2012).

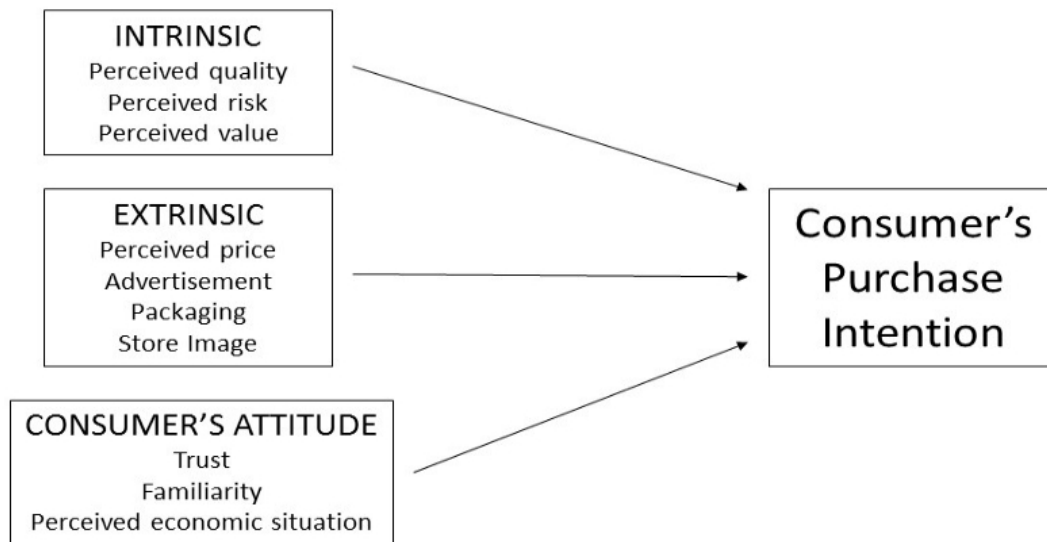


Figure 1. Theory of Risk Perception adapted from Jaafar et al., 2012.

Extrinsic characteristics refer to features not directly associated with the item. Extrinsic characteristics include perceived price, packaging, store image and advertising (Jaafar et al., 2012). Product information on the packaging, such as marketing, nutritional information, or private brand labels, assist consumers in the decision-making process (Jaafar et al., 2012). Store image may play a role in consumer decisions related to private-label products (Jaafar et al., 2012). Advertising sends positive or negative messages to consumers helping shape their perception of a product (Goodwin et al., 2011; Jaafar et al., 2012).

Attitude refers to trust of the label, familiarity with the product or label, and the consumer's economic situation (Jaafar et al., 2012; Vahdati, Mousavi, & Tajik, 2015). Chaniotakis et al. (2010) found consumers' attitudes are reflected in their intent to buy certain products. Consumers tend to purchase brands they are familiar with as those brands are typically associated with a positive experience (Jaafar et al., 2012). Retailers selling private-labeled products may increase consumers' level of trust by providing more information related to the benefits of the product. Consumers have a more positive attitude toward products in which they associate a perceived benefit (Chaniotakis et al., 2010).

Consumers' beliefs, perception, and attitude provide information on what drives their purchase intention for products and services (Vahdati et al., 2015). Individuals who reported having a high perception of risk, or a negative image of the terminology on the label, indicated they are less likely to consume or purchase that product (Moerbeek & Casimir, 2005).

### **Problem and Purpose**

Food labels often provide unclear information or information that is difficult to interpret (Golan, Kuchler, Mitchell, Greene, & Jessup, 2001). Additionally, consumers' perception of the terminology used on food labels may lead to a perceived risk (Abrams et al., 2010). It is important to gain a deeper understanding of women's perceptions of food production labels as they are the primary grocery shopper for a household (Goodman, 2008) and may associate a greater amount of risk with food production practices and biotechnology (Moerbeek & Casimir, 2005). The purpose of this study was to describe women's perceptions toward food production labels in their grocery making decisions. Q methodology was used to identify women's perceptions of food production labels from a self-referent viewpoint. Q statements were sorted according to the condition of instruction, "How do you make food decisions?"

### **Methodology**

The research approach chosen for this study was Q methodology, which was founded by William Stephenson in 1935 and further advanced by him in his seminal work in 1953. The primary purpose of Q methodology is to identify perceptions from a self-referent point of view (Watts & Stenner, 2012). This study implemented Q methodology to identify various patterns across individual responses rather than specific individual preferences toward one response. Q methodology allows for the identification of perceptions toward a topic of study through the analysis of the relationship of all items in each Q sort with every other Q sort in the study (McKeown & Thomas, 2013; Watts & Stenner, 2012). In Q methodology, the findings are not generalized to a population, rather they are generalized to the Q set derived from the concourse and theory (Watts & Stenner, 2012). Q methodology can be used to gain a deeper insight of the various perceptions relating to agriculture and nutrition. Q methodology allows agricultural communicators to better identify information needs amongst different groups of people (Leggett & Redwine, 2016).

This research study was approved by the Institutional Review Board (IRB) on February 28, 2018.

### **Participant Selection**

Participants in this study, known as the P set, were 18 women between the ages of 18 and 35. Q methodology does not require a large sample size. The sample size must only be large enough to establish a factor in order to compare one factor to another (Brown, 1980). In Q methodology, it is recommended the number of participants should be half the number of the items in the Q set (Watts &

Stenner, 2012). Initial participants were individuals known to the researchers, although additional participants were recruited through the snowball method, as recommended by Watts and Stenner (2012). Participants were given recruitment flyers and a contact card for the researcher in order to recruit additional participants. The final P set included 18 women who met with the researcher in person at various locations convenient for them.

### **Instrument Development**

A Q study begins with a research question and explores the many possible and different ideas associated with that topic (Watts & Stenner, 2012). This exploration includes a concourse of communication regarding a topic. The concourse represents the vast and possible diversity of thoughts and knowledge relating to a particular topic (McKeown & Thomas, 2013; Stephenson, 1953). In this study, the concourse included a hybrid collection of roughly 150 statements in reference to food labeling stemming from both naturalistic and theoretical sources. Naturalistic sources include informal conversations regarding food labeling with women from a variety of familial, geographic and socio-economic backgrounds. Theoretical statements include those statements adapted from literature. The concourse was sampled according to risk perception theory as applied to the areas of human health, production methods, labeling, and price.

Researchers categorized the statements by these risk groups according to the homogeneity principle (Brown, 1980) and then chosen to provide the greatest differences among statements in the group according to the heterogeneity principle (Brown, 1980). For example, the statements were categorized according to the various aspects of risk perception theory: those that applied to elements of extrinsic characteristics, intrinsic characteristics, and consumer attitude. Then, the statements were further selected within each category to ensure each provided a unique representation. Rewording statements in the vernacular of shoppers, eliminating redundancy, and garnering opinions over facts led to the final 36 statements for the Q sample. Of the 36 statements, 11 statements were classified in the human health category, 12 statements were related to production methods, and 13 statements were related to labeling. An example of a statement placed in the human health category is statement 4: "I am fearful that eating foods with added hormones leads to early puberty." Statement 20: "Chickens raised in fields with sunshine and a natural habitat produce far superior eggs than those raised inside" is an example of a statement placed in the production category. Statement 29: "I want to be fully informed on what I am eating" was placed into the category of labeling.

Human health and production methods are related to perceived risk, quality, trust and advertisement. Labeling is a component of both intrinsic and extrinsic characteristics (Jaafar et al., 2012). Price is a component of extrinsic characteristics. The final 36 statements were

randomly numbered and each placed on an individual card. In addition, the researcher created a form board (Figure 2) with nine columns labeled -4 to +4 on which participants were to sort the Q set according to the condition of instruction: "How do you make food decisions?"

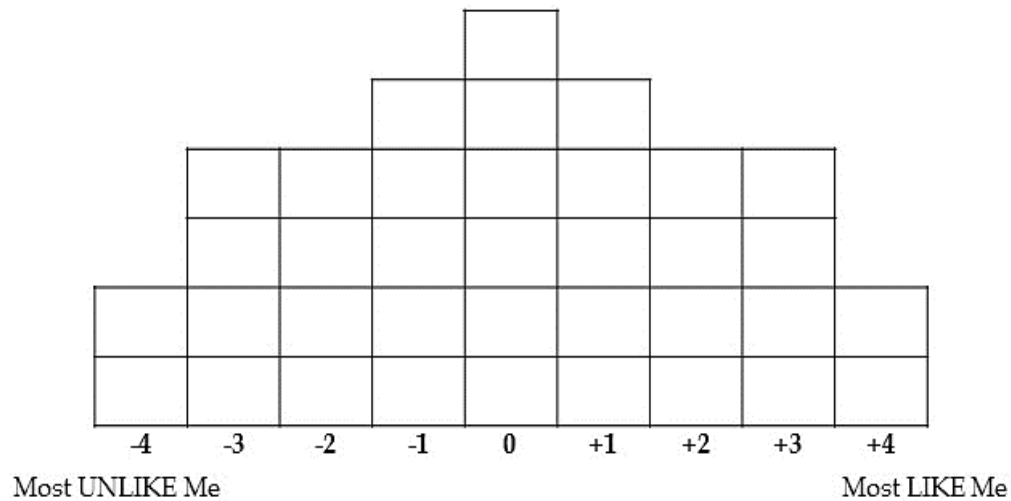


Figure 2. Q-sorting template.

Demographic information, including participant age, education and whether they were shopping for themselves or a family, was collected to better understand the perceptions provided through the sorting procedure.

### Procedure

Prior to sorting the statements on the form board, participants were instructed to divide the statements into three piles, *most like me*, *most unlike me*, and *no strong opinion* based on the condition of instruction, “How do you make food decisions?” Participants were then instructed to start sorting the statements onto the form board with the ends of the continuum from *most like me* (+4) to *most unlike me* (-4), working back and forth until the middle was reached (McKeown & Thomas, 2013). Upon completing the sort, participants were given the opportunity to make any changes to their sorted structure. Participants were instructed to record their response on the record sheet and complete the demographic instrument.

### Data Analysis

Eighteen Q sorts were analyzed using PQ Method software (PQ method, Version 2.35, 2014 by Peter Schmolck). Initially, after a correlation of all sorts to all other sorts, data were factor-analyzed using principal components analysis (PCA) and varimax rotation resulting in a three-factor solution. Sorts reaching significance of 0.45 on only one factor were considered defining of the factor and used to determine the number of factors maintaining a stable factor. The final statistical procedure is the calculation of standard scores for each statement per defining sorts in the factor. The statements in each resultant array were ordered by z-score from -4 to +4 for interpretation.

After data were analyzed, post-sort interviews were conducted with the exemplar sorters on each factor to collect qualitative information about that person's purchasing habits and beliefs about food production. Exemplars are those sorters with the highest significant and purest loading on one factor (Shinebourne & Adams, 2007; Watts & Stenner, 2005). Interviews were conducted via phone to

gain further understanding for the interpretation process. Five participants identified as exemplars were contacted via information they voluntarily supplied, resulting in four, semi-structured post-sort interviews.

### Findings

The following three distinct consumer perspectives were interpreted from 15 sorts that reached significance and were used to define one of the three factor arrays (Table 1): the *Frugal Shopper*, *Price Conscious Shopper*, and *Engaged Shopper*. Nine sorts defined the *Frugal Shopper*, four sorts defined the *Price Conscious Shopper*, and two sorts defined the *Engaged Shopper*. Three of the 18 sorts were confounded, meaning they achieved significance on more than one factor array. The arrangement of statements by *z*-score for each array, field notes, interview data, and demographic information was used to interpret the three perspectives. Appendix A includes statements and array position for each perspective.

Table 1

#### Defining Sorts in the Factor Matrix

Sorter	Factor 1	Factor 2	Factor 3
Masters, No children, suburban, 34	<b>0.9129X*</b>	-0.1781	0.0509
Masters, children, suburban, 33	<b>0.6281X</b>	0.1641	-0.1069
Bachelors, no children, rural, 35	<b>0.8349X</b>	-0.1954	-0.2182
Masters, children, rural, 30	<b>0.7686X</b>	0.2229	-0.1198
Masters, no children, suburban, 26	<b>0.6829X</b>	0.3492	0.2595
Doctorate, no children, rural, 25	<b>0.6724X</b>	0.2154	-0.3914
Doctorate, children, suburban, 30	<b>0.8745X</b>	-0.0951	0.0849
Bachelors, no children, rural, 21	<b>0.8536X</b>	0.0751	0.0720
Masters, children, suburban, 31	<b>0.6183X</b>	0.2770	-0.4022
Bachelors, children, rural, 29	-0.1242	<b>0.6260X</b>	0.3362
Masters, no children, suburban, 28	0.2029	<b>0.7914X</b>	0.0952
Bachelors, no children, suburban, 22	-0.0068	<b>0.8219X*</b>	0.0939
Masters, children, urban, 33	0.0811	<b>0.7210X</b>	0.0980
Masters, no children, suburban, 32	0.0337	0.2609	<b>0.8092X*</b>
Masters, children, rural, 35	0.0353	0.3614	<b>0.6964X</b>
Bachelor's, no children, rural, 26	0.4942	0.6104	0.2310
Bachelor's, no children, suburban, 21	0.5710	0.6433	0.0364
Bachelor's no children, urban, 20	-0.4332	0.6223	0.4894

Note. X Indicates a defining sort for the factor. \* Indicates an exemplar sort

#### The Frugal Shopper

Nine sorts defined the *Frugal Shopper* perspective. Education levels varied among participants included in this perspective, with two having a bachelor's degree, five a master's degree, and two a doctorate degree. Four of the nine participants reported having children. Five of the participants reported they are from a suburban area with four from a rural area.

The *Frugal Shopper* is practical with no concern for production methods. The following conceptual themes were identified in support this perspective: lowest price, hormones have no effect on health, and health effects of production methods is not a concern. The highest positive and negative statements for the *Frugal Shopper* are shown in Table 2.

Table 2

*Highest Positive and Negative Statements for Frugal Shopper*

No.	Statement	Array Position	Z-Score
<b>24</b>	<b>When grocery shopping, I rely more on price than labeling.</b>	<b>+4</b>	<b>1.719</b>
<b>22</b>	<b>I'm not concerned if my groceries are genetically modified.</b>	<b>+4</b>	<b>1.683</b>
<b>31</b>	<b>Hormone free labels are misleading.</b>	<b>+3</b>	<b>1.682</b>
32	Most Americans are too far removed from the farm to know what is in their food.	+3	1.528
<b>36</b>	<b>There is absolutely no need to have hormone free labels on food products.</b>	<b>+3</b>	<b>1.193</b>
<b>18</b>	<b>Farms just use hormone free labels to increase their profits.</b>	<b>+3</b>	<b>1.131</b>
<b>3</b>	<b>I believe that eating foods with added hormones will lead to cancer.</b>	<b>-3</b>	<b>-1.220</b>
7*	I purchase foods with "no antibiotics" because I do not want me or my family to build up a resistance and not have options when they get sick.	-3	-1.235
<b>35</b>	<b>I will pay more to avoid any added hormones in my food.</b>	<b>-3</b>	<b>-1.245</b>
11	I purchase organic foods because they are more nutritious.	-3	-1.277
21	I purchase organic foods because I want to know that my food never came into contact with pesticides that can make me sick.	-4	-1.470
8	I want to avoid consuming hormones so I stopped eating meat and drinking milk.	-4	-1.794

Note. Bold indicates distinguishing statements. \* indicates consensus statements.

One of the themes to understand the *Frugal Shopper* is lowest price. For the *Frugal Shopper*, selecting the lowest price was the top priority in grocery purchasing decisions. The *Frugal Shopper* is skeptical of the terminology and use of food production labels and makes practical choices based on price when shopping. Additionally, followers of this perspective believe food labels are often used as a marketing tool and can be misleading to the consumer. In a post-sort interview, Participant 1, a 34-year-old with no children, stated, "I am more aware of labels as a marketing tactic than the average consumer. I try to avoid misleading labels, but will still purchase if it is cheaper." The statements below, provided with array position, describe the *Frugal Shoppers'* perception of food production labels and priority of purchasing the lowest priced item.

- 24. When grocery shopping, I rely more on price than labeling. (+4)
- 18. Farms just use hormone free labels to increase their profits. (+3)
- 31. Hormone free labels are misleading. (+3)
- 35. I will pay more to avoid any added hormones in my food. (-3)

The second theme to support this viewpoint is the belief that hormones used in food production have no effect of health. Additionally, followers of this perspective believe labels denoting a food as being "hormone free" are unnecessary. While sorting, Participant 6, a 35-year-old with no children,

stated, “Whenever I see something labeled “hormone free,” I immediately roll my eyes and decide I am not buying that product.” The statements describing the *Frugal Shoppers*’ belief that hormones have no effect on health are listed below.

- 9. People take hormones for medical reasons, so hormones in food isn’t any different. (+2)
- 16. There is a withdrawal period for the animal, so there is no difference in hormone treated and non-treated animals. (+2)
- 2. I think eating “hormone free” means I will live longer. (-2)
- 8. I want to avoid consuming hormones so I stopped eating meat and drinking milk. (-4)

The last theme to support this viewpoint is health effects of production methods is not a concern. Production practices and their effect on consumer health is not a concern for the *Frugal Shopper*, who also has no concern regarding the health effects of genetically modified products or use of antibiotics. While sorting, Participant 7, a 30-year-old with one infant and one toddler, stated, “I am not concerned about GMOs, hormone-free, etc. Personally, I feel it’s bogus.” While sorting, Participant 18, a 31-year-old with one infant and one toddler, stated, “Without pesticides we wouldn’t have food to eat.” The statements describing the *Frugal Shoppers*’ concern for production practices are listed below.

- 19. I purchase all-natural foods because they are a high quality product. (-2)
- 7. I purchase foods with “no antibiotics” because I do not want me or my family to build up a resistance and not have options when they get sick. (-3)
- 21. I purchase organic foods because I want to know that my food never came into contact with pesticides that can make me sick. (-4)

**The Price Conscious Shopper**

Four sorts defined the *Price Conscious Shopper* perspective. Two of the participants included in this perspective have a bachelor’s degree, while the remaining two have a master’s degree. Two of the four participants in this array have children. Geographical location varied amongst participants in this perspective; one is from a rural background, two are from a suburban background, and one is from an urban background.

The *Price Conscious Shopper* is interested in purchasing organic, all-natural, and hormone-free foods; however, their budget takes priority. The following themes emerged in support of the *Price Conscious Shopper*: shopping on a budget; appreciation of corporate responsibility and transparency; and concern for production practices. The highest positive and negative statements for the *Price Conscious Shopper* are listed in Table 3.

Table 3  
*Highest Positive and Negative Statements for Price Conscious Shopper*

No.	Statement	Array Position	Z-Score
33	It is irresponsible of companies to add chemicals to food just so they can make more money.	+4	1.482
27	<b>I want to purchase all organic foods, but cannot afford to so I have to limit it to certain foods.</b>	+4	<b>1.475</b>

Table 3

*Highest Positive and Negative Statements for Price Conscious Shopper Continued...*

<b>28</b>	<b>The meaning of hormone free labels is not clear to me.</b>	<b>+3</b>	<b>1.430</b>
34	Companies must tell their consumers how their products are produced and what is or is not in them.	+3	1.296
5	Hormones in foods may alter how your body's natural hormones work.	+3	1.167
12	I purchase foods that are produced locally because they are more responsible than corporate farms.	+3	1.156
30	Food labels do not have meaning to me when I am shopping.	-3	-1.434
9	People take hormones for medical reasons, so hormones in food isn't any different.	-3	-1.445
<b>17</b>	<b>I will not buy milk products if it has a hormone free labels.</b>	<b>-3</b>	<b>-1.514</b>
36	There is absolutely no need to have hormone free labels on food products.	-3	-1.530
14*	I purchase raw milk because it has natural enzymes and nutrients that is removed from conventional milk.	-4	-1.684
8	I want to avoid consuming hormones so I stopped eating meat and drinking milk.	-4	-1.796

Note. Bold indicates distinguishing statements. \* indicates consensus statements.

One of the themes to support this viewpoint is shopping on a budget. The *Price Conscious Shopper's* food purchasing decisions come down to budget. Labels are important to these consumers, but the *Price Conscious Shopper* must put cost first. The *Price Conscious Shopper's* desire to purchase all-natural or organic products combined with the realities of their food budget means these consumers must choose the products for which they are willing to pay a premium. In a post-sort interview, Participant 15, a 22-year-old with no children, stated, "I currently do not have the income to buy more organic foods, but hope to more in the future when my income is more consistent." The statements listed below describe the influence of budget on the *Price Conscious Shopper's* grocery purchase decisions.

- 11. I purchase organic foods because they are more nutritious. (+2)
- 24. When grocery shopping, I rely more on price than labeling. (+2)
- 27. I want to purchase all organic foods, but cannot afford to so I have to limit it to certain foods. (+4)

The second theme to support this viewpoint is the appreciation of corporate responsibility and transparency. The *Price Conscious Shopper* believes corporations should be upfront with consumers in providing information about food production. Therefore, labels are an important communication tool between the producer and buyer for these consumers. The statements below describe The *Price Conscious Shopper's* preference for transparency.

- 33. It is irresponsible of companies to add chemicals to food just so they can make more money. (+4)
- 12. I purchase foods that are produced locally because they are more responsible than corporate farms. (+3)

34. Companies must tell their consumers how their products are produced and what is or is not in them. (+3)

The last theme to support the *Price Conscious Shopper* is concern for production practices. The *Price Conscious Shopper* is concerned about production practices and the potential impact of these practices on consumer health. *Price Conscious Shoppers* believe organic and all-natural foods are a better, healthier product, and tend to be more wary of GMO products. Additionally, they believe that foods with added hormones and antibiotics will lead to future health issues. While sorting, Participant 2, a 29-year-old with one toddler, stated, "I am more cautious of purchasing foods with added hormones now that I have a daughter." In a post-sort interview, Participant 15, a 22-year-old with no children, stated, "From what I've heard from others, organic sounds more natural and healthy in the way it was produced." The statements below describe the *Price Conscious Shopper's* belief toward production practices and impact of these practices on health.

27. I want to purchase all organic foods, but cannot afford to so I have to limit it to certain foods. (+4)

16. There is a withdrawal period for the animal, so there is no difference in hormone treated and non-treated animals. (-2)

22. I'm not concerned if my groceries are genetically modified. (-2)

### The Engaged Shopper

Two participants defined the *Engaged Shopper*. The two participants are 32 and 35 in age. Both participants have master's degrees. One of the two participants have children. One participant is from a rural background and one is from a suburban background.

The *Engaged Shopper* wants to have choices and information on the food they are purchasing no matter the cost. The following conceptual themes were identified in support of this perspective: willingness to pay, variety, and product information. Supporting data and the highest positive and negative statements in the array are listed in Table 4.

Table 4

#### *Highest Positive and Negative Statements for Engaged Shopper*

No.	Statement	Array Position	Z-Score
<b>29</b>	<b>I want to be fully informed on what I am eating.</b>	<b>+4</b>	<b>1.811</b>
34	Companies must tell their consumers how their products are produced and what is or is not in them.	+4	1.811
5	Hormones in foods may alter how your body's natural hormones work.	+3	1.678
32	Most Americans are too far removed from the farm to know what is in their food.	+3	1.313
<b>4</b>	<b>I am fearful that eating foods with added hormones leads to early puberty.</b>	<b>+3</b>	<b>0.997</b>
20*	Chickens raised in fields with sunshine and a natural habitat produce far superior eggs than those raised inside.	+3	0.863

Table 4

*Highest Positive and Negative Statements for Engaged Shopper Continued...*

9	People take hormones for medical reasons, so hormones in food isn't any different.	-3	-1.131
16	There is a withdrawal period for the animal, so there is no difference in hormone treated and non-treated animals.	-3	-1.264
<b>27</b>	<b>I want to purchase all organic foods, but cannot afford to so I have to limit it to certain foods.</b>	<b>-3</b>	<b>-1.362</b>
14*	I purchase raw milk because it has natural enzymes and nutrients that is removed from conventional milk.	-3	-1.495
36	There is absolutely no need to have hormone free labels on food products.	-4	-1.495
30	Food labels do not have meaning to me when I am shopping.	-4	-1.995

*Note.* Bold indicates distinguishing statements. \* indicates consensus statements.

The first theme to support this viewpoint is willingness to pay. The *Engaged Shopper* is willing to prioritize foods labeled as all-natural or organic in their food budgets. In a post-sort interview, Participant 12, a 32-year-old with no children, stated, "I no longer purchase processed foods since switching to a vegan diet. Since I no longer purchase these foods, I actually have more money to spend on organic and produce and my grocery bill is less." The *Engaged Shopper's* desire for choices is described by the statements below.

- 12. I purchase foods that are produced locally because they are more responsible than corporate farms. (+2)
- 19. I purchase all-natural foods because they are a high quality product. (+2)
- 21. I purchase organic foods because I want to know that my food never came into contact with pesticides that can make me sick. (+2)
- 24. When grocery shopping, I rely more on price than labeling. (+2)
- 27. I want to purchase all organic foods, but cannot afford to so I have to limit it to certain foods. (-3)

The second theme to support the *Engaged Shopper* is the ability to choose from a variety of products when shopping. In fact, the *Engaged Shoppers* are willing to travel to multiple stores if it provides more variety in products. While these consumers expect to have more variety and information regarding their grocery products, this does not necessarily mean they are unwilling to purchase certain foods. After sorting, Participant 14, a 35-year-old with one toddler and one child in elementary school, stated, "I purchase only grass-fed beef. I choose to purchase only coconut milk when needed." The statements below reflect the *Engaged Shopper's* desire to choose from a variety of products.

- 10. I am concerned about how my food is produced, but because of where I live, my choices are limited. (-2)
- 11. I purchase organic foods because they are more nutritious. (-2)
- 22. I'm not concerned if my groceries are genetically modified. (-1)
- 29. I want to be fully informed on what I am eating. (+4)
- 34. Companies must tell their consumers how their products are produced and what is or is not in them. (+4)

The last theme to support the *Engaged Shopper* is product information. The *Engaged Shopper* wants information on the foods they are purchasing. Consumers value labels to gain information about a product. Consumers want to know the production methods used to produce their food. After sorting, Participant 14, a 35-year-old with one toddler and one child in elementary school, stated, "I am on the planning committee for a neighborhood garden. I want my kids to learn where their food comes from." In a post-sort interview, Participant 12, a 32-year-old with no children, stated, "I want to know that my food was produced ethically." The statements below describe how product information plays a role in the *Engaged Shoppers'* purchasing decisions.

- 29. I want to be fully informed on what I am eating. (+4)
- 34. Companies must tell their consumers how their products are produced and what is or is not in them. (+4)
- 21. I purchase organic foods because I want to know that my food never came into contact with pesticides that can make me sick. (+2)
- 30. Food labels do not have meaning to me when I am shopping. (-4)
- 36. There is absolutely no need to have hormone free labels on food products. (-4)

### Consensus Statements

While the *Frugal Shopper*, *Price Conscious Shopper*, and *Engaged Shopper* differ, all three types of shoppers share several perceptions related to their grocery shopping decisions. Consensus statements are those statements in which the ranking, or array position, is similar across factors (Watts & Stenner, 2012). However, while the array position is similar, the meaning of each statement is unique to each perspective. For example, the statement "Chickens raised in fields with sunshine and a natural habitat produce far superior eggs than those raised inside" received similar placement among the perspectives (statement 20; array positions 1, 1, 3). The *Frugal Shopper* may agree with the sentiment in statement 20, but is still going to use price as the primary factor in deciding whether to purchase eggs from free-range chickens. The *Price Conscious Shopper* believes there is a possibility of free-range eggs being healthier or more natural. The *Engaged Shopper* views eggs from free-range chickens as an added option when purchasing their groceries. Additional consensus statements are listed in Appendix A.

### Discussion

The purpose of the study was to identify women's perceptions toward the use food production labels in their grocery purchasing decisions. Findings indicated three distinct perceptions toward food purchasing decisions among the participants: the *Frugal Shopper*, the *Price Conscious Shopper*, and the *Engaged Shopper*.

The Jaafar et al. (2012) model of risk perception, including intrinsic characteristics, extrinsic characteristics, and consumer attitude, can be used to describe the three perspectives amongst women in their grocery making decisions. The *Frugal Shopper's* grocery purchasing decisions are based on consumer attitude: trust, familiarity, and price. The *Frugal Shopper* is familiar with food production terms and understands the various food production methods. Participants stated they are aware of the marketing tactics behind food production labels and try to avoid them when possible. The *Frugal Shopper* makes decisions based on price and familiarity with the product.

The *Price Conscious Shopper* makes grocery-shopping decisions based on intrinsic and extrinsic characteristics and consumer attitude. Intrinsic characteristics of perceived quality and risk describe the *Price Conscious Shopper*. However, while the *Price Conscious Shopper* is aware of price and must shop within a budget, they perceive a risk to be associated with food production labels. In

comparison, while the *Frugal Shopper* also has a concern for price, they do not look to purchase items with a specific label. The *Price Conscious Shopper* is aware of advertisements and marketing efforts related to food production labels. They are concerned with the quality and/or safety of the food they are buying. Participants included in this perspective stated they purchase as many organic and all-natural foods as possible, but they must work within a budget.

Extrinsic characteristics shape the purchase intentions of the *Engaged Shopper*. The *Engaged Shopper* purchases products based on store image and advertising. Similar to the *Price Conscious Shopper*, the *Engaged Shopper* wants transparency and expects information on the product label to help them make an informed choice. Unlike the *Frugal Shopper* and the *Price Conscious Shopper*, price is not a factor for the *Engaged Shopper*. The *Engaged Shopper* puts food production methods above price. The *Engaged Shopper* wants to know their food is produced ethically with no chemicals or additives. These shoppers want to know where their food comes from and to be able to teach their children how their food is produced.

Many of the perceptions identified in this study are supported by previous research relating to consumers' perceptions of food production labels (Hughner et al., 2007; Abrams et al., 2010). The *Engaged Shopper* is more concerned about the effect of hormones on their children than themselves, as supported by Hallman et al. (2002). Similar to the *Engaged Shopper*, Abrams et al. (2010), found that consumers perceived the term organic to mean healthier, but more expensive (Hughner et al., 2007). Abrams et al. (2010) found consumers want more information and clarity, which supports the themes of transparency and corporate responsibility.

### Implications

The findings in this research study provide greater insight into women's grocery shopping decisions. However, further research is necessary to gain a greater understanding of consumers' perceptions related to food production labels. This includes research related to consumers' level of agricultural literacy, their values related to food production, and perceptions of food production labels.

### Research

The challenge surrounding consumer risk perception is the variation in consumers' perception and knowledge related to food production labels and biotechnology (Abrams et al., 2010; Douthitt, 1995). A deeper understanding of consumers' perceptions may provide insight to the risks associated with specific food labels (Abrams, et al., 2010). The context of words or phrases may lead consumers to believe there is a risk associated with purchasing a product (Rumble et al., 2014). Future research may focus specifically on women's knowledge of food production methods and biotechnology and its effect on risk association (Moerbeek & Casimir, 2005). Additionally, research could consider consumers' sources of information related to food production methods and how to provide more clear information (Abrams et al., 2010).

### Practice

Participants in this study provided insight to their grocery purchasing decisions. Understanding consumers' knowledge related to food production terms would provide insight consumers' perceived risks. A greater understanding of consumer values would also provide insight to consumers' perceived risks. To better understand the risk associated with food production labels, it would be beneficial to know consumers' knowledge of food production terms. It may be useful to know where consumers get their information regarding food production practices and labels. Knowing the amount of money consumers budget for food can also provide further insight to their choices.

The findings from the study show that consumers want corporate transparency when making their grocery shopping decisions. Corporations and food companies should work to provide clear information using language familiar to consumers (Estes et al., 2015). Advertising may also be directed toward women, as they are the primary grocery shopper (Goodman, 2008), and include information relating to the various production practices across species (Estes et al., 2015).

Previous research has shown that consumer education is necessary for individuals to understand production food labels (Estes et al., 2015; Hughner et al., 2007). Educating consumers will lead to an increase in agricultural literacy (Frick et al., 1995) and a decrease in perceived risk associated with different labels (Estes, et al., 2015; Lusk & Coble, 2005). Marketing agents, producers, and corporations must work together to spread the same message to consumers (Hughner et al., 2007).

Agricultural communicators suggest developing positive advertisement using agricultural terms and visual aids that reach out to various social groups and provide a positive aspect of agricultural terms (Goodwin et al., 2011; Hughner et al., 2007). Researchers have suggested posting information related to production methods on counters and shelves in the store (Abrams, et al., 2015). Prior studies have suggested reducing the number of labels on the package and considering the context of the label, making it easier for the consumer to decipher the provided information (Rumble et al., 2014). According to the *Frugal Shopper* perspective, packaging should eliminate multiple labels with the same meaning, such as a hormone free label next to an organic label. Multiple labels mean a greater amount of information for the consumer to interpret (Brooks & Ellison, 2014). Consistency and simplicity amongst food production labels may lead to a positive influence on shoppers.

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## Appendix

## Factor Array For Each of the Three Factors

No.	Statement	The Frugal Shopper	The Price Conscious Shopper	The Engaged Shopper
1	I associate hormone free labels with something that is not naturally in my food or body.	-1	+1	0
2#	I think eating "hormone free" means I will live longer.	-2*	-1	-1
3	I believe that eating foods with added hormones will lead to cancer.	-3*	0	0
4	I am fearful that eating foods with added hormones leads to early puberty.	-1	-1	+3*
5	Hormones in foods may alter how your body's natural hormones work.	0*	+3	+3
6	Eating foods with added hormones leads to my anxiety about obesity.	-2	-2	0*
7#	I purchase foods with "no antibiotics" because I do not want me or my family to build up a resistance and not have options when they get sick.	-3	-2	-1
8	I want to avoid consuming hormones so I stopped eating meat and drinking milk.	-4	-4	+1*
9	People take hormones for medical reasons, so hormones in food isn't any different.	+2*	-3	-3
10#	I am concerned about how my food is produced, but because of where I live, my choices are limited.	0	0	-2*
11	I purchase organic foods because they are more nutritious.	-3	+2*	-2
12	I purchase foods that are produced locally because they are more responsible than corporate farms.	0	+3	+2
13	It is unethical to use hormones to increase food production.	-1*	+1	0
14#	I purchase raw milk because it has natural enzymes and nutrients that is removed from conventional milk.	-2	-4	-3
15#	The amount of meat you get is different from hormone treated and non-treated animals.	0	-1	-1
16	There is a withdrawal period for the animal, so there is no difference in hormone treated and non-treated animals.	+2*	-2	-3
17	I will not buy milk products if it has a hormone free labels.	+1*	-3*	-1*
18	Farms just use hormone free labels to increase their profits.	+3*	-1	0
19	I purchase all-natural foods because they are a high quality product.	-2*	+2	+2
20#	Chickens raised in fields with sunshine and a natural habitat produce far superior eggs than those raised inside.	+1	+1	+3

21	I purchase organic foods because I want to know that my food never came into contact with pesticides that can make me sick.	-4*	0	+2
22	I'm not concerned if my groceries are genetically modified.	+4*	-2	-1
23#	I've known forever that all foods contain natural hormones.	+2	0	+1
24	When grocery shopping, I rely more on price than labeling.	+4*	+2*	-2*
25#	I wonder if natural hormones are added even though the label says no synthetic hormones.	+1	+1	+1
26	I buy all-natural products and am part of a niche market.	-1	-1	+1*
27	I want to purchase all organic foods, but cannot afford to so I have to limit it to certain foods.	-1*	+4*	-3*
28	The meaning of hormone free labels is not clear to me.	0*	+3*	-2*
29	I want to be fully informed on what I am eating.	+1	+2	+4*
30	Food labels do not have meaning to me when I am shopping.	0*	-3	-4
31	Hormone free labels are misleading.	+3*	0	0
32	Most Americans are too far removed from the farm to know what is in their food.	+3	+1	+3
33	It is irresponsible of companies to add chemicals to food just so they can make more money.	+1	+4	+2
34	Companies must tell their consumers how their products are produced and what is or is not in them.	+2	+3	+4
35	I will pay more to avoid any added hormones in my food.	-3*	0	+1
36	There is absolutely no need to have hormone free labels on food products.	+3*	-3	-4

Note. \*= distinguishing statement # = consensus statement