LABELING ORGANIC FOOD PRODUCTS: THE ROLE OF PERCEIVED RISK, FRAMING AND PROSPECT THEORY ON PURCHASE DECISIONS

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ABSTRACT

Labeling organic food products: The role of perceived risk, framing, and prospect theory on purchase decisions

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The organic food industry is in a period of rapid growth and product diversification (Organic Trade Association, 2006). Because of this expansion, the market for organic food should be studied in detail. Differences in labeling strategies for organic foods may influence a consumer’s decision to purchase a specific product. Longstanding theories within consumer behavior such as prospect theory and perceived risk can help in understanding consumer reaction to label framing effects. Research by Gifford and Bernard (2006) indicates that positive framing is more effective than negative framing in affecting consumers’ intent to purchase more organic products. The research reported here examined how the framing of information contained specifically on labels influenced consumer purchase decisions. Different fictional brands and their corresponding labels were evaluated through an online survey looking at consumer willingness to buy. It was hypothesized that labels using positive framing would be more desirable (examining purchase intention) than labels using negatively framed information. The findings indicated that there was no difference between positively and negatively framed information on willingness to buy across all three product labels. There was, however, an interaction between survey group and framing condition which indicated a framing effect for milk product labels. Participants showed preference for the
negatively-framed milk labels, this finding is in contrast to previous research supporting positive framing as a more effective tool for influencing consumer behavior. Both framing conditions across all three products differed from a control condition suggesting that consumers respond favorably to more information on the label regardless of how it is framed. The current research also expanded on Gifford and Bernard’s (2006) findings on framing and organic foods. The conclusions provided some insight on consumer attitudes and behavior toward organic and conventional foods. The unexpected discovery of milk framing effects strongly suggests that future research should be conducted on the potential framing influences with different categories of food (basic vs. luxury). Future research should also focus on strengthening framing manipulation strategies and possibly explore the relationship between amount of product knowledge and willingness to buy.
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INTRODUCTION

Environmentally concerned consumers began to appear in the US during the 1960’s due to a growing distrust of mainstream society and modern technology (Balderjahn, 1985). Early organic consumers believed that the external costs of production, use, and disposal of products negatively impacts the environment. The relatively recent increase in media attention to the environmental impact of food products led niche consumers to become more conscious of their purchasing practices (Balderjahn, 1985).

It was only ten years ago when organic food was first considered a mainstream environmentally friendly alternative. Currently the growth in consumption of organic food has been due to an increasing focus on such factors as better quality, taste, and health benefits (Beckmann, 2001 as cited in Wier, Andersen, & Millock, 2005). Food scares in the 1990’s such as salmonella, E-coli, BSE, and dioxins found in foods throughout Europe also helped raise awareness about organic alternatives and their potential benefit to consumers (Wier et al., 2005). Worker rights scandals such as the Nike case in 1996, the mad cow disease outbreak also in 1996, and other events like the Valdes oil spill stimulated growth in the mass market for environmentally friendly and safe food products (Codron, Siriex, & Reardon, 2006).

In 2005 organic food sales rose by 16 percent nationwide, five times the growth rate of overall food sales (Star-Tribune, 2006). Demand has even exceeded supply in specific organic areas such as dairy and produce (Warner, 2006). Considerable profits are
forecasted as new types of organic products such as wine, meat, and processed foods are being introduced to the market. Organic foods are becoming more available to a broader range of consumers (Zepeda, Chang, & Reid, 2006). Rigby and Càceres (2001) stated that the number of organic farmers is increasing at a rate of about 12 percent a year, clearly expressing the rapid growth in the organic market.

*Current Research on Organic Consumer Demographics*

There is an ample amount of research describing the demographic characteristics of organic consumers and the many factors that influence their behavior (Thompson, 1998). This is important to discuss because demographic research constitutes the bulk of study conducted on the organic food market. Conducting a meta-analysis analyzing the large amount of research conducted throughout the 1990’s, Thompson was able to highlight some predictors in organic purchasing such as income level (frequent purchasers are either on the upper or lower end of the income bracket) and household size. It has been found that as the organic food market expands, organic products are increasingly becoming available and attractive to new populations.

The majority of organic consumers in the US tend to be either higher income families or members of “Generation Y” who are high on ideals but have lower incomes of $15,000 or less (Sung, 2006; Govindasamy and Italia as cited in Dimitri & Greene, 2002). Other predictors of spending on organic food include the number and age of children in the household (a strong predictor for women) and location, with some cities on the west coast “going organic” at a much faster rate than locations in the Midwest.
(Thompson, 1998). Onyango, Hallman, and Bellows (2007) also recently found that being young, female, liberal, and having a college degree was highly related to purchasing organic products.

Zepeda et al. (2006) stated that the African American and Hispanic populations’ interest in organic foods is increasing. They also found that African Americans were more accepting than other ethnicities of price premiums on organic foods. Information provided in their study has added to our understanding of how cultural background relates to perceptions of price and perceived fairness.

Shiu, Dawson, and Marshall (2004) found that there was a large emerging market in health trends among single-adult households. This study of health food market segments suggested that women are more likely, at least in Britain, to purchase organic, while the general demand for health related products is growing throughout Europe at a rapid rate.

Thompson (1998) discussed the methodological challenges of conducting research on consumer purchasing such as the problem with self-report purchase behavior when measured through the use of interviews and case studies with small groups. It was difficult to find demographic variables that could be generalized to large and varied populations. Despite all the research conducted to date on organic consumers’ demographics and attitudes, there still is much debate and contradictory evidence clouding our ability to effectively understand this unique market segment. For example, recent research by Howard and Allen (2006) confirms that demographics are only weakly associated with ecologically conscious behaviors such as purchasing organic food.
Although certain demographic variables have been postulated to have an effect on purchasing organic foods, more exploration needs to be done in order to confirm previous research and gain a better understanding of which factors influence a customer to purchase organic (Thompson, 1998).

**Label Design and Organic Standardization Logos**

Label design constitutes a vast area of research but will be summarized here to highlight findings which may pertain to current research. Werner (1979) acknowledged that illustrations and visual aids are useful and should be used as often as possible to encourage a customer, increasing brand awareness and willingness to purchase. Labeling design using attractively-written information and at times including graphic illustrations could be considered more important in reaching the consumer than spoken advertisements and other forms of marketing media. In addition, Howard and Allen (2006) stated that labels addressing ethical criteria which are not currently included in the US organic standards might benefit consumers as well as ecologically minded growers by supporting more progressive social change such as fair trade practices and more care for the environment.

Codron et al. (2006) mentioned how two organic movements, radical and reformist, approach the creation and implementation of labels differently, causing a divide in label preferences. Codron’s research indicated that the radical movement is more organized (than the reformist movement) and pushes for clear standards from government actors. Radicals are divided and often in conflict with how to address the rate
that the once niche organic segment is expanding into mass markets. Reformists however have lax standards for organics and want the power to lie in the hands of private companies and industries rather than third-party certifiers. This divide has made organic labeling difficult in the U.S. and the conflict often spills over to confusion for consumers who try to make convenient and ethical purchases.

Boström and Klintman (2005) analyzed how the political environments of the U.S. and Sweden differ and described how state and non-state organic standardizations varied. They reached the conclusion that the U.S. should have straightforward labeling practices which attempt to avoid false organic claims. Regulatory agencies vary dramatically by country, for example our National Organic Standards Board gives advice for labeling to the USDA while a much different process for labeling standards takes place in Sweden. If U.S. consumers do not have faith in the USDA organic standards, distrust of food product labels could be perceived as a potential risks when examining product claims and influence purchasing decisions.

Research done by Hoogland, Boer, and Boersema (2007) found that consumers were confused about what organic logos mean and often underestimated the advantages and positive attributes intended by the use of the logo. Studies like the one conducted by Hoogland et al. demonstrated consumer confusion in understanding and responding to label information. Grankvist and Biel (2007) found that simple systems which identify environmentally best and worst alternatives help make consumer purchase decisions easier to make. It was also concluded that simple labeling systems may influence people to buy in a desired direction.
Reactance Theory

Reactance theory (Brehm, 1966) predicts that people have a strong motivation to maintain behavioral freedom when they sense that their freedom to act is threatened. Basically, apply a restriction on a person’s behavior and the response may be renewed effort to engage in that behavior, this scenario often applies to purchasing decisions. When a product is framed negatively, consumers may increase their desire to purchase and engage in the action the warning label attempts to discourage (Gifford & Bernard 2006). Bushman (1998) used a similar theory titled “tainted-fruit” which posits that consumers react negatively to a product with an authoritative source warning label as the product is seen as less attractive because it might cause harm to the consumer.

Research by Bushman (1998) found that governmental warning labels on food products can elicit unintended psychological responses that discourage consumers from purchasing the product. Consumers can have a negative reaction to a product that has a warning label from an authoritative source, leading the consumer to believe that some of their individual autonomy and freedom of choice has been taken away (Bushman, 1998).

This cautionary finding on negative framing was initially addressed by Brehm (1966) and was termed “psychological reactance.” Tainted-fruit theory addresses a crucial difference between authoritative source labeling that produces a negative effect on consumer purchasing and the FDA’s organic labeling practice. In contrast to research by Boström and Klintman (2005), Howard and Allen (2006) stated that the FDA’s organic labeling is one of the oldest and most successful eco-labels, considered to be incredibly helpful and trusted by consumers. Tainted-fruit and reactance theory may apply to FDA
organic logos as well as label information because there are varying opinions on trust and authoritative power in U.S. organic labeling.

*Perceived Risk in Purchasing Decisions*

The concept of perceived risk for use in swaying consumer behavior has been around since the 1960’s. In 1960 Raymond Bauer was the first to propose the idea that consumer behavior should be viewed in terms of risk taking (Taylor, 1974). This concept has been quantified, redefined, and applied to lotteries and car purchase decisions for decades (Jia, Dryer, & Butler, 1999; Peter & Ryan, 1976). Perceived risk has been operationalized in numerous ways and applied to many different market segments, thus it is appropriate to study in the context of the growing field of organics. Perceived risk is defined narrowly as it relates to consumer behavior. At the brand level, perceived risk can be described as the expectation of losses associated with purchases, often acting as an inhibitor to making a purchase (Peter & Ryan, 1976).

There has been criticism regarding perceived risk theory’s reliance on the assumption of perfect information, which requires consumers to know more than what is reasonable given realistic time and budget constraints. Perceived risk relies on the economic theory of a “rational consumer” who is knowledgeable of all alternatives and proactively seeks to reduce risk while increasing positive utility. Realistically, consumers do not always calculate probabilities and their expected outcomes in a statistically accurate way; they tend to deal with perceived risk more subjectively than objectively (Myers & Reynolds, 1967, as cited in Woodside, 1974). According to Saher, Lindeman,
and Hursti (2006) rational thinking involves evidence based, emotionless reasoning which can be characterized by a consumer using mental effort and conscious reasoning to objectively utilize information when making a decision. Using this model, the rational consumer must also be able and willing to adjust a decision in light of new information. If consumers are truly rational, they must always behave in a manner geared to reducing net loss and achieving overall gain by avoiding risks. Despite the numerous studies on perceived risk, it is important to note that factors such as reliance on perfect information may distort the quantitative effects of perceived risk in purchase decisions.

Williams and Hammitt (2000) found that consumers of both conventional and organic foods tend to vastly overestimate the risk of pesticides and toxins from food products on overall health. The buyers of organic produce in their survey estimated the fatality rate caused by pesticide residues on food to be 200 per million. That would make pesticide residues roughly as serious as vehicle accidents in terms of threat to the general public! Consumers may perceive risk inaccurately due to a number of different societal and personal influences; among these are political affiliation, economic status, distrust of government agencies, and misinformation regarding our food supply. Because of the many potential influences, an individuals’ level of perceived risk is difficult to account for in experimental research and nearly impossible to adequately address in the marketing of specific products. The way in which consumers cope with perceived risk may be best understood if risk is approached not as a one-dimensional construct but as a multifaceted construct. For example, perceived risk can be broken down into six dimensions including the personal/physical, financial, and functional/performance risk dimensions. The other
dimensions which have been identified in the literature are convenience risk, social risk, and psychological risk (Murray, 1991).

Often these six dimensions have been considered to be independent of each other, and organic food can contain all of these risk components. Organic food is likely related to the personal risk dimension because of health benefits and drawbacks, to financial risk because of the potential premium price of organics, and to functional risk because people are prone to judge whether a product performs according to their expectations (taste, texture). Convenience risk can come from having to drive to inconvenient locations when seeking out organic food alternatives. Social risk can occur when an individual is surrounded by friends and affiliates who either support or denounce organic foods. Psychological risk of purchasing organic food involves how the consumer thinks of themselves based on the food purchases they made. In summary, organic food can contain all of the basic elements of perceived risk, making this concept important to understand and address in current research.

Peter and Ryan (1976) also found that at the moment of purchase a customer attempts to make a rational decision based on expectations of services that can be offered by a product. Perceived risk is a predictor of brand preference only if the consumer perceives the risk to be more important than other factors influencing purchase decisions. In the case of food, taking something from the outside environment and putting it into the body (Bäckström, Backman, & Tuorila, 2004) is an extremely personal behavior which holds potential risk for the consumer, therefore customers utilize perceived risk when making purchasing decisions on food products.
Because of this inherently personal characteristic of food, environmental concern and worry for personal health are major determinants that influence buying organic. In addition, some consumers perceive that there is a risk to the environment when purchasing conventionally manufactured foods (Grunert & Juhl, 1995). In general, perceived risk increases when there is an increase in expected loss (Jia et al., 1999). It was also stated that psychological measures of risk can be incorporated into logically appealing preference models based on the tradeoff between perceived risk and expected value. These preference models can clearly display the relationship between preference and perceived risk by graphing an equation including the value a consumer gives to a product and the potential downfalls from actually purchasing the product. Researchers can become savvy at determining purchasing behavior if a consumer perceives a previously identified risk when examining a product for potential purchase (Taylor, 1974).

Michaelidou and Hassan (2008) found that food safety concern is one of the most important predictors of attitudes towards organic foods. Although a consumer may feel favorably towards organic foods because of concern for food safety, other factors such as ethical self-identity may have stronger influences on actual purchase intention. Overall the study found that ethical consumers and those concerned about food safety may develop a positive attitude and intention towards organic foods, more so than consumers who are just interest in general health. These conclusions support the importance in assessing potential risks of a product (in this case, food safety) while keeping in mind
potential confounding variables such as ethical self-identity when consumers observe label information.

Iyengar and Lepper (2000) state that consumers are faced with more alternatives and choices than ever before in our history, consumers react to the increased complexity of making a decision amidst a large number of alternatives by relying on simple heuristics to try to simplify the decision-making process. Perceived risk is an effective way to estimate which purchase decision to make. Risks can range from increasing credit card debt to damaging the environment and threatening personal health by making a decision to purchase non-organic items. Price is another major barrier preventing consumers from purchasing organic, and it in turn can be considered a financial risk. In summary, there are many components to perceived risk that may relate to organic food product labeling and should be considered in current research.

*Perceived Risk with Unfamiliar Products*

Because of the influence of perceived risk on food products, it becomes important to consider the marketing mix (price, product, place/distribution, and promotion) while keeping in mind that certain risk factors have an influence on buying behavior (Taylor, 1974). By examining the interaction between prices on perceived performance risk Grewal, Gotlieb, & Marmorstein (1994) found that perceived risk is a critical determinant of a consumer’s willingness to buy a new and unfamiliar product. It is important to understand that performance risk is different from financial risk in that consumers assessing performance risk thoroughly assess product attributes, often while giving less
weight to the initial purchase price (financial risk). Grewal’s findings suggested the importance for obtaining a better understanding of the factors that sway consumer’s perceptions of perceived risk.

Wier et al. (2005) found that the majority of Danish consumers who responded to a mailed questionnaire perceived organic products as healthier and believed that an increase in health is attributable to the absence of pesticide and medicine residues. Research such as Wier et al. has provided more evidence that perceived risk is indeed a factor when considering organic foods. It has been found that when consumers know the perceived risk of an item, they take steps to reduce the risk by engaging in behaviors such as relying on the brand image of a product or seeking information from an opinion leader (Sheth & Venkatesan 1968). If an organic product is unfamiliar consumers may not be aware of the potential health benefits of the item and may rely on other factors such as word of mouth when making a purchase decision.

In addition, Sheth and Venkatesan state that such reliance on brand image may create brand loyalty and consumers may seek more information when they have no previous experience with a particular brand. Getting a consumer to try a new organic product is one of the largest challenges a company faces when placing a new product on the shelf (Thøgersen & Ölander, 2006). There are many new organic products on the market which lead consumers to be curious and seek more information. This product novelty allows for perceived risk factors to influence their decision to try a different organic product.
The organic marketplace indirectly utilized the basic framework of perceived risk with ads implying that conventionally manufactured food is riskier than organic food. Statements about purity and toxicity are frequently used in organic marketing to sway consumers into thinking that conventional products may carry greater health risks. It should be noted that while perceived risk is an important concept to consider for marketing efforts, it constitutes only a small piece of the decision making puzzle. Current research noted that perceived risk may play a role in negatively framed label information and may potentially influence consumers to judge the performance risk of the product.

Prospect Theory

Prospect theory is a theory of choice which helps to interpret a consumer’s decision-making process when making comparisons between product options (Kahneman & Tversky, 1979). Prospect theory posits that consumers relate choices to an internal reference point which frames outcomes in terms of subjective potential losses and gains (Schaub, 2004). Prospect theory involves decision making under risk and incorporates the principals of judgment and perception when consumers make decisions (Majumdar, 2005). Two relevant components of this theory deal with a consumer’s frame of reference and subjective value given to a product. Frame of reference as it relates to prospect theory encompasses how consumers alter subjective internal standards (a reference point using value, gains, and losses) to objectively find the value of an option which can be classified as either positive or negative (Wong & Kwong 2005).
Consumer options can be objectively identical (the same product or service) but differ in the way they are framed. By altering the way an objective statement is framed, consumers see positive framing as a perceived gain while negatively framed information is seen as a perceived loss. The positively-framed options are thought to decrease a consumer’s internal reference point, i.e. classify the information as positive. By shifting consumer’s reference point using positive and negative framing, it is often found that consumers find positively-framed information more attractive than negatively-framed information (Wong & Kwong 2005).

Prospect theory is the underlying framework for risk aversion and leads to the prediction that when a message on a product is framed positively rather than negatively, consumers are more risk averse in order to secure the potential gains of the product. In addition, prospect theory also generally states that positively-framed statements are more effective in swaying consumers than when firms use negative framing (Grewal, et al. 1994). Previous research has shown that prospect theory can help in explaining decisions under conditions of risk (perceived risk) but this research has not yet examined whether prospect theory can explain how consumers use promotional information to assess the risk of a new brand or product (Grewal et al., 1994). The research in this thesis examines framing effects and uses prospect theory to help explain why consumers may be more willing to buy products which display positive information on labels.
Framing Effects

Negatively-framed messages can be defined as communications that point out the disadvantages and potential losses associated with use of a competitor brand or product, suggesting that an alternative product may be inferior (Grewal et al. 1994). Positively-framed messages can be defined as communications which emphasize a brand’s advantages and/or potential gains to consumers in the use of a particular product or service.

There exists an impressive body of research concerning framing and its powerful effect on decision making (Dunegan, 1993). Negative framing practices induce customers to consider the perceived risk of buying a certain product. Risk aversion involves the extent that consumers judge a marketing communication (internal factor), and its influence on how much they use price (external factor) to judge performance risk. The more risk averse the consumer is, the less price information will be used to judge a product. Risk aversion theory supports the viewpoint that positively-framed information is more effective in eliciting consumer buying behavior than negatively-framed information (Dunegan, 1993).

Within the field of consumer products, it has been found that positively-framed information is more effective in eliciting wanted corresponding attitudes than negatively-framed information. While in health behaviors, negatively-framed information produced message compliance, although messages encouraging exercise were complied to more when positive framing is used. It has been concluded that negative information is often more salient and has a greater affect on the decision process of individuals than positive
information (Donovan & Jalleh, 1999; Kahneman & Tversky, 1982). Rothman and Salovey (1997) proposed that potential gain frames (positive) tend to be more effective for health enhancing and disease prevention behaviors while perceived loss framing (negative) are better for eliciting behaviors for disease detection. Levin and Gaeth (1988) found that a 75% lean label attracted more purchasers than a 25% fat label, supporting evidence for the effect of positive framing in consumer decision making. Results from Donovan and Jalleh also support the argument that positive framing is more effective than negative framing when looking at meat and fat content. In work environments, decisions must be made quickly and heuristics are often used (Stibel, 2005), lending to more positively-framed cognitive processes. Shopping for groceries is often done in a rush and purchases are often made quickly. These characteristic may allow research such as Stibels’ to generalize to other environments. Even children have been found to have a strong risk aversion for potential gains and show preference for positively-framed information (Schlottmann & Tring, 2005).

Positive environmental framing is frequently used to encourage the purchase of organic food products. Positively framed messages can be defined as communications to the customer emphasizing a brand’s advantages and gains (Grewal et al., 1994). Positive environmental framing involves providing information about the added value to the environment when purchasing a particular product. Such labels may provide detailed information about the production process and quality standards to demonstrate to the consumer that a product is worth the price.
Factors Influencing Framing Effects

It was suggested by Grewal et al. (1994) that additional research should examine message framing and warning labels. Grunert and Juhl (1995) also suggested that other aspects of consumer behavior should be studied, especially those pertaining to value systems and their influence on organic purchasing.

Smith (1996) stated that the weight of available research supports the idea that consumer who has differing product knowledge and cognitive ability responds differently to framing in advertising. Smith uses the example that consumers who have a low level of product knowledge process information in a more heuristic manner and have a greater aversion to negative framing (loss appeals). Also in support of positive framing is a survey which found that the majority of consumers dislike negativity in advertising (American Demographics, 1984 as cited in Smith, 1996). Smith also found that consumers’ knowledge and education of a particular topic does have an effect on framed advertisement, factors which are examined in this thesis.

Negative framing highlights potential losses a consumer may receive and in turn motivates the consumer toward using a more cognitive and systematic evaluation in order to prevent potential losses (Dunegan, 1993). In addition, Dunegan stated that by presenting negatively-framed information, consumer decision processes become more controlled and systematic. This conclusion is in opposition to other research suggesting that negatively-framed information is more effective on influencing decision makers than positive framing. In general, results of framing studies have been mixed as to whether positive or negative framing is more effective (Donovan & Jalleh, 1999). Research by
Gamliel and Herstein (2007) unexpectedly found that negative framing was better at predicting willingness to buy than positive framing and suggested that more research needs to be done on framing effects on actual purchasing. Inconsistent findings and conclusions such as these demonstrate the need for further information on framing effects on purchasing behavior.

Label information that relates use of a product to sustainable practices has been shown to be more successful than some other label designs (Howard & Allen, 2006). Such labeling is an instance of positive framing; it provides affirmative information about the purchase and use of a product. In a related study, Gifford and Bernard (2006) looked at conventional food shoppers intent to purchase organic after reading either a positively or negatively-framed paragraph on organic foods. Their research defined positive framing as promoting organic products by mentioning potential benefits from organic methods used to create the product. Gifford and Bernard also used negative framing stating the negative consequences of using conventional agricultural practices in creating a product. Findings indicated that positive framing was more effective than negative framing on organic food consumption and it was suggested that future research should incorporate actual advertising messages and/or statements from organic food packages to test the practical application of their results.

Gifford and Bernard were not aware of any studies which directly measured positive and negative framing influence on organic food preferences. Current research attempted to create a more direct measure of framing influence on immediate purchase decisions. Gifford and Bernard also found that as knowledge about organics increased;
participants were not as influenced by the survey framing conditions, thereby establishing a potential relationship between knowledge and its influence on framing effects. Because of these findings, knowledge should be studied in future research when examining organic purchase decisions. While they did not address in detail potential moderator variables, subsequent research certainly should. One limiting factor might be attitude towards a product or product group. Along these lines, it is noted that Wong and Kwong (2005) found that the more positive attitudes consumers have regarding a product, the less influence framing will have on their behavior.

Hypotheses

Current research will attempt to discover which strategies are most helpful in attracting new consumers to purchase organic food. This research also will aim to confirm previous findings on consumers’ preference to positively-framed messages. This finding will be supported under the premise that organic foods are held under a generally positive light by consumers. It is also predicted that participants with differing levels of knowledge on organics and attitudes towards organics will have significant differences in their label preferences. There are also possibilities for meaningful findings when examining information gathered from demographic information, knowledge, and components of attitude.

This study is exploratory but is based firmly on past research supporting framing effects, risk and prospect theory interactions, demographic organic studies, and research such as Gifford and Bernard’s previous findings. Current research will take into account
other factors that may influence organic purchasing decisions rather than solely focusing on previously analyzed demographic data and general perceived risk influences. These other factors include brands that utilize positive environmental framing labeling practices influencing consumer’s established purchasing pattern more than brands that provide only basic information on their product labels or brands that utilize a more negative framework.

*Hypothesis 1.* Products with labels using positive framing will be rated more desirable for purchase than labels which induce perceived risk using negatively framed information.

*Hypothesis 2.* The more knowledge participants have about organic produce the less effect label framing will have on their willingness to buy.

*Hypothesis 3.* The more positive the attitude a participant holds towards organic foods the less effect label framing will have on willingness to buy.
METHOD

Participants

Prior to data collection, approval was requested and received (# 07-45) by the Institutional Review Board at Humboldt State University. The participants were recruited from the HSU psychology department research participant pool and received course credit for their involvement. Other participants were recruited through marketing and business classes. The sample consisted of 100 undergraduate students who were 18 years of age or older. The average age, \( M = 21, SD = 4.54 \) ranged from 18 to 51 years old. The majority of the sample population consisted of Caucasian \( n = 62 \) females \( n = 74 \). The rest of the sample represented other ethnicities, including 14 Hispanic participants. Average personal income was $731 per month. Power analysis was conducted using SPSS Syntax and information from Aberson’s (in press) chapter on power analysis for within subject designs. A one factor within-subject ANOVA found that a sample size of 80 produced an Eta squared of .36 and a power of 1.00.

Materials

Labels were created using a simple image to help identify three contrived organic products (milk, cookies, and pasta sauce). Three label versions were made for each product: positive framing contained information on how the product is good for the
environment and offers specific benefits for the consumer, using statements such as “organically grown tomatoes with extra virgin olive oil”. This information conveyed perceived risk in a positive framework. A negative framing label was used containing information mentioning what the product does not have, including pesticide free properties relative to its conventional counterparts. Statements such as “farmed without the use of antibiotics or pesticides” may elicit perceived risk by suggesting that competitors’ products are inferior. A control label was also utilized containing organic certification with only brief information about the product e.g. “eco-planet organic cookies” (See Appendix A). All three label variations from each product contained the information presented on a control product label and additional framing information using approximately the same number of words was included in the two experimental conditions.

Two additional sections of the survey presented 28 questions which assessed their knowledge of and attitudes towards organic food (See Appendix B). These questions used a variety of response formats including five-point scales, two 10-point Likert scales rating attitude towards organic and conventional foods, questions about organic and conventional food consumption with a range of 1-10, true/false, multiple choice, and short fill-in-the-blank demographic questions asking for age, ethnicity, gender, and personal monthly income. Since the collection of data was internet based, no materials were used other than computers with internet access. Sona Systems software was used for the survey construction and execution.
Procedure

After signing up, participants were automatically randomized by Sona Systems to take one of three different survey variations. Participants read and indicated approval to an online consent form at the beginning of the study (See Appendix C) and approval was indicated prior to data collection. The survey consisted of three parts and only the first section contained product labels varying between participants. Participants did not have the ability to alter any answers once they completed a section.

Willingness to buy. Information describing a product and its features were manipulated during the first section of this study. It should be noted that participants viewed only one label condition for each product, which equaled three labels per participant. Product labels were counterbalanced to control for order effects and also helped to insure that participants did not become aware of the purpose of this study.

There were three survey formats which helped to obtain a relatively equal number of respondents. Survey A contained a positively framed milk label, a cookie label negatively framed, and a control (neutrally framed) pasta sauce. Survey B presented respondents with a milk label negatively framed, cookie label control and pasta sauce label positively framed. Survey C displayed a milk label control, a cookie label positively framed and a pasta sauce label framed negatively. Having three different surveys insured that every level of framing for a product was responded to while discouraging participants from understanding the purpose of the study by having them see all three label conditions of the same product. Participants responded to two five-point Likert
scales on their subsequent willingness to buy after seeing each of the three products. The willingness to buy scale ranged from 1 (very unlikely to buy) to 5 (very likely to buy).

Reliability of the willingness to buy question was established using Cronbach’s index of internal consistency, $\alpha = .86$ to $\alpha = .72$ for all three label conditions. Total willingness to buy was also created by adding participant scores from all three label conditions. The two questions asked for each product label were, “please rate your willingness to buy this product based solely on the information contained on the fictional label and product above” and “please rate your willingness to buy this product over other competing brands (product and price being equal)”. The willingness to buy data provided information about the subject’s behavioral intent based only on the information presented from the fictitious label. Scores were summed, indicating which label variation a participant was most willing to buy (positive framing, negative framing, or control).

*Self-rated knowledge and attitude.* After participants completed the six short product label questions, they began a second section which rated their perceived level of knowledge on organic foods. The self-rated knowledge score consisted of one question asking participants to rate their knowledge of organics on a five-point Likert scale. This self rated knowledge scale ranged from 1 (extremely lacking in knowledge) to 5 (extremely knowledgeable). Two additional questions asked participants to indicate their attitudes toward organic and conventional foods on a 10-point Likert scale ranging from 10 (extremely positive) to 1 (extremely negative).

*Knowledge quiz and demographic information.* After participants completed the third section, they moved on to a short twenty-question quiz which helped assess their
level of knowledge of organic foods. Some of the questions from the quiz were modified from popular online quizzes while other questions were derived from current information on organic foods. The questions content came from a variety of sources. The first four questions on the knowledge quiz contained modified content from National Geographic’s the Green Guide Online while one question was from grist.org Editable IQ Quiz. In addition, one question was collected from the BBC Food Knowledge Quiz while five questions were created from material presented at mofga.org (Maine Organic Farmers and Gardeners Association; National Geographic, Grist Environmental News and Commentary; BBC News). The remaining questions were true/false questions based on organic labeling knowledge and conventional farming practices. All factual information presented in the quiz had been verified as accurate.

Reliability analysis was conducted on knowledge quiz questions using standardized items yielding a small degree of reliability, $\alpha = .30$. The quiz tested general knowledge of organic foods and while there are no current empirically validated and published organic knowledge tests available for replication, this test was an attempt to address this vacancy in the literature. The test was scored for number of correct answer out of 20 possible correct answers.

Questions at the end of the quiz were given to assess purchasing behavior (as measured by asking what percent of diet is conventional or organic) as well as behavioral intent (what ideal percentage of your diet would be conventional or organic). Basic demographic information was also gathered at the end of the survey and asked for
gender, monthly personal income, ethnicity, and age. Demographic, attitude, and behavior questions were separately coded and explored.
RESULTS

Each survey group had a relatively equal number of participants, (Survey A \( n = 35 \), Survey B \( n = 31 \), Survey C \( n = 34 \)). Reliability was previously established for the six willingness to buy questions before summing them into label condition (two questions per condition). Willingness to buy data met the assumptions of normality. The assumption of sphericity was assessed by looking at the conservative Greenhouse-Geisser statistic which was greater than the .85 criteria, \( \varepsilon = .96 \). Sphericity assumptions were addressed through use of multivariate ANOVA tests (Pillais) that do not require the assumption of sphericity. Skew and Kurtosis ratios check to see if data confirm to a normal distribution and are assessed using a 3:1 ratio; values > 3:1 indicate a violation of the assumption and should be transformed. Skew and kurtosis ratios were acceptable (<3:1) as were the equality of variance requirements (<10:1 variances, <4:1 sample size) for all three conditions.

Framing Effects Analysis

Willingness to buy score means by condition are shown in Table 1. Utilizing a repeated measures ANOVA and reporting the Pillai’s Trace multivariate test, it was found that there was a significant difference between participants scores on the three label conditions \( F (2,98) = 4.97, p = .009, \eta^2 = .092. \)

However, when addressing the hypothesis which indicated that positively-framed labels would produce larger willingness to buy scores than negatively framed-labels, no
difference was found. Utilizing a paired $t$ test it was indicated that there was no significant difference between the means of positively and negatively framed labels $t(99) = -0.35, p = .73, d = 0.04$. It was found that both the positive and negative label condition differed from the control label. Using a paired $t$ test there was a significant difference in means between the positive and control label condition $t(99) = 2.85, p = .005, d = 0.29$. A similar difference was found for the negative condition, $t(99) = 2.78, p = .007, d = 0.24$. It can be concluded that the significant findings of label condition was influenced solely by the control label differing from the framed labels.

Since each survey group received the three framing conditions (positive, negative, control) in a different order, the possibility of a framing order effect on willingness to buy ratings was examined. A significant interaction was found when looking at framing effects and type of product (each group having different conditions for the three product labels), $F(4,194) = 5.007, p = .001, \eta^2 = .094$. Simple effects tests were conducted to clarify this interaction and found that the framing manipulation was only significant for milk, $F(2,97) = 6.66, p = .002, \eta^2 = .121$. Cookies, $F(2,97) = 0.664, p = .517, \eta^2 = .014$, and pasta sauce, $F(2,97) = 1.633, p = .210, \eta^2 = .033$ did not vary by framing condition. A Tukey HSD test examined survey group (framing condition) and milk willingness to buy. It was found that positively-framed milk ($M = 7.0, SD = 1.87$) did not significantly differ from negatively-framed milk ($M = 7.45, SD = 1.58$), although both differed from the control milk label ($M = 5.79, SD = 2.11$). This result drives the overall effect found for all product labels in the first hypothesis. Although there was a slight increase in willingness to buy in the negatively-framed condition, it did not significantly differ from
Table 1

*Mean and Standard Deviations for Label Conditions*

<table>
<thead>
<tr>
<th>Label Condition</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control</td>
<td>6.58</td>
<td>1.86</td>
</tr>
<tr>
<td>Positive</td>
<td>7.14</td>
<td>1.87</td>
</tr>
<tr>
<td>Negative</td>
<td>7.21</td>
<td>2.02</td>
</tr>
</tbody>
</table>

*Note.* $N = 100.$
the positively-framed label. These findings suggest that there may be other attributes of
the product itself which contributed to the significant difference found between the
control and framing label conditions.

Knowledge Quiz Score and Willingness to Buy

Assumptions were addressed as the quiz scores were normally distributed with
acceptable skew and kurtosis levels. The second hypothesis in this research was not
supported using the knowledge quiz scores (number correct out of 20). Participants total
quiz scores \( M = 12.3, SD = 2.8 \) were decent but not as high as expected for the liberal
college sample population, leading one to assume the questions may have been
unreasonably difficult. The test score variable (knowledge quiz score) used in this
analysis was centered to control for any possible multicollinearity issues.

It was found that participants who indicated they had more knowledge than
average about organic foods were not influenced by label framing. A repeated measures
ANOVA indicated a main effect for label condition, \( F(2, 97) = 5.1, p = .01, \eta^2 = .095 \).
However, there was no significant interaction between label condition and knowledge
score, \( F(2, 97) = 1.5, p = .24, \eta^2 = .029 \). This non-significant interaction supports the
claim that there is no difference in knowledge quiz score by the three label conditions.
When examining the between subjects effects for test score, significance was found, \( F(1,
98) = 7.92, p = .006, \eta^2 = .075 \). The significant main effects for knowledge score and
condition indicate that knowledge scores related to willingness to buy products in the
positive and negative, but not control condition.
It was found that only the positive and negative framing conditions yielded small but significant correlation values (See Table 2). As with the first hypothesis, the positive and negative framing conditions do not vary significantly from each other but they do vary from the control, supporting the conclusion that more information in the two framing conditions influenced willingness to buy, rather than how the information was framed. The non-significant interaction was explained by the fact that differing test scores did not change how participants responded to the three label conditions.

Self-Rated Knowledge and Willingness to Buy

Because reliability for the knowledge quiz was a potential problem, results were compared to a self-rated knowledge variable. Assumptions of data normality were met and no significance was found for both the main effect of condition, $F(2, 97) = 0.37, p = .69, \eta^2 = .008$ and the interaction, $F(2, 97) = 1.33, p = .30, \eta^2 = .027$. Again this reflected the knowledge and willingness to buy relationship, $F(1, 98) = 7.76, p = .006, \eta^2 = .073$, indicating that knowledge may have an influence on overall willingness to buy scores.

When looking at the correlations between the three label conditions and self rated knowledge score, a significant relationship was found in positive and negative label conditions. These modest correlations suggest that as self rated knowledge scores increase, willingness to buy scores increase in both the positive and negative conditions.

To examine only participants who indicated that they knew more about organic foods, the researcher selected only for participants who indicated that they had above average knowledge (selecting a 4 or a 5 on the scale) and used descriptive statistics to see
if there was any difference in average willingness to buy scores across the three conditions. There was no difference in label condition for participants who indicated that they were extremely knowledgeable of organic foods, with positive ($M = 8.3, SD = 2.1$) and negative ($M = 8.3, SD = 1.3$) average willingness to buy scores being identical, $F(2, 8) = 0.068, p = .935, \eta^2 = .017$. This by itself may be one piece to help support the hypothesis but because of the non-significant interaction it can be concluded that the label condition scores did not change significantly regardless of the level of perceived knowledge a participant had.

*Attitude towards Organic Food and Willingness to Buy*

The third hypothesis was not supported by the data, indicating that there was no influence of attitude toward organic foods on label condition scores. To test this hypothesis, the attitude variable had to be transformed because it was negatively skewed (most people held positive attitudes towards organics) and was leptokurtic. A reflected log transformation was used to achieve data normality. Again utilizing a repeated measures ANOVA and reporting statistics from Pillai’s Trace multivariate test, no main effects were found for label condition, $F(2, 97) = 0.968, p = .38, \eta^2 = .020$. There was also no significant interaction between label condition and attitude, $F(2, 97) = 1.28, p = .28, \eta^2 = .026$. When examining the main effect for attitude there was a significant difference found $F(1, 98) = 6.38, p = .013, \eta^2 = .061$, again reflecting the general relationship between attitude and willingness to buy.
There was also no difference in label condition when participants who held positive attitudes (ratings above neutral) were selected, positive ($M = 7.2, SD = 1.8$), negative ($M = 7.4, SD = 1.9$) $F(2, 88) = 1.14, p = .326, \eta^2 = .025$. Although this may be interesting, it is no indication that the hypothesis was confirmed. This is because the non-significant interaction clearly indicated that there was no difference in label condition scores and attitude, even for participants who indicated negative attitudes toward organic food. When examining the correlations between label condition and attitude towards organics, relationships were found between attitude and control and negative label designs (see Table 2). These relationships indicate that as attitude scores increased, willingness to buy scores in the control and negative framing conditions also increased.

*Attitude towards Conventional Food and Willingness to Buy*

To expand on attitudes potential influence on willingness to buy scores, research examined self rated attitude towards conventional food. A similar relationship was found for conventional food attitudes as for attitudes towards organics. The data were normally distributed and a repeated measures ANOVA reporting Pillai’s Trace found that there was no main relationship between label condition and attitudes toward conventional foods $F(2, 97) = 2.1, p = .13, \eta^2 = .041$. No interaction was found between attitude toward conventional and label condition willingness to buy scores, $F(2, 97) = 0.93, p = .39, \eta^2 = .019$. There was even no main effect found for the general relationship between attitude towards conventional food and willingness to buy $F(1, 98) = 3.5, p = .06, \eta^2 = .035$. This relationship does approach statistical significance and was close to alluding to
conventional food scores influencing willingness to buy scores. Overall it can be concluded that participants with differing attitudes toward conventional food did not vary in their willingness to buy.

*Exploring Attitude, Behavior, and Knowledge Variables*

Other analysis showed that in general participants did hold more favorable attitudes towards organic foods \((M = 7.9, SD = 1.6)\) than conventional foods \((M = 5.35, SD = 1.7)\) \(t(99) = 9.53, p < .001, d = 1.33\). Despite holding more favorable attitudes towards organic foods, these participants reported that they consumed more conventional food (60-69%) than organic (40-49%). Participant ratings reflected a discrepancy between attitude and preferred behavior as participants ideally wanted to consume more organic food in their diets (80-89%) than conventional (30-39%). Lastly, the more positive a participant’s attitude toward organic food was, the more likely they were to purchase an organic product (total willingness to buy scores), \(r(100) = .23, p = .013\). There was also a small but significant relationship between how many questions a participant got correct on the knowledge quiz and their total willingness to buy scores. The more questions that were answered correctly, the more likely they were to purchase the organic products, \(r(100) = .28, p = .006\).
Table 2

*Correlations between Willingness to Buy Scores by Label Condition, Quiz Score, Self Rated Knowledge, and Attitude*

<table>
<thead>
<tr>
<th></th>
<th>Positive Condition</th>
<th>Negative Condition</th>
<th>Control Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge Quiz Score</td>
<td>.275*</td>
<td>.256*</td>
<td>.110</td>
</tr>
<tr>
<td>Self Rated Knowledge Score</td>
<td>.301*</td>
<td>.203*</td>
<td>.131</td>
</tr>
<tr>
<td>Attitude towards Organic Food</td>
<td>.106</td>
<td>.218*</td>
<td>.253*</td>
</tr>
</tbody>
</table>

*p < .01
DISCUSSION

The first hypothesis of this research predicted that products with labels using positive framing will be rated as more desirable for purchase than labels inducing perceived risk using negatively framed information. This hypothesis did not receive general support from the data; framing did not alter participants’ willingness to buy across products. However, it was discovered that label condition did influence willingness to buy with milk. While this research cannot definitively assert why label framing would make a difference for milk and not pasta sauce and cookies, basic product attributes can be explored to gain insight into this finding.

Milk is a basic/staple product for most individuals and is “closer to the source” than processed foods such as cookies and pasta sauce. Milk, produce, and basic grains can be considered non-superfluous food items; it might be the case that framing is more important with these core items. Because people buy milk regularly and consume it more often, label information may play a larger role in purchase decisions than with luxury food items that are not bought on a regular basis. Future research should examine different product categories more closely to see if label framing has an influence only on specific types of food products.

The second hypothesis purported that the more knowledge participants have about organic produce the less effect label framing will have on their willingness to buy. This hypothesis was also not supported by the data. Expanding on the second hypothesis further, there was a significant relationship between total willingness to buy scores and
knowledge quiz scores. The more knowledge participants had towards organics, the more likely they were to indicate that they would purchase the fictional items.

The third hypothesis suggested that the more positive the attitudes of participants toward organic produce the less effect label framing will have on their willingness to buy. This hypothesis was also not supported as there was no significant interaction between attitude and willingness to buy throughout the three conditions. It should be noted that 94 out of the 100 participants held greater than neutral (>5) scores on attitude towards organic. This means that the majority of participants felt positively about organics. This factor may have contributed to the insignificant findings for the first hypothesis. However more power in this research might have produced a significant interaction by finding a difference in label condition scores from those on the lower positive and upper positive portion of the attitude scale.

It was also discovered that there was a positive relationship between attitude towards organic foods and total willingness to buy scores. Participants who held more positive attitudes were more likely to indicate they would purchase the items. Attitude and intention to purchase are often not strongly related with each other. Survey research done by Magnusson, Arvola, Hursi, Aberg, and Sjoden (2008) showed that although respondents felt positively towards organic, they showed no corresponding intention to buy organic. The authors mentioned that this may be because of the price barrier present in organic food. Future research may involve studying how much price can alter behavior in light of strong attitudes and beliefs.
Despite failure to support all main hypotheses in this study, there are still pieces of useful knowledge about the market for organic foods. This study showed that although there was no difference between positive and negative label conditions across all three products, there was a significant difference between the control labels, providing support that the control condition worked as intended. The control label condition had fewer words than the other conditions, which may suggest that more information in general may increase the chance that a consumer will buy a product. Future research may be conducted on what the ideal word count is on product labels to discover the upper and lower bounds of label word counts with organic products. Future research should also examine framing effects on different types of products due to the unexpected finding that negative framing produced higher willingness to buy scores than positive framing only with milk product labels.

It is also worth mentioning that the majority of participants rated organic foods very favorably and indicated that they would ideally purchase more organic products. The majority of participants belonged to generation Y, the average age was 21, and they had a low average personal income of around $731 a month. These participants may be high on ideals and low on income. This group combination has been found to be a growing market in organic food purchasing because they hold such positive attitudes towards organics but may not yet have the money to purchase organic products (Sung, 2006).

Wong and Kwong (2005) used aspects of prospect theory to support the notion that the more positive the attitudes a person holds the less label framing would have on
the decision to purchase a product. Simply put, if consumers already feel favorably towards a product then label framing may be less likely to influence their purchase preferences. Smith (1996) stated that consumer’s knowledge and education does have an effect on framed advertisement and this may have been the case for current research findings because most participants indicated that they had at least a moderate amount of knowledge on organic foods and were currently enrolled in college.

Since all participants indicated at least some knowledge of organic foods in the present research, the conclusions are in line with Gifford and Bernard’s (2005) findings that those with prior knowledge of organics were less influenced by an informational survey. Results of this study as a whole were contradictory to Gifford and Bernard’s findings that positive framing was more effective than negative framing on organic food consumption. Gifford and Bernard’s survey was conducted using conventional food shoppers, responding to a question which inquired about how much the information presented on organic foods may have changed their likelihood of buying organic. Gifford and Bernard were not trying to develop a real-world situation of choice, and the positive and framing conditions were approximately 70 words each. This may have provided a stronger manipulation than in-store labeling because participants completed the survey at home, allowing deeper thought processing to take place. Future research may attempt to discover if and how knowledge may influence purchasing in organics.

Perceived risk may not have been a factor in this research because the products were too familiar to participants. Grewal et al. (1994) did state that perceived risk is more of a component in consumer’s decision making process when a product is new or novel.
In addition, because the research reported here was a fictional simulation of purchasing a product, perceived risk may not have been an influence in the participant’s willingness to buy scores because there was no actual expenditure of money on the product. The online survey design used in this research may not have been realistic enough to evoke perceived risk in participants’ decision making process. These factors may have weakened the potential framing effects since perceived risk is often a factor in label framing research.

The only other difference related to the experimental manipulation of framing was the variation in word count in which the average number of words in a control label was 10 while the average number of words contained on a framed label was 25. The number of words on control vs. framing labels may have been a confounding variable and future research may aim to control for the number of words presented on labels when examining framing effects.

The potential of framing effects on willingness to buy should not be discounted because of the results of this study. There is a strong possibility that the manipulations of the label information were not salient enough and future research should attempt to strengthen the manipulation of label information. Future research may also involve building upon the knowledge quiz to try and construct a more accurate, reliable, and valid measure of U.S. consumer knowledge on organics. It is a worthwhile effort to study this rapidly emerging niche market of organics. If the participants in this study are any indication of the younger generation of soon-to-be working consumers, then there is bound to be a profitable future in organics. Discovering which marketing techniques are
most effective in expanding and maintaining a loyal base of customers is necessary to insure the future of organics in both local and global marketplaces.
REFERENCES


Please rate your willingness to buy this product based solely on the information contained on the fictional label and product above:

1    2          3     4  5
Very unlikely to buy Unlikely to buy Neutral (neither unlikely nor likely) Likely to buy Very likely to buy

Please rate your willingness to buy this product over other competing brands (product and price being equal)

1    2          3     4  5
Very unlikely to buy Unlikely to buy Neutral (neither unlikely nor likely) Likely to buy Very likely to buy

Milk Label:

Organic Milk Control
This milk does not contain the growth hormone rBST USDA Certified Organic

Organic Milk Positive
This milk does not contain the growth hormone rBST USDA Certified Organic
Excellent Source of Protein and Calcium
Ideal conditions for happy dairy cows utilizing wind energy and friendly farming practices!

Organic Milk Negative
This milk does not contain the growth hormone rBST USDA Certified Organic
Farmed without the use of antibiotics, pesticides, or synthetic hormones
None of our dairies are large scale production facilities which may sacrifice the wellbeing and health of livestock.
Pasta Label:

**Organic Pasta Sauce Control**
Certified Organic
Classic Savory Pasta Sauce Made in the Italian Tradition

**Organic Pasta Sauce Positive**
Certified Organic
Classic Savory Pasta Sauce Made in the Italian Tradition
Rich and Intensely Flavored Organically Grown Tomatoes
Made with organic extra virgin olive oil and an authentic blend of spices

**Organic Pasta Sauce Negative**
Certified Organic
Classic Savory Pasta Sauce Made in the Italian Tradition
Made without using artificial ingredients and pesticide laden produce
Contains no sugar substitutes or oils
Cookie Label:

Organic Cookie Control
Certified Organic
All Natural Cookies Kids Love!

Organic Cookie Positive
Certified Organic
All Natural Cookies Kids Love!
Healthy Ingredients you can pronounce Containing Minimally Processed Raw Sugar and Organic Ingredients
Environmental soundness from start to finish with recyclable and reusable packaging
A portion of sales from this product go to helping preserve our planet for future generations!

Organic Cookie Negative
Certified Organic
All Natural Cookies Kids Love!
No Artificial Flavors, Preservatives, and High Fructose Corn Syrup are ever used when making our products.
Safer food for your family and the planet containing no ingredients exposed to pesticides.
APPENDIX B

Knowledge and Attitude toward Organic Foods

Listed below are questions for this section of the survey. Please provide a response for every question. (Correct answers in bold)

Organic food can be defined as food items that are produced, processed and packaged without using chemicals. Defined by the USDA, a product must be 95% or more organic to obtain label certification.

Conventional foods can be defined as food items that are produced, processed and packaged using other, previously established methods (including the use of pesticides and bioengineering).

1. Eating organically grown food actually reduces global warming emissions. **True/False**

2. If you had to choose, is it healthier (in terms of organic beliefs, not solely nutritional value) for you to buy organic peaches (soft/porous skin) or organic bananas (protective skin)? **Peaches/Bananas**

3. Eating organic meat can help mitigate the world’s water shortages. **True/False**

4. Which of the following labels contains the most trustworthy and meaningful information? “Grass Fed”, “Hormone-Free”, “Salmon Safe”

5. How far, on average does food travel before it gets to the average American eater's plate? 10, 205, **1300**, 2100

6. It takes 3.5 times as much of what to produce a liter of non-organic milk compared to a liter of organic milk? **Energy, Water, Fertilizer, Land**

7. The EPA performs toxicity tests on pesticides prior to registration of the pesticide for sale to the public. **True/False**

8. The federal government prohibits use of pesticides known to cause cancer. **True/False**

9. The EPA takes the necessary precautions to ensure pesticide levels are safe for our infants and children. **True/False**

10. Eating certified organic food or growing your own food organically is the best way to minimize exposure to pesticides in your and your children's diet. **True/False**
11. The “free range” label guarantees that animals used to produce the product are allowed ample pasture time and are rarely if ever housed in indoor cages for long periods of time. True/False

12. Organic farming practices may better the living conditions for livestock T/F

13. Organic farming can allow for more species diversification; sustaining more wildlife on farm acreage T/F

14. Shopping for organic and local products does not help in offsetting CO2 production and greenhouse emissions. T/F

15. Buying organic produce may help decrease soil erosion T/F

16. Organic, grass-fed livestock often live longer than those raised by conventional “large-production” facilities T/F

17. The higher prices of organic foods reflects the true costs of food production and may help to insure fair labor practices (wages, treatment) T/F

18. Organic farming often allows for more crop rotation, whereas non organic farming involves using land for a single crop. T/F

19. Organic farming is not as effective as conventional farming in preventing insect/pest infestation in crops T/F

20. Organic farming practices cannot help to decrease harmful and toxic water runoff from entering our ecosystem T/F

21. Approximately what percent of the food you consume each week is organic?
90-100%, 80-89%, 70-79%, 60-69%, 50-59%, 40-49%, 30-39%, 20-29%, 0-19%

22. Ideally, approximately what percent of your diet would you like to be organic?
90-100%, 80-89%, 70-79%, 60-69%, 50-59%, 40-49%, 30-39%, 20-29%, 0-19%

23. Approximately what percent of the food you consume each week is conventional?
90-100%, 80-89%, 70-79%, 60-69%, 50-59%, 40-49%, 30-39%, 20-29%, 0-19%
24. Ideally, approximately what percent of your diet would you like to come from conventional foods? 90-100%, 80-89%, 70-79%, 60-69%, 50-59%, 40-49%, 30-39%, 20-29%, 0-19%

25. Please provide your approximate personal monthly income in the space provided (how much you live on each month):

26. Please provide your age in the space provided:

27. Please indicate your ethnicity: Caucasian/White, Hispanic, African American, East Indian or Middle Eastern, Native American, East Asian, Other, Prefer Not to State

28. Please indicate your gender: Male, Female, Prefer Not to State
APPENDIX C

Consent to Act As Research Subject

CONSENT TO ACT AS RESEARCH SUBJECT

Labeling Organic

Julia de Vos Arnold, Student, under the direction of Dr. David Campbell, Department of Psychology, Humboldt State University

I hereby agree to have the following person carry out the following procedures on me for experimental purposes: Julia Arnold. These procedures will take place online at the computer and location of your choice and will take approximately fifteen to twenty minutes to complete. The purpose of this study is to look at organic and conventional food purchasing behavior. I will be asked to answer questions pertaining to food preferences and knowledge. Demographic information will be collected from me at the end of the survey. I understand the procedures described above involve no foreseen risks and/or discomforts. I understand that if I feel in anyway uncomfortable for any reason at any time during the procedure, I can discontinue my participation without jeopardy. I understand that the data obtained from this study is confidential and my name will not be associated with the results of the study. I understand that Julia Arnold will answer any questions I might have concerning the survey and that my participation in any study is entirely voluntary and that I may decline to enter this study or may withdraw from it at any time without jeopardy. I understand the investigator may terminate my participation in the study at any time. Compensation for participation is course credit/extra credit. I understand that if I choose not to participate in this study I will receive no course credit/extra credit.

I am 18 years of age or older. Individuals under 18 may not participate.

Yes/No

Please contact Dr. David Campbell at 826-3721 or Julia Arnold at

juliadarnold@gmail.com for any additional questions