

Green Grub:

Willingness to Pay for “Green” Food at University Dining Facilities

Catherine Freshley

ECON 496
Tulane University
Professor Shimshack

Spring 2009

This paper examines willingness to pay for “green” meals on a college campus. A review of the literature shows that many consumers are willing to pay up to a 10% premium for organic food products. This study is unique in that it establishes a willingness-to-pay for “green” meals. This research project employs two contingent valuation surveys to measure this demand at Tulane University. The data reveals for which types of “green” attributes the demand is highest. It also shows which factors influence this demand.

INTRODUCTION

The demand for “green” food products, such as products labeled ‘organic,’ ‘locally-grown,’ ‘sustainably-grown’ or ‘genetically-modified free’ is increasing rapidly. Traditionally, these types of products have been sold at specialty grocery stores; however, because of their increasing popularity, it is now easier to find such products at a variety of places. These products have gained popularity for a number of reasons. Heightened concern for the environment has caused an increase in demand. Increased awareness about healthy eating has also caused the demand for “green” food to rise.

This paper examines consumers’ willingness to pay a premium for food identified as ‘organic,’ ‘locally-grown,’ ‘sustainably-grown’ or ‘genetically-modified free’ at Tulane University. Hereafter I refer to these foods as “green” food when not differentiating between the four attributes. We focus on a university community for several reasons. Firstly, this is a large and unique segment of the market; hundreds of thousands of people eat at universities across the country each year. Secondly, the demand for “green” food on college campuses is increasing and food service providers are responding. In the last couple of years, Sodexo, Tulane’s food-service provider, has increased “green” offerings at campus dining facilities and has increased sustainability efforts. Finally, universities are an unstudied market.

Significant literature exists on WTP for “green” food; however, most studies examine WTP for single-ingredient products with these attributes, such as milk, coffee or produce. Many studies find that consumers are willing to pay approximately 10% more for organic food than for conventional food. We make an important contribution to the literature. This is the first study to examine university markets and the first study to investigate WTP for prepared meals. Prepared

meals represent a large portion of the food industry and the availability of “green” prepared meals is limited. The results of this study will specifically help Sodexo and other food service providers cater more effectively to their constituents. It could also have significant implications for the restaurant industry and the suppliers of “green” products.

This study employs two surveys to establish consumer attitudes and WTP for “green” food at Tulane. First, we sent a pre-survey via email to 6,000 Tulane undergraduate students. The survey asks students how important the four “green” attributes are to them. It also asks preliminary WTP questions. The full-length survey is a formal contingent valuation survey. A CV study describes a particular good in detail and asks respondents to value it through various types of WTP questions. A CV study allows respondents to state their WTP for goods for which there is not a market or for hypothetical product offerings. Considering the likelihood of an unmet demand for “green” food options on campus, it would be impossible to use a revealed preference method; a CV study is the method best-suited to my question. Key features of the design include general attitudinal questions to gauge consumer opinions and the double-bounded dichotomous choice questions used to elicit WTP. In accordance with the contingent valuation literature, after the WTP questions we ask debriefing questions. We end the survey with demographics questions that are specifically tailored to the campus population.

Approximately 130 students responded to the preliminary email survey. Three key results are revealed. First, 54% of students either already pay more for the “green” food available on campus or would pay more if there were more options available. Second, students rank ‘sustainably-grown’ as the most important of the “green” attributes, with ‘locally-grown’ and ‘organic’ following closely. Students did not consider ‘GMO-free’ to be nearly as important. Third, the results of this survey confirm the need for a more in-depth survey to

determine the factors that influence the demand for “green” products. The results also provide preliminary WTP values, which I discuss in Section IV.

The rest of the paper proceeds as follows: Section I discusses relevant background information, provides a review of the literature, and states our contribution to the literature; Section II explains the design of the full-length survey; Section III presents the results obtained from the pre-survey; and Section IV discusses limitations of the research and makes recommendations for future research.

I. BACKGROUND AND LITERATURE REVIEW

According to Sodexo, in 2007, nearly two-thirds of students said that a university’s stance on the environment was an important factor in deciding where to attend school and the same year, two-thirds of universities reported that they had increased their sustainability efforts. Hundreds of thousands of people eat on college campuses every year, and thus, campus dining facilities are a huge source of food consumption. If it is found that there is a significant demand for organic/locally-grown food on campuses that is not being met, this will have important implications for the food service providers, and for the organic food markets.

In the early 2000s, the market for organic food was growing 20% per year (Batte et al 2007). Extensive research using both contingent valuation methods and hedonic pricing methods has been conducted to establish the premium consumers are willing to pay for food with a “green” attribute. Most studies find that a high percentage of consumers will pay a premium for such products. In their review of the literature, Galarraga and Markandya (2004) find 13 studies from countries across the world that show consumers were willing to pay a premium for organic

goods. Most premiums are between 1 and 10%, with the highest being a 30% premium on specially-labeled flowers in the Netherlands.

While most studies examine WTP for a single-ingredient item, Batte et al. (2007) offer the first study on consumer WTP for multi-ingredient “green” food items. Their study is unique for two reasons. One, they evaluate WTP for multi-ingredient items. Two, they evaluate WTP for products with varying percentages of organic ingredients, as labeled by the National Organic Program. The study uses a contingent valuation survey with payment cards to determine how much of a premium consumers are willing to pay for a box of cereal with various “green” attributes. They find that people who shop at specialty grocery stores are willing to pay much higher premiums and value “100% organic” over other attributes such as: pesticide free, locally grown, and enhanced flavor. They also find, not surprisingly, that people are willing to pay a lower premium as the organic content level decreases below 100%. However, whereas the mean premium for 100% organic content on a \$3 box of cereal is \$0.28 in a traditional grocery store and \$0.52 in a specialty grocery store, shoppers at the traditional grocery have a higher demand for products with organic content of less than 70%.

Loureiro and Hine (2002) undertake a study to determine which attribute of organic, Colorado-grown, and GMO-free, Colorado consumers value most when purchasing potatoes. Following Cameron (1988), the study uses a contingent valuation multiple bounded probit model to determine consumers’ willingness to pay a premium for the above-stated characteristics for potatoes priced at \$1 per pound. They find that the premium is highest for Colorado-grown potatoes, at about 10%. The premium is 5.55% for GMO-free and 6.64% for organic. Loureiro and Hine regress exogenous socio-economic variables on WTP for each attribute to determine what drives the demand. They find that for organic and GMO-free potatoes, being upper-class

(which they define as having an annual income of \$50,000 or greater and having a college education) is the largest predictor of WTP. A stated concern for nutritional value is the largest predictor of WTP for Colorado-grown.

Kaneko and Chern (2005) research consumers' attitudes towards food with genetically-modified organisms using a contingent valuation study. They conduct a contingent valuation study over the phone using random digit dialing to ensure a random sample. Surveyors began by explaining three pros and three cons to buying/eating GMOs. The first questions asked about consumers' grocery shopping habits and attitudes about the environment. They followed with questions about salmon, cornflakes, and oil, the foods in question. They found the WTP to avoid GMO versions of these foods ranged from approximately a 15% premium for vegetable oil to an approximately 30% premium for salmon.

Gracia and de Magistris (2006) study the demand for organic food in Italy. They conduct a survey of 200 shoppers outside of grocery stores in Naples. They ask questions about knowledge of organic food, the consumers' consumption of organic food products, and questions about the consumers' attitudes towards the organic industry and environmental issues. They followed with questions on demographics. Their study shows that price seems to be the primary deterrent to purchasing organic products. Perceived environmental and health benefits are found to drive the demand for such products. They find that increased knowledgeable of organic products is a strong predictor for regular purchase of organic products.

Goldberg and Roosen (2007) use consumer valuation of food safety to study the effects of scope insensitivity and embedding in contingent valuation studies. They conduct a survey at a grocery store using both CVM and choice experiments that ask consumers about purchasing chicken breast with a reduced risk of containing disease-causing bacteria. They find that the

different elicitation methods result in different WTP values; however, they are unsure which values are more accurate.

We make a significant contribution to the literature. Firstly, this is the first study to examine a university market. Universities are a large source of food consumption, and often, centers of social change. Secondly, this is the first study we know of to examine WTP for prepared meals. Most studies on consumer WTP for organic or otherwise “green” food items focus on a single one-ingredient product. Batte et al, make a significant step in studying WTP for multi-ingredient products and WTP for products with less than 100% organic content. However, WTP for “green” prepared meals remains an important component of the literature that has not yet been addressed. This is hugely important. Though there may be a high demand for “green” prepared meals, their availability is limited. Most “green” food is eaten in the home and has been prepared with single-ingredient “green” products.

II. SURVEY DEVELOPMENT

The two surveys that make up this contingent valuation study were designed to create a realistic valuation scenario for respondents. The primary focus of the full-length survey is the valuation questions. These questions ask respondents whether or not they would pay stated prices for food products available on Tulane’s campus that are either organic, locally-grown, sustainably-grown, or GMO-free. We ask additional questions about the respondents’ eating patterns on campus, as well as general attitudinal questions. We end the main part of the survey with follow-up questions and then ask demographics questions. The interviewer uses

photographs and display cards throughout the survey to aid in the respondents' comprehension of the questions.

When designing the surveys, we considered the elements that Carson et al. (2003) reference as "state-of-the-art," as determined by a National Oceanic and Atmospheric Association Panel. The NOAA panel recommended the following: the use of rigorous probability sampling with a high response rate, in-person interviews, a discrete choice referendum elicitation format, an accurate description of the program, conservative design features, checks on understanding and acceptance, debriefing questions following the referendum questions, and careful pretesting. My study follows these guidelines and I discuss each component in detail.

DESIGN OF PRE-SURVEY

As recommended by the panel, I have designed a pre-survey, which was part of my careful pretesting. Focus groups led two years ago by Sodexho showed that campus consumers have varying opinions on "green" food and on Sodexho's sustainability initiatives. This information, both because it is old and because it shows a range of opinions, confirms the need for a more in-depth study. The pre-survey was sent to 6,000 Tulane students via a weekly email newsletter.

The survey asks what the respondents' student status is, whether or not they have a meal plan and what meal plan they have, and their gender. It also asks where they purchase the majority of meals they eat on campus and approximately how many meals they eat from campus dining facilities in an average week. I ask two attitudinal questions and preliminary WTP questions to gauge consumer interest in "green" products. The WTP questions ask students how

much more per dollar they would be willing to pay for a “green” attribute if they are buying a conventional meal with a base price of \$5. The smallest increment is \$0.00-\$0.05, which captures the people who are not willing to pay a premium as well as those that will pay up to a 5% premium. The highest increment is \$0.50+ extra per dollar. Though this high 50% premium is inconsistent with the literature, it is reflective of some of the prices for “green” food sold on campus.

To ensure rigorous probability sampling, the pre-survey was sent to all students that live on campus and to many that live off campus. The response rate was not high, which is partly attributable to the impersonal nature of the survey. The survey was included as a link in a weekly email newsletter that has low readership. The results of the pre-survey, which are discussed in Section III, guided the development of the full-length survey.

DESIGN OF FULL-LENGTH SURVEY

When designing the full-length survey, we were concerned with several issues that draw very closely from the considerations Carson et al make when creating their National Opinion Survey for the Exxon Valdez oil spill.

First, we wanted to be sure the respondents fully understood the “green” attributes and the valuation questions. This was part of developing a plausible valuation scenario in which the respondents felt like they were making real purchasing decisions. The referendum-style questions mimic the choices people make at campus dining facilities. Instead of trying to decide how much they value a certain “green” attribute, they are simply presented with a price for a product and asked if they would buy it. Additionally, we use in-person interviews to implement the survey, which ensures respondent understanding.

We also wanted to ensure respondent attention throughout the length of the survey. Ensuring that the respondent is focusing is important for the accuracy of the answers. To maintain respondent attention, we include photos throughout the survey and checks for understanding. Because the survey is done in-person, we expect respondent attention to be higher than it would be with a phone, mail, or e-mail survey.

In some CV studies, it is important to conceal the identity of the people conducting the survey. This was not an important consideration for us. In fact, we may elicit more accurate results if the students think Sodexo is conducting the survey, and therefore, that their responses will influence the food offerings available to them on campus. However, we were careful to use neutral language when asking the general attitudinal questions so we wouldn't influence the respondents' answers.

We were also concerned with obtaining an accurate sample. When the full-length survey is implemented, surveyors will ask students at random to participate in the survey. They will be positioned in multiple high-traffic locations across campus. In-person surveying leads to a higher response rate.

SURVEY QUESTIONS

The survey begins with general attitudinal questions. We ask students to state how important popular national issues such as the economy, the environment, and foreign policy are to them. We also ask more explicitly about their feelings about the environment. We ask if they have ever made a decision, such as to ride a bike somewhere, because of the effects it will have on the environment. In this question we emphasized that many people are concerned about the

state of the environment, but also that there are many people who don't think there is anything to worry about.

We follow with questions about eating and food buying habits. Because the places students eat and obtain groceries varies significantly, it is important to have a firm understanding of how students spend their meal plan dollars and what might be influencing these decisions. Because different campus eating venues cater to different student sectors, it is also important to understand which students have the highest WTP, for which attribute, and where they eat most frequently. This will also allow us to understand what factors cause students to eat off campus.

We define meal types and ask students to approximate the percentage of each type of meals they eat in a month. We define meals as: prepared in my residence; delivery to my residence; food purchased on campus, eaten at dining facility or in residence; fast food meals and restaurants meals eaten at restaurants. Of the meals they prepare in their residence, we ask whether they most frequently prepare meals from scratch, prepare frozen or boxed meals, or only eat snacks. We also ask students whether or not they have access to a kitchen. We also ask students what payment method they use to buy food on campus and who funds those purchases. Asking students what type of grocery stores they shop at when they shop off campus will allow us to determine for which type of foods (conventional or specialty/ "green") demand is highest.

Before eliciting WTP, it was important to make sure that respondents fully understood the "green" attributes. Additionally, we made sure to explain that some people think these attributes are important and some do not, and that both opinions are okay. It was also important to make sure they understood the differences between the conventional meals and the "green" meals that we were asking the WTP questions for. The survey dialogue includes definitions of

the attributes, photographs of the meals, and allows the respondents to ask questions. We also ask if the respondent is interested in learning more about “green” food.

BOX A

PARAGRAPH 1

Okay, well, just to make sure we have the same definitions, I'd like to tell you what each of these labels mean for the purposes of our study.

Food that is labeled ‘organic’ by the United States Department of Agriculture was grown without using any synthetic chemicals on crops, or any antibiotics or hormones in livestock production.

According to Sodexo, Tulane’s food service provider, sustainable farming includes some of the following practices: protecting and conserving water resources, protecting and enhancing soil resources, and conserving and recycling nutrients by reducing the environmental and health impacts of pesticides by finding better ways to kill pests. Basically, if a farm or way of producing is sustainable, it means that the current practices will allow production to continue indefinitely. Practices that are not sustainable can damage soil, making it less productive, and can use up the earth’s water supply.

Locally-grown products are those grown in the region that they are consumed in. This includes parts of Louisiana and Mississippi.

A genetically-modified organism is one that has had a gene added or removed. Sometimes food is altered in this way to make it more nutritious to eat or easier to harvest. Food that is labeled GMO-free does not have any genetically-modified organisms in it.

PARAGRAPH 2

Some people feel that buying food with the attributes listed above is important and some people feel that it isn’t. It is okay to feel either way. The people who think these things are important often think that this type of food is healthier. They might also think that the way it is grown is better for the environment and they might feel good about supporting local farmers. However, this type of food often costs more and a lot of people don’t want to pay extra for it. Many people don’t think that any of these attributes are important and don’t think that they give any real benefits. Scientists don’t know whether or not there are any effects from eating GMO food. Some people think that the concept is kind of strange, but many people aren’t bothered by it at all.

After reviewing the results of the pre-survey, we decided to change the form of the WTP questions to make them easier to understand and more realistic. The WTP questions in the pre-survey asked students how much more per dollar they would be willing to pay for each “green” attribute for a meal with a base price of \$5. The smallest premium option was \$0.00-\$0.05 and the largest was \$0.50 or more extra per dollar. Not specifying a specific product may have made

it difficult for respondents to make a realistic decision. Students may have also confused the per dollar increase with a total increase.

Following Carson, I use double-bounded dichotomous choice questions to solicit WTP. Carson et al ask respondents whether they would pay a certain tax for a public good. They say this “take-it-or-leave-it” type question closely resembles a referendum situation and leads to fairly reliable responses. I am not asking about a public good, but the referendum-like question style is appropriate: respondents have the choice to buy the good or not buy the good at the specified premium. I base my premium base price of 10% on the reviewed literature (Galarraga, and Markandya 2004). We already have a sense of the premiums consumers will pay, and because the products exist in the market. These facts help limit a potential starting point bias (Goldberg and Roosen 2007).

The survey asks students about their WTP for each “green” attribute for two products sold on campus. We initially wanted to test three products, but decided that the respondents may not have a long enough attention span. We decided to test two prepared food items. To help maintain respondent attention, we use photographs of the food items. Two versions of the survey will be administered; the order of the two products will be opposite in the two versions. Additionally, surveyors are instructed to rotate the order that they ask about the attributes in. I have purposefully selected popular food products to make the survey seem as real as possible to the respondents.

I first ask whether the respondent has or would ever purchase the product at Tulane at its current selling price. Those who say ‘yes,’ are asked if they would purchase it with a 10% premium. Those who say ‘no’ to the 10% premium, are asked if they would pay a 5% premium. Some studies have found that consumers will pay between a 5 and 6% premium for “green”

attributes (Loureira and Hine). If they say 'yes' to the 10% premium, I ask if they would pay a 20% premium. Some venues on campus sell food with "green" attributes for a high premium. These items frequently do not have non-conventional counterparts so it is difficult to establish the current premiums that are being paid. I chose a 20% premium because some studies did find a WTP for "green" attributes of above 20% (Kaneko and Chern). Additionally, it is a more realistic market premium. The WTP questions are asked using the actual prices with the premiums, rather than asking if they would pay a certain percentage increase. This makes the situation as real as possible for the respondent. For example, the current price of a chicken wing combo meal in the student center's food court is \$7.49. I ask students if they would pay \$8.23, which is price + 10%, for each of the "green" attributes.

BOX B

D-1

Louisiana is known for its strawberries and citrus fruit. The food court in Tulane’s Lavin-Bernick center sells fruit cups with sliced fruit. They cost \$2.59. Here is a photo of what the fruit cup looks like.

SHOW PHOTO



Have you ever bought one of these fruit cups or would you ever think of buying one?

- Yes.....1 (CONTINUE TO D-2)
- No.....2 (SKIP TO D-6)

D-2

They also sell one for \$2.84 that is made with all [ORGANIC] fruit. It has the same amount of fruit and the same type of fruit as the regular fruit cup. Would you pay extra for it? (ROTATE ORDER OF ATTRIBUTES: ORGANIC, LOCALLY-GROWN, SUSTAINABLY-GROWN, GMO-FREE).

- Yes.....1 (D-2A)
- No.....2 (D-2B)
- Not sure.....8

D-2A

What if the [ORGANIC] fruit cost \$3.09? Would you still buy it?

- Yes.....1
- No.....2
- Not sure.....8

D-2B

What if the [ORGANIC] fruit cup cost \$2.71? Would you buy it for that price?

- Yes.....1
- No.....2
- Not sure.....8

The two products selected vary in price and food type. I have selected a three wing combo meal and a fresh fruit cup. The choice of products will allow us to make some conclusions about which attributes are valued most highly and for which types of foods. For instance, we may find that when buying a cup of fresh fruit, consumers may want to buy from local farmers. When buying chicken, it may be most important to consumers to buy GMO-free chicken over chicken with a different “green” attribute. We will also be able to establish which “green” attribute elicits the highest WTP.

After completing the section of the survey that asks about students’ WTP, we ask follow-up questions that ask explicitly about what the respondents were thinking when they made their decisions and why they made them. This allows us to see if whether the respondents correctly understood the questions, or if the survey suffers from any problems common to CV studies. Embedding problems and different types of biases are common problems in CV studies. It is important, for example, to determine whether students understand that paying a premium for one “green” meal at W.O.W does not mean that all food from W.O.W. is “green.” It is also important to know whether students think a “green” meal will be of the same size, taste, and quality of a conventional meal. After completing the survey, we also offer them the chance to change their mind about purchasing “green” food at a price premium.

We conclude the survey by asking the students questions about demographics, including conventional demographics questions such as: age, race, and gender, as well as questions that are specifically tailored to the sample. College students are a unique sample of the general population: there are many that live frugally and also many that live with significant financial assistance from their parents. I gain information about these factors by asking if the respondents pay for purchases on campus with meal plan dollars, accounts receivable, or cash, etc., and who

funds those purchases. I also ask questions that reveal whether or not the respondent is participating in financing his or her education, and to what degree. Since students do not often have a large or steady source of income, these questions serve as a proxy for income. We expect these factors to have a significant influence on WTP. Despite the varying spending tendencies, the results of my survey will still be viable: each student, regardless of where he or she earns the money he or she spends, makes decisions every day about what food to buy and whether the attributes of the food are worth the price tag.

III. SURVEY RESULTS

Our pre-survey had a participation rate of approximately 2.2%. In addition to very low participation, our sample was inaccurate. Table 1 shows how much our sample deviates from the Tulane student population.

	Freshman	Sophomores	Juniors	Seniors	Graduate Students	Male	Females
Our Sample	48.09%	29.01%	12.21%	10.69%	0.00%	23.66%	76.34%
Student Body	21.24%	17.11%	11.72%	16.44%	31.68%	48.40%	51.60%

When calculating the percentages of students by classification, I used the number of graduate students who take the majority of their classes on the uptown campus, where all of the dining venues in question are located. There are many more graduate students whose schools are at different locations. I did not include them since they are unlikely to purchase food in the LBC food court.

Despite the shortcomings of our sample, our pre-survey revealed several important results. First, students consider sustainably-grown to be the most important of the “green”

attributes. Locally-grown is second, followed by organic and GMO-free (Table 1). Second, 12% of students said they already pay more for “green” food available on campus. However, 41% of students said they would pay more for “green” food if more options were available. Only, 22% of students said they definitely would not pay more for these attributes. These numbers tell us that there is a significant demand for these products that is not being met.

TABLE 2 – IMPORTANCE OF “GREEN” ATTRIBUTES					
	Extremely Important	Very Important	Moderately Important	Slightly Important	Not at all Important
Organic	29.77%	25.95%	23.66%	6.87%	13.74%
Locally-Grown	30.53%	29.01%	21.37%	7.63%	11.45%
Sustainably-grown	36.64%	28.24%	16.79%	6.87%	11.45%
GMO-free	27.48%	19.85%	19.08%	12.21%	21.37%

Table 2 shows the results of our preliminary WTP questions. As discussed in Section II, we are not confident about the strength of our WTP results because of the way they elicitation questions were written. Additionally, the increments of the price premiums were changed by the people that were responsible for emailing the survey. The smallest increment is from \$0.00 to \$0.50. The increment is too wide to produce a reliable WTP estimate. Because the question asks how much more *per dollar* respondents would be willing to pay, this increment captures those who are not willing to pay a premium as well as those who will pay up to a 50% premium. In addition to the premium range being too large, a 50% premium is inconsistent with the premiums found in the literature. Because the range is so wide, it captures the results we would expect, based on the literature, for those who read the question correctly and for those who read it incorrectly. Based on the literature, we expect students WTP to be approximately 10%. If they read the question correctly, their answer would fall in the first increment. If they read the question incorrectly, their answer could have still fallen in the first increment. If they were

willing to pay a 10% premium on the \$5.00 meal, they would pay \$0.50 extra, which also falls in the first increment.

TABLE 3- WTP FOR "GREEN" ATTRIBUTES, PER DOLLAR PREMIUM					
	\$0.00-\$0.50	\$1.00-\$1.50	\$1.50-\$2.00	\$2.00-\$2.50	\$2.50+
Organic	26.47%	47.06%	15.69%	5.88%	4.90%
Locally-Grown	39.22%	38.24%	9.80%	8.82%	3.92%
Sustainably-grown	32.25%	38.24%	10.78%	6.86%	6.86%
GMO-free	65.38%	13.08%	0.77%	15.38%	5.38%

The survey that was emailed to students included premiums up to \$2.50+. No more than 7% of students said that they would pay that premium for any of the four attributes. Regardless, the fact that anyone implied that they would pay \$17.50 for a "green" meal, when they could buy the same conventional meal for \$5.00 makes us skeptical of our results. Either students did not take the survey seriously or did not understand the questions. If the students did not read that premium increments were *per dollar*, the results make much more sense. Though inconsistent with the 10% premium commonly found in the literature, it is feasible that students would pay up \$7.50 for a "green" meal. This possibility makes sense for two reasons. One, though the literature shows consumers will pay a 10% premium, the market price premium for "green" products is much higher. We know that sales of "green" products are growing despite high premiums. Two, it is possible that the WTP for "green" prepared meals is much higher than the WTP for single-product "green" items. This would be a significant finding. Based on the observed unmet demand and the uncertainty of our WTP results, we demonstrate the need for a more in-depth study.

IV. DISCUSSION AND CONCLUSION

The limitations of this study are significant. Most importantly, we did not actually administer the full-length survey because of time constraints and financial considerations. If there were no time or money constraints, we would make considerable changes to the implementation of the pre-survey and would implement the full-length survey. The pre-survey would not be sent out as an attachment to a weekly email newsletter. The pre-survey would be conducted in face-to-face interviews and would be part of extensive pre-testing. We would conduct focus groups to learn about students' understanding of "green" products and their specific demands. The pre-survey would follow the focus groups. After receiving the results of the pre-survey, we would conduct multiple rounds of pre-testing with the full-length survey. In these rounds of pre-testing, we would be checking to ensure that our questions were easy for the respondents to understand. We would pay careful attention to wording and make changes as needed.

In addition to limitations in actually conducting the survey, there are other limitations to our research. CV studies are subject to many sources of bias. We have tried to mitigate any potential biases where possible. A significant problem in CV studies is strategic bias. Strategic bias occurs when respondents don't answer truthfully because they are afraid their answers will influence costs they will actually have to pay. This is a larger problem for public goods because respondents might be forced to pay a tax. For a study like ours that examines WTP for a private good, respondents will still have the choice not to buy the item. Though strategic bias may have an effect on our results, we expect it will be less of a problem for a study like ours. Starting point bias is also an important problem in CV studies. Research shows that the starting bid affects the final WTP results. People may think that the starting bid is the acceptable, or normal,

bid that other people pay and may make their bid accordingly (Garrod and Willis). We do assume that our survey suffers from starting point bias. However, because our starting bid is based on the WTP that other research has found, we expect this effect to be minimal. A common bias for CV studies that does not apply to our study is payment vehicle bias. There is no other feasible way to pay for a “green” attribute besides a price premium.

Despite the limitations of our survey, we give considerable direction for how the results of the survey would be used. We have developed a model that regresses WTP on demographic and attitudinal variables. We discuss this model in detail. Our model assumes that demographic characteristics and surveyed eating and grocery shopping habits will be highly explanatory variables in predicting WTP for “green” food. We have developed the following model. The model can be used for both food products in our survey. We list definitions of the explanatory variables in Table 4.

$$\begin{aligned} \text{WTP}_{(\text{lower bound})} = & \alpha + \beta_1\text{LFSTYL} + \beta_2\text{MEALTYP} + \beta_3\text{LEGOUR} + \beta_4\text{PRNTPAY} + \beta_5\text{WHRSH} \\ & + \beta_6\text{GREEN} + \beta_7\text{HEALTH} + \beta_8\text{AWARE} + \beta_9\text{ORGNC} + \beta_{10}\text{LCLLYGRW} + \beta_{11}\text{SUSGRW} + \\ & \beta_{12}\text{GMOFRE} + \beta_{13}\text{PAYMORE} + \beta_{14}\text{MORETU} + \beta_{15}\text{SEX} + \beta_{16}\text{RACE} + \beta_{17}\text{REGION} + \\ & \beta_{18}\text{PAYTUIT} + \beta_{19}\text{POLI} + \varepsilon \end{aligned}$$

TABLE 4 – REGRESSION VARIABLES	
LFSTYL	Dummy variable for whether respondent ever considers environment in lifestyle decisions (A-2)
MEALTYP	What “type” of meal the respondent eats most often (B-2)
LEGOUR	Measures how frequently respondent eats at Le Gourmet, the all “green” dining venue (B-3)
PRNTPAY	Measures who funds on-campus food purchases (B-9)
WHRSHP	What type of grocery store respondent shops at most often (B-11)
GREEN	How influential “green” attributes are when purchasing food (C-1)
HEALTH	Whether the respondent is “health-conscious” (C-2)
AWARE	Whether respondent is aware of “green” attributes (C-5)
ORGNC	How important “organic” is to the respondent (C-6)
LCLLYGRW	How important “locally-grown” is to the respondent (C-6)
SUSGRW	How important “sustainably-grown” is to the respondent (C-6)
GMOFRE	How important “GMO-free” is to the respondent (C-6)
PAYMORE	Dummy variable for whether the respondent pays premiums for “green” food off campus (C-9)
MORETU	Whether or not the respondent pays premiums for “green” food on campus (C-10)
SEX	Dummy variable for sex (F-1)
RACE	Dummy variable for white or non-white (F-4)
REGION	Area of the country the respondent is from (F-3)
PAYTUIT	What percentage of tuition the respondent pays (F-9)
POLI	The respondent’s political inclination (F-10)

The values that we find for the betas in this regression will be informative. We will be able to determine how a student's financial situation influences his WTP, as well as how his sex, race, political leaning, and the part of the country he is from influence WTP. Additionally, we will be able to tell how the type of meals that students eat most frequently influences WTP as well as, to some extent, what is causing students to buy food off-campus. The information obtained from this regression makes a significant contribution to the literature and will also be helpful to Sodexo and other food service providers when deciding how to market and at what universities to expand their "green" programs.

For our dependent WTP variable, we have used the lower bound of our double-bounded dichotomous choice responses. This is the conservative choice and follows Carson et al (2003). Because of the design of the question, we can be sure that the respondent would pay the lower bound of their answer pattern, but we don't know what their maximum WTP is. For the fresh fruit cup, the response patterns give the following WTP increments: (\$2.59-\$2.71 [No-No]; \$2.71-\$2.84 [No-Yes]; \$2.84-\$3.09 [Yes-No]; \$3.09- ∞ [Yes-Yes]).

After implementing this survey with a large, accurate sample of Tulane students, the next step of our research would be to develop a way to measure WTP for meals at the campus dining hall. Of the students that responded to our pre-survey, 58% have a "Carte Blanche" meal plan. This meal plan allows an unlimited number of entries to the buffet-style dining hall for the semester. The four versions of the "Carte Blanche" plan come with varying numbers of "Greenbucks." "Greenbucks" pay like cash at all campus dining locations but allow students to not be taxed for their purchases. Because so many students that eat on campus are underclassmen, and because so many of them have a "Carte Blanche" meal plan, it will be important for us to develop a way to measure their WTP for "green" attributes at the dining hall.

The results of our research are preliminary. However, we clearly demonstrate the need for a more in-depth study. Our preliminary results show that WTP for “green” prepared meals might be significantly higher than WTP for single-ingredient “green” items. We also find that 41% of students would buy “green” items on campus if there were more available.

APPENDIX A: E-MAIL PRE-SURVEY

1. What is your current class standing?
 - a. Freshman
 - b. Sophomore
 - c. Junior
 - d. Senior
 - e. Graduate Student
2. What is your gender?
 - a. Male
 - b. Female
3. Which meal plan do you have?
 - a. Carte Blanche + 400
 - b. Carte Blanche + 250
 - c. Carte Blanche + 100
 - d. Carte Blanche
 - e. Wavebucks 45/900
 - f. Wavebucks 55/800
 - g. Wavebucks 75/700
 - h. Wavebucks 95/600
 - i. Wavebucks 115/500
 - j. I do not have a meal plan
4. Where do you frequently purchase food from or eat most of your on-campus meals?
 - a. Bruff
 - b. LBC
 - c. Le Gourmet
 - d. McAlister Market
 - e. Der Rathskeller
 - f. The Drawing Board
5. In an average week, how many meals do eat in/from campus dining facilities?
 - a. 1-3
 - b. 4-7
 - c. 8-11
 - d. 12-15
 - e. 15+

6. Please indicate the importance of the following food attribute: Locally-grown
 - a. Extremely important
 - b. Very important
 - c. Moderately important
 - d.) Slightly important
 - e. Not at all important
7. Please indicate the importance of the following food attribute: Sustainably-grown
 - a. Extremely important
 - b. Very important
 - c. Moderately important
 - d.) Slightly important
 - e. Not at all important
8. Please indicate the importance of the following food attribute: Organic
 - a. Extremely important
 - b. Very important
 - c. Moderately important
 - d.) Slightly important
 - e. Not at all important
9. Please indicate the importance of the following food attribute: GMO-free
 - a. Extremely important
 - b. Very important
 - c. Moderately important
 - d.) Slightly important
 - e. Not at all important
10. Would you be willing to pay more for food on campus with one or more of these attributes than you would for conventional food?
 - a. Yes, I already do this with the options available
 - b. Yes, I would if there were more of the above options on campus
 - c. I am not sure
 - d. No, these attributes are not important to me and I would not pay more for them
11. Approximately how much more per dollar would you be willing to pay for an ORGANIC food item or meal with a base price of \$5?
 - a. \$0.00-\$0.05
 - b. \$0.05-\$0.15
 - c. \$0.15-\$0.25
 - d. \$0.25-\$0.50
 - e. \$0.50+
12. Approximately how much more per dollar would you be willing to pay for a LOCALLY-GROWN food item or meal with a base price of \$5?

- a. \$0.00-\$0.05
- b. \$0.05-\$0.15
- c. \$0.15-\$0.25
- d. \$0.25-\$0.50
- e. \$0.50+

13. Approximately how much more per dollar would you be willing to pay for a SUSTAINABLE food item or meal, including sustainable packaging, with a base price of \$5?

- a. \$0.00-\$0.05
- b. \$0.05-\$0.15
- c. \$0.15-\$0.25
- d. \$0.25-\$0.50
- e. \$0.50+

14. Would you like to see more or less organic, local, sustainable or GMO free food options on campus?

- a. More
- b. I don't care
- c. Less
- d. I did not know that these options were available, but am pleased to learn they are
- e. I did not know that these options were available, and probably won't choose to buy them

APPENDIX B: FULL-LENGTH SURVEY

STUDENT OPINION SURVEY
FULL-LENGTH SURVEY

Hi, my name is _____ and I am surveying students to learn more about what types of food they buy and what types of eating options they would like to have on campus.

Your participation in this survey is completely optional and if at any point I ask a question that you feel uncomfortable answering, we can skip it.

INTERVIEWER NAME: _____

DATE INTERVIEW CONDUCTED: _____

SECTION A

A-1

I am going to list some issues that are important to many people in our country at this time. I would like you to tell me how important or unimportant each is to you. Here is a card that lists the answer categories.

SHOW CARD 1

First, do you think **(item)** is an issue that is very important, somewhat important, or not important for our country right now? **(READ EACH ITEM; CIRCLE ONE CODE FOR EACH; REPEAT ANSWER CATEGORIES AS NECESSARY; ROTATE ITEMS.)**

Rotate items	Very important	Somewhat important	I'm indifferent	Not important	I'm not sure
<input type="checkbox"/> a. The Economy	1	2	3	4	5
<input type="checkbox"/> b. Education	1	2	3	4	5
<input type="checkbox"/> c. The Environment	1	2	3	4	5
<input type="checkbox"/> d. Foreign Policy	1	2	3	4	5
<input type="checkbox"/> e. Human rights (for example abortion and gay rights)	1	2	3	4	5
<input type="checkbox"/> f. National Security	1	2	3	4	5

A-2

Some people are concerned about the state of the environment, but many people don't think there is anything to worry about. Do you ever make lifestyle decisions because of your opinion about the environment? For example, do you ever choose to ride your bike to cut down on pollution or choose to buy recycled paper?

Yes.....1
 No.....0

SECTION B

I want to talk to you now about the type of meals you eat and about your food budget.

B-1

Do you have a meal plan on campus? If so, what type?

- Carte Blanche.....1
- Wavebucks.....2
- Pelicanbucks.....3
- I don't have a meal plan.....4
- I can't remember.....8

B-2

I am going to describe a few different types of meals to you and I want you to tell me what percentage of the meals that you eat fit in to each of the categories.

Rotate items	0-25%	26-50%	51-75%	76-100%
<input type="checkbox"/> a. Prepared in my residence	1	2	3	4
<input type="checkbox"/> b. Delivery to my residence	1	2	3	4
<input type="checkbox"/> c. Food purchased on campus, eaten at dining facility or in residence	1	2	3	4
<input type="checkbox"/> d. Fast food meals	1	2	3	4
<input type="checkbox"/> e. Meals at restaurants	1	2	3	4

B-3

How many meals a week do you eat at the following locations?

Rotate items	0	1-2	3-5	6-7	7+
<input type="checkbox"/> a. Bruff Commons	1	2	3	4	5
<input type="checkbox"/> b. Le Gourmet	1	2	3	4	5
<input type="checkbox"/> c. LBC food court	1	2	3	4	5
<input type="checkbox"/> d. The Drawing Board	1	2	3	4	5

B-4

Do you have a kitchen or have easy access to kitchen appliances?

- Yes.....1
- No.....2

B-5

What type of meals do you prepare most often in your residence?

- Meals made from scratch.....1
- Prepackaged or easy-assemble meals such as frozen or boxed meals.....2
- I only eat snacks (require little or no preparation) in my residence.....3
- I do not eat in my residence.....4

B-6

Do you buy groceries at McAlister Market? If so, what percentage of your total grocery budget do you spend there?

- I never shop there.....1
- 1-10%.....2
- 11-25%.....3
- 26-50%.....4
- 51-75%.....5
- 76-100%.....6

B-7

Do you buy groceries at Le Gourmet? If so, what percentage of your total grocery budget do you spend there?

- I never shop there.....1
- 1-10%.....2
- 11-25%.....3
- 26-50%.....4
- 51-75%.....5
- 76-100%.....6

B-8

When you purchase food on campus, how do you most frequently pay for it?

- Meal plan dollars, like green or wave bucks....1 (B-10)
- Cash.....2 (B-10)
- Tulane debit.....3 (B-9)
- Accounts receivable.....4 (B-9)
- Credit card.....5 (B-9)

B-9

Who pays for those cards?

- I pay the majority.....1
- I pay a minority and my parents or another family member pays the rest.....2
- It is completely paid for by my parents or another family member.....3

B-10

Approximately what percentage of your total food budget do you spend on campus?

0-25%.....	1
26-50%.....	2
51-75%.....	3
76-90%.....	4
90-100%.....	5

B-11

When you buy food off-campus, what type of grocery store do you normally shop at?

General supermarket such as Winn-Dixie or Rouse's.....	1
Specialized supermarket such as Whole Foods.....	2
Discount store such as Target or Wal-Mart.....	3
Wholesaler such as Sam's Club or Costco.....	4
Convenience store such as Circle K.....	5
Small independent grocery store such as Langenstein's.....	6

Okay, we're going to move on to the next portion of the survey. Do you have any questions at this point? [RECORD ANY QUESTIONS VERBATIM.]

SECTION C

I want to talk to you a little about what is important to you when deciding what types of food to eat.

C-1

I want you to tell me how much each of the following items influence your decisions when you are shopping for groceries for yourself. Here is a card that lists the answer categories.

SHOW CARD 2

How much does **(item)** influence your decision? **(READ EACH ITEM; CIRCLE ONE CODE FOR EACH; REPEAT ANSWER CATEGORIES AS NECESSARY; ROTATE ITEMS.)**

Rotate item	Very influential	Somewhat influential	Slightly influential	Not influential at all	Not sure
() a. Price	1	2	3	4	5
() b. Nutritional value	1	2	3	4	5
() c. Taste	1	2	3	4	5
() d. Convenience/ease of preparation	1	2	3	4	5
() e. brand	1	2	3	4	5
() f. Whether or not it is organic or "green"	1	2	3	4	5

C-2

Do you consider yourself a health-conscious person?

Yes.....1
Somewhat.....2
No.....3

C-3

Is eating healthily important to you?

Yes.....1
Somewhat.....2
No.....3

C-4

Let’s talk about food attributes that are important to you. Please let me know if you don’t know what any of these terms mean and I will explain them to you. Here is card that lists the answer categories.

SHOW CARD 3

Is buying **(item)** food important to you? **(READ EACH ITEM; CIRCLE ONE CODE FOR EACH; REPEAT ANSWER CATEGORIES AS NECESSARY; ROTATE ITEMS.)**

Rotate item	Very important	Somewhat important	Slightly important	Not important at all	Not Sure
() a. Fat-free/low-fat	1	2	3	4	5
() b. Sugar-free/low-sugar	1	2	3	4	5
() c. Carb-free/low-carb	1	2	3	4	5
() d. High-protein	1	2	3	4	5
() e. Allergen-free (nut, gluten, lactose, etc.)	1	2	3	4	5
() f. Vegetarian/vegan	1	2	3	4	5

C-5

In the past decade, the market for organic food has grown a lot. So have the markets for food that is locally-grown, sustainably-grown, and free of genetically modified organisms. Are you aware of any of these distinctions and what they mean?

- Yes.....2 [CONTINUE TO C-5A]
- No.....3

C-5A

Which of these terms have you heard of before? Do you know of any similar terms? [RECORD VERBATIM.]

PARAGRAPH 1

Okay, well, just to make sure we have the same definitions, I’d like to tell you what each of these labels mean for the purposes of our study.

Food that is labeled ‘organic’ by the United States Department of Agriculture was grown without using any synthetic chemicals on crops, or any antibiotics or hormones in livestock production.

According to Sodexo, Tulane’s food service provider, sustainable farming includes some of the following practices: protecting and conserving water resources, protecting and enhancing soil

resources, and conserving and recycling nutrients by reducing the environmental and health impacts of pesticides by finding better ways to kill pests. Basically, if a farm or way of producing is sustainable, it means that the current practices will allow production to continue indefinitely. Practices that are not sustainable can damage soil, making it less productive, and can use up the earth's water supply.

Locally-grown products are those grown in the region that they are consumed in. This includes parts of Louisiana and Mississippi.

A genetically-modified organism is one that has had a gene added or removed. Sometimes food is altered in this way to make it more nutritious to eat or easier to harvest. Food that is labeled GMO-free does not have any genetically-modified organisms in it.

Do you have any questions about these four attributes I just talked about?

PARAGRAPH 2

Some people feel that buying food with the attributes listed above is important and some people feel that it isn't. It is okay to feel either way. The people who think these things are important often think that this type of food is healthier. They might also think that the way it is grown is better for the environment and they might feel good about supporting local farmers. However, this type of food often costs more and a lot of people don't want to pay extra for it. Many people don't think that any of these attributes are important and don't think that they give any real benefits. Scientists don't know whether or not there are any effects from eating GMO food. Some people think that the concept is kind of strange, but many people aren't bothered by it at all.

C-6

I want to know how these types of attributes influence what type of food you choose to buy. I am going to ask you how important each of these attributes are to you. Here is card that lists the answer categories.

SHOW CARD 3

Is buying **(item)** food important to you? **(READ EACH ITEM; CIRCLE ONE CODE FOR EACH; REPEAT ANSWER CATEGORIES AS NECESSARY; ROTATE ITEMS.)**

Are any of these food attributes important to you?

Rotate item	Very important	Somewhat important	Slightly important	Not important at all	Not sure
() a. Organic	1	2	3	4	5
() b. Locally-grown	1	2	3	4	5
() c. Sustainably-grown	1	2	3	4	5
() d. Genetically-modified organism free (GMO-free)	1	2	3	4	5

C-7

If you buy food with any of the attributes in the above table because you derive benefit from them, what types of benefits do you receive from them?

- Health benefits.....1
- Environmental benefits.....2
- Benefits to the local community/economy.....3
- Other benefits.....4
- I do not derive any benefits from the attributes listed above.....5

C-8

In general, which types of attributes are more important to you, the ones listed in the first table or the second? Or are they equally important or unimportant?

- First.....1
- Second.....2
- They are equally important.....3
- None of them are important at all.....4

C-9

Do you ever purposefully pay more for a product with one of these attributes when you shop at the grocery store?

- Yes1 (C-9A)
- No.....0 (C-9B)

C-9A

Do you do this frequently or infrequently?

- Frequently.....1
- Infrequently.....2

C-9B

Would you ever consider doing so in the future?

- Yes.....1
- No.....2
- Not sure.....8

C-10

Would you be willing to pay more for food on campus with one or more of these attributes than you would for conventional food?

- Yes.....1 (C-10A)
- No.....2 (C-10B)
- I am not sure.....8

C-10A

Do you already choose to pay more for these types of food with the options that are available?

Yes.....1
No.....2

C-10B

A lot of people don't feel that these attributes are important. But there are also many people who do feel they are important, but can't afford or don't want to pay extra for them. And, some people think that these qualities are important, but don't like or can't find products that have these attributes. Do you not buy products with these attributes because they are not important to you, because they carry an additional cost, or because you can't find products with these attributes that you like?

Not important.....1
Additional cost.....2
Not satisfied with products.....3

C-11

Do you think you are well-educated about the reasons some people think these attributes are important?

Yes.....1
No.....2
I'm not sure.....8

C-12

Are you interested in learning more about what some people consider to be the benefits of eating food that is organic, locally-grown, sustainably-grown, or GMO-free?

Yes.....1
No.....2

SECTION D

D-1

Louisiana is known for its strawberries and citrus fruit. The food court in Tulane's Lavin-Bernick center sells fruit cups with sliced fruit. They cost \$2.59. Here is a photo of what the fruit cup looks like.

[SHOW PHOTO]



Have you ever bought one of these fruit cups or would you ever think of buying one?

- Yes.....1 (CONTINUE TO D-2)
- No.....2 (SKIP TO D-6)

D-2

They also sell one for \$2.84 that is made with all [ORGANIC] fruit. It has the same amount of fruit and the same type of fruit as the regular fruit cup. Would you pay extra for it? (ROTATE ORDER OF ATTRIBUTES: ORGANIC, LOCALLY-GROWN, SUSTAINABLY-GROWN, GMO-FREE).

- Yes.....1 (D-2A)
- No.....2 (D-2B)
- Not sure.....8

D-2A

What if the [ORGANIC] fruit cost \$3.09? Would you still buy it?

- Yes.....1
- No.....2
- Not sure.....8

D-2B

What if the [ORGANIC] fruit cup cost \$2.71? Would you buy it for that price?

- Yes.....1
- No.....2
- Not sure.....8

D-3

They also sell one for \$2.84 that is made with all [LOCALLY-GROWN] fruit. It has the same amount of fruit and the same type of fruit as the regular fruit cup. Would you pay extra for it?

Yes.....1 (D-3A)
 No.....2 (D-3B)
 Not sure.....8

D-3A

What if the [LOCALLY-GROWN] fruit cup cost \$3.09? Would you still buy it?

Yes.....1
 No.....2
 Not sure.....8

D-3B

What if the [LOCALLY-GROWN] fruit cup cost \$2.71? Would you buy it for that price?

Yes.....1
 No.....2
 Not sure.....8

D-4

They also sell one for \$2.84 that is made with all [SUSTAINABLY-GROWN] fruit. It has the same amount of fruit and the same type of fruit as the regular fruit cup. Would you pay extra for it?

Yes.....1 (D-4A)
 No.....2 (D-4B)
 Not sure.....8

D-4A

What if the [SUSTAINABLY-GROWN] fruit cup cost \$3.09? Would you still buy it?

Yes.....1
 No.....2
 Not sure.....8

D-4B

What if the [SUSTAINABLY-GROWN] fruit cup cost \$2.71? Would you buy it for that price?

Yes.....1
 No.....2
 Not sure.....8

D-5

They also sell one for \$2.84 that is made with all [GMO-FREE] fruit. It has the same amount of fruit and the same type of fruit as the regular fruit cup. Would you pay extra for it?

- Yes.....1 (D-5A)
- No.....2 (D-5B)
- Not sure.....8

D-5A

What if the [GMO-FREE] fruit cup cost \$3.09? Would you still buy it?

- Yes.....1
- No.....2
- Not sure.....8

D-5B

What if the [GMO-FREE] fruit cup cost \$2.71? Would you buy it for that price?

- Yes.....1
- No.....2
- Not sure.....8

D-6

W.O.W Wingery in the LBC sells various meals with chicken wings and chicken fingers. They are a local company. The three-wing combo meal at W.O.W. costs \$7.49. It comes with three wings, a side, and a drink. Have you ever bought this or would you ever think about buying this?

- Yes.....1 (CONTINUE TO D-7)
- No.....2 (SKIP TO D-11)

[SHOW PHOTO]



D-7

They also sell the same combo meal made with all [ORGANIC] ingredients for \$8.23. It has the same amount of food and you can pick from the same side items. Would you buy it for that price? (ROTATE ORDER OF ATTRIBUTES: ORGANIC, LOCALLY-GROWN, SUSTAINABLY-GROWN, GMO-FREE).

- Yes.....1 (D-7A)
- No.....2 (D-2B)
- Not sure.....8

D-7A

What if the [ORGANIC] combo meal cost \$8.97? Would you still buy it?

- Yes.....1
- No.....2
- Not sure.....8

D-7B

What if the [ORGANIC] combo meal cost \$7.86? Would you buy it for that price?

- Yes.....1
- No.....2
- Not sure.....8

D-8

They also sell one for \$8.23 that is made with all [LOCALLY-GROWN] ingredients. It has the same amount of food and you can pick from the same side items. Would you buy it for that price?

- Yes.....1 (D-8A)
- No.....2 (D-8B)
- Not sure.....8

D-8A

What if the [LOCALLY-GROWN] combo meal cost \$8.97? Would you still buy it?

- Yes.....1
- No.....2
- Not sure.....8

D-8B

What if the [LOCALLY-GROWN] combo meal cost \$7.86? Would you buy it for that price?

- Yes.....1
- No.....2
- Not sure.....8

D-9

They also sell one for \$8.23 that is made with all [SUSTAINABLY-GROWN] ingredients. It has the same amount of food and you can pick from the same side items. Would you buy it for that price?

- Yes.....1 (D-9A)
- No.....2 (D-9B)
- Not sure.....8

D-9A

What if the [SUSTAINABLY-GROWN] combo meal cost \$8.97? Would you still buy it?

- Yes.....1
- No.....2
- Not sure.....8

D-9B

What if the [SUSTAINABLY-GROWN] combo meal cost \$7.86? Would you buy it for that price?

- Yes.....1
- No.....2
- Not sure.....8

D-10

They also sell one for \$8.23 that is made with all [GMO-FREE] ingredients. It has the same amount of food and you can pick from the same side items. Would you buy it for that price?

- Yes.....1 (D10-A)
- No.....2 (D10-B)
- Not sure.....8

D-10A

What if the [GMO-FREE] combo meal cost \$8.97? Would you still buy it?

- Yes.....1
- No.....2
- Not sure.....8

D-10B

What if the [GMO-FREE] combo meal cost \$7.86? Would you buy it for that price?

- Yes.....1
- No.....2
- Not sure.....8

D-11

Would you like to see more or less organic, local, sustainable or GMO-free food options on campus?

- More.....1
- Less.....2
- I don't care.....3
- I'm not sure.....4

Do you have any questions about the food I was just asking you about?

SECTION E

Alright, we're finished with the main portion of the survey. Now I just want to ask you a few questions about what you had in mind when you were taking the survey.

E-1

Earlier we talked about "green" food attributes like: "organic," "locally-grown," "sustainably-grown," and "GMO-free." After I explained these attributes to you, did you have a good understanding of them?

Yes.....1
No.....2
Not sure.....8

E-2

When I asked if you would pay extra for food with one of these attributes, did you believe that the food would actually have that attribute?

Yes.....1
No.....2
Not sure.....8

E-3

When I asked if you pay extra for a fruit cup with one of these attributes did you think the more expensive fruit cup would otherwise have the same characteristics and be of the same quality as the regular one?

Yes.....1
No.....2
Not sure.....8

E-4

When I asked if you pay extra for a chicken wing combo meal with one of these attributes did you think the more expensive fruit cup would otherwise have the same characteristics and be of the same quality as the regular one?

Yes.....1
No.....2
Not sure.....8

E-5

When I asked you if you would pay more for these "green" items, did you understand that only the item you chose would be "green," and that other items at that location and at other campus dining locations would not be "green"?

Yes.....1
No.....2
Not sure.....8

E-6

In general, how positively did you feel about the price you said you would pay for these food items?

- Very positive.....1
- Somewhat positive.....2
- Neutral.....3
- Somewhat negative.....4
- Very negative.....5

E-7

Would you be willing to pay more or less than you said when I asked the questions during the survey?

- More.....1
- Less.....2
- The same.....3
- Not sure.....4

E-8

Would you like to change your responses to any of the questions about paying for food?

- Yes.....1 [E-8A]
- No.....2

E-8A

Which answers would you like to change? [RECORD VERBATIM]

SECTION F

I am going to ask you a few questions about yourself. Remember that you can choose not to answer any of them.

F-1

Are you male, female or intersex?

- Male.....1
- Female.....0
- Choose not to answer.....8

F-2

How old are you?

- <18.....1
- 18-19.....2
- 20-22.....3
- 23-25.....4
- 25-30.....5
- 30-40.....6
- 40 +.....7
- Choose not to answer.....8

F-3

What part of the country are you from?

- Northwest.....1
- Southwest.....2
- Midwest.....3
- South.....4
- Mid-Atlantic.....5
- Northeast.....6
- Choose not to answer.....8

F-4

How would you classify yourself?

- Asian-American.....0
- African-American.....0
- Latino.....0
- White.....1
- Other.....0
- Choose not answer.....8

F-5

Do you actively practice a particular religion?

- Yes.....1
- No.....2
- Choose not to answer.....8

F-6

Are you a student? If so, how would you classify yourself?

- Undergraduate.....1
- Graduate Student.....2
- Continuing Education.....3
- Not a student.....4
- Choose not to answer.....8

F-7

Do you live on campus?

- Yes.....1
- No.....2
- Choose not to answer.....8

F- 8

Approximately what percentage of your food budget do you finance with money that you have earned?

- 0%.....1
- 1-25%.....2
- 26-50%.....3
- 51-75%.....4
- 76-100%.....5
- Choose not to answer.....8

F-9

Approximately what percentage of your total college expenses, including tuition, room, and books, but excluding food, do you finance yourself?

- 0%.....1
- 1-25%.....2
- 26-50%.....3
- 51-75%.....4
- 76-1-0%.....5
- Choose not to answer.....8

F-10

What is your political leaning?

Very conservative.....	1
Conservative.....	2
Moderate.....	3
Liberal.....	4
Very liberal.....	5
Choose not to answer.....	8

WORKS CITED

- Batte, Marvin T., et al. "Putting Their Money Where Their Mouths Are: Consumer Willingness To Pay For Multi-Ingredient, Processed Organic Food Products." *Journal of Food Policy*. 32: 145-159. 2007.
- Carson, Richard T., et al. "Contingent Valuation and Lost Passive Use: Damages from the Exxon Valdez Oil Spill." *Environmental and Resource Economics*. 25: 257-286. 2003.
- Cameron, Trudy Ann. "A new paradigm for valuing non-market goods using referendum data: Maximum likelihood estimation by censored logistic regression." *Journal of Environmental Economics and Management*. 15(3): 355-379. 1988.
- Galarraga, Ibon and A. Markandya. "Economic Techniques to Estimate the Demand for Sustainable Products: A Case Study for Fair Trade and Organic Coffee in the United Kingdom," *Economía Agraria y Recursos Naturales*. 4(7): 109-134. 2004.
- Garrod, Guy and Kenneth G. Willis. *Economic Valuation of the Environment: Methods and Case Studies*. Northampton: Edward Elgar Publishing: 1999. p 153-168.
- Gracia, Azucena and T. de Magistris. "The Demand for Organic Foods in the South of Italy: A Discrete Choice Model," *Journal of Food Policy*. 33(5): 386-396. 2008.
- Goldberg, Isabell and J. Roosen. "Scope Insensitivity in Health Risk Reduction Studies: A Comparison of Choice Experiments and the Contingent Valuation Method for Valuing Safer Food," *Journal of Risk Uncertainty*. 34:123-144. 2007.
- Kaneko, Naoya and W.S. Chern. "Willingness to Pay for Genetically Modified Oil, Cornflakes, and Salmon: Evidence from a U.S. Telephone Survey," *Journal of Agricultural and Applied Economics*." 37(3): 701-719. 2005.
- Loureiro, Maria L. and Susan Hine. "Discovering Niche Markets: A Comparison of Consumer Willingness to Pay for Local (Colorado Grown), Organic, and GMO-Free Products." *Journal of Agricultural and Applied Economics*. 34(3): 477-487. 2007.