



**GREEN RESTAURANT
RESEARCH TEAM**
AT THE UNIVERSITY OF CHICAGO

WINTER QUARTER PRESENTATION

MARCH 7, 2012



**ENVIRONMENT
AGRICULTURE & FOOD**



THE UNIVERSITY OF CHICAGO
**PROGRAM
ON THE GLOBAL
ENVIRONMENT**
HTTP://PGE.UCHICAGO.EDU



**The Green
Chicago Restaurant
Coalition**



GREEN SEAL

OBJECTIVE

To work with our partners, the GCRC and Green Seal to develop a robust and achievable Chicago-based Green Restaurant Certification Program

CONSIDERATIONS

- Robust yet achievable
- Private returns and social benefits
 - Locally aware
- Community engagement and local stewardship
 - Local economies of scale

OUTLINE OF PRESENTATION

- Project Management
- I. Existing Standards
- II. Market Assessment
 - Research Groups
 - III. Use of Sustainable Foods
 - IV. Use of Sustainable Supplies
 - V. Waste Reduction & Management/Recycling
 - VI. Water Reduction & Management
 - VII. Use of Sustainable Furnishings & Building Materials
 - VIII. Energy Conservation & Management
 - IX. Pollution & Chemical Reduction
 - X. Reporting, Communication, Education & Training
 - XI. Legal & Policy Issues
 - XII. Consumer Research
- XIII. Comprehensive Analysis
- XIV. Survey Design
- XV. Questions & Discussion

I. EXISTING STANDARDS

I. EXISTING STANDARDS

GOAL

- Our goal is to provide an outline of the current existing standards relating to Chicago restaurants regarding green practices, initiatives and programs.
- We will present a short description of each certification we have focused on to give you a brief overview of the existing standards.

I. EXISTING STANDARDS

WHAT ARE THESE STANDARDS & HOW DO THEY COMPARE?

Attributes of Certification	Cost	Certification Method	Certification Focus	Negative Limitations	Positive Inclusions
Green Restaurant Assoc.	\$\$\$	Points; +10 every year	Restaurants, events	Long process, lack of depth	Popular, easy to use, progressive
Green Seal (GS-46)	\$\$\$\$	Audit; Gold, Bronze, Silver	Meat use; in-depth analysis	Education; high expectations	Scientifically based; leader in standards
IL. Green Business Assoc.	\$	Yes/No Checklist	Community	Simple, vague	Education
LEED	\$\$\$	Points; 4 types	Building structures	Long process; 3 rd party audit	Incentives; transparent
B-Corps	\$\$\$\$	Points; 213 aspects	Corporate structure	30% environment	Lead CSR;60+ industries

OTHER STANDARDS



GREEN BEINGS



II. MARKET ASSESSMENT

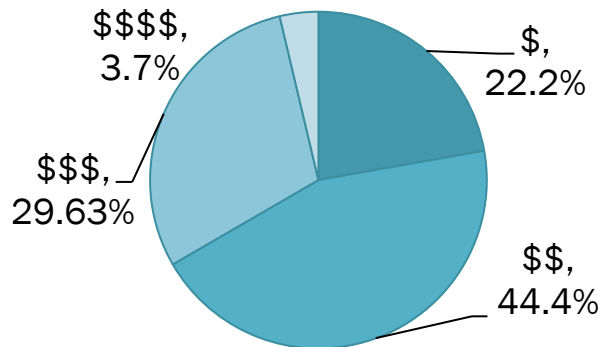
II. MARKET ASSESSMENT

OTHER STANDARDS

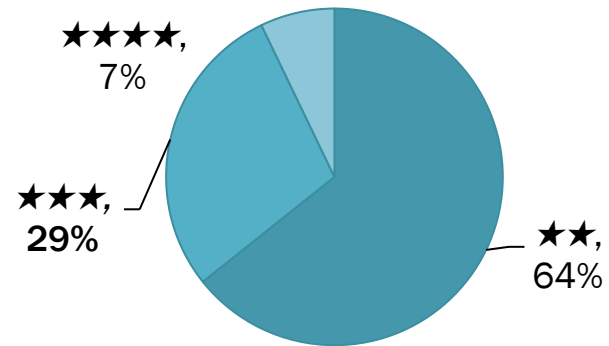
Facts on Chicago

- Population: 2.7 million people
- Per capita income: \$27,148
- Median Household Income: \$51,914
- Number of restaurants: 6,982

Chicago GRA Restaurants by Average Price



Chicago GRA Restaurants by Number of Stars



Chicago Green Restaurant Facts

- 28 GRA-certified restaurants in Chicago
- 28% of GRA restaurants are in the Loop
- 64% of GRA restaurants market themselves as GRA-certified (websites)

II. MARKET ASSESSMENT

COMPARISON OF CHICAGO TO OTHER CITIES

Cities by Percentage of GRA Restaurants	Number of GRA Restaurants	Percentage of GRA Restaurants
1. Boston	33	2.49%
2. New York	80	0.85%
3. San Diego	16	0.48%
4. Chicago	28	0.42%
5. Los Angeles	21	0.35%
6. Washington, D.C.*	14	0.19%

COMPARISON OF CHICAGO TO OTHER CITIES

Innovative Best Practices

- Rooftop gardens with herbs, produce and beehives
- Exclusive use of natural energy in the restaurant (wind, solar, water, etc.)
- On-site water purification process
- Organic staff uniforms

Restaurant Supplier Landscape

- Nationwide
 - Eco Products
 - Greenhome.com
- State-by-state
 - State restaurant associations
 - Foodservice Central buyer's guide
- Chicago area
 - 5 GCRC-approved suppliers

III. USE OF SUSTAINABLE FOODS

FOOD GROUP FINDINGS (PART 1)

- **Beverages and Grains**
 - Most of the energy usage in beverage production goes into transportation of glass. Kegs are the most efficient.
- **Fruits and Vegetables**
 - It is increasingly easy for restaurateurs to source non-conventional produce
- **Meats**
 - The livestock sector represents one of the top two or three most significant contributors to the world's most serious environmental issues (UNFAO, 2006).

FOOD GROUP FINDINGS (PART 2)

- **Dairy**
 - Restaurant demand can have a huge impact on the market for hormone- and antibiotic-free milk
- **Seafood**
 - Farmed fish is seen as a more sustainable alternative to that of overfishing, but has its own environmental problems

LOOKING AHEAD: NEXT QUARTER

- Research issues of seasonality
- Interview restaurants to confirm levels of attainment
- Work with the city's evolving food plan
- Continue to research ways to determine the benefits of non-conventional foods

IV. USE OF SUSTAINABLE SUPPLIES

SUSTAINABLE SUPPLIES GOALS

Use a familiar formula to make decisions:

- Reduce Waste and Chemical Usage
 - Implement mechanical alternatives such as hand dryers, and choose more efficiently produced disposables
 - Choose bulk packaging when possible
- Favor Reusable Products
 - What is being discarded in your restaurant? What products could be purchased that could be reused instead?
 - E.g. metal coffee filters
- Favor Recyclable/Compostable
 - Utilize disposables that are recyclable or compostable
 - Eliminate Styrofoam

ISSUE 1: CHOOSING SUPPLIES

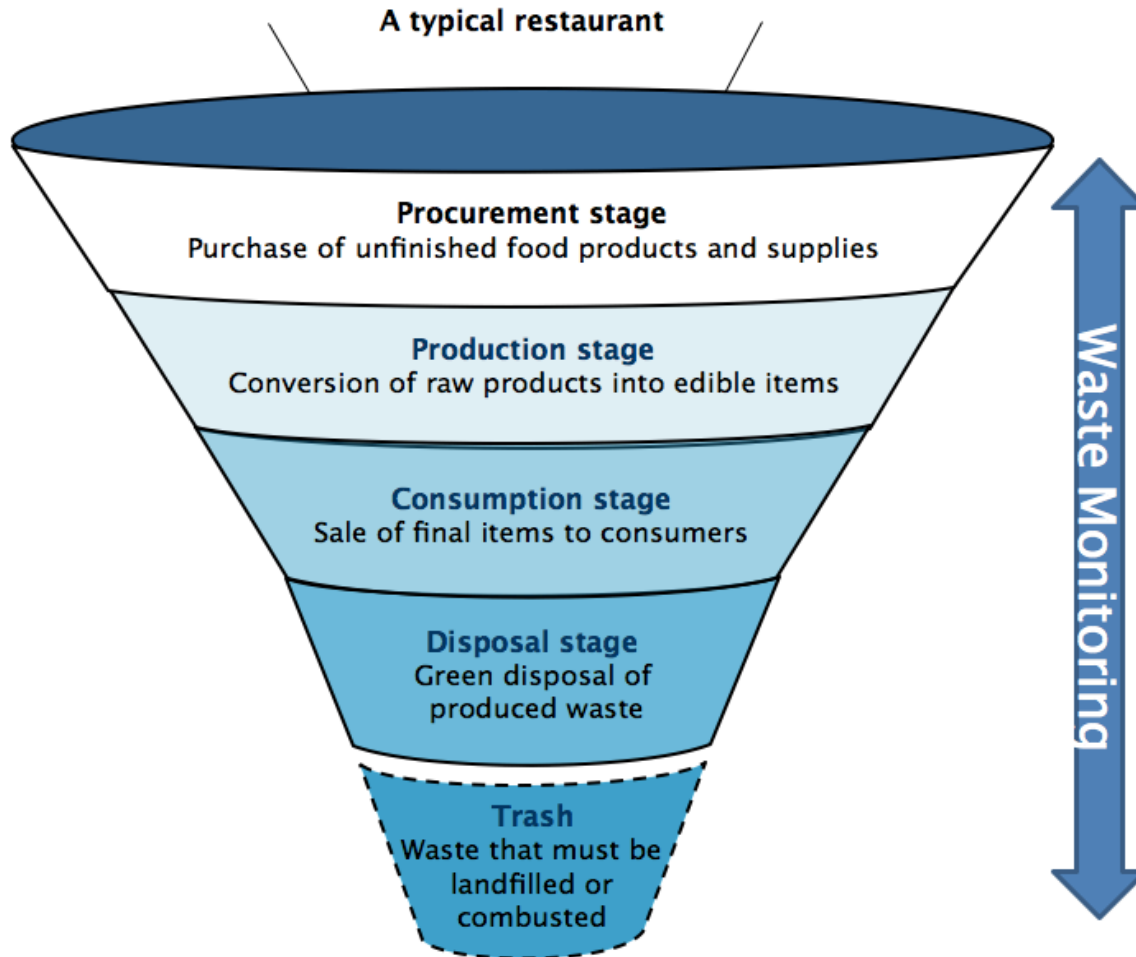
- “There is so much “green-washing”. We can’t decide between different products out there efficiently.”
 - Buying Strategy
 - Make predetermined decisions about product types desired
 - Don’t look through catalogs seeking any green product, have a specific reduction goal in mind
 - Utilize the following metric for relative value
 - $(\text{Environmental Benefit})/(\text{Marginal Cost})$
 - Where Environmental Benefit= Savings in Non-Sustainable Raw Material Cost
- Action is better than inaction!

ISSUE 2: BULK PURCHASING

- “We can’t afford the upfront cost of switching to Bulk Purchasing”
- Implementation Strategy
 - Divide your purchases into twelve groups
 - In Month 1:
 - Buy 1 Months Supply for 11/12 Groups
 - Buy 12 Months Supply for 1/12 Groups
 - 1.92x Initial Budget
 - In Month 2:
 - Buy 1 Months Supply for 10/12 Groups
 - Buy 12 Months Supply for 1/12 Groups
 - 1.83x Initial Budget
- Year two has monthly cost less than initial budget
- Upcoming research will focus on financing options

V. WASTE REDUCTION & MANAGEMENT/RECYCLING

STAGES OF WASTE



WASTE PRACTICES AND FEASIBILITY

Stage	Practice	Feasibility & Cost Findings
Procurement	Source Reduction	Success relies on waste audits, almost always cost-effective
Production	Reuse of food scraps, source reduction	Dependent on successful employee training
Consumptions	Consumer incentive programs: half portions, reusable containers	Relies on customer behavior and knowledge, relatively low impact
Disposal	Food donations, full-scale recycling, composting	<p>FD: not enough product</p> <p>R: up to 50% cheaper (especially with FOG)</p> <p>C: 25-75% costlier, laws and systems prohibitive</p>

VI. WATER REDUCTION & MANAGEMENT

INTRODUCTION TO WATER CONSERVATION

- **Water in Chicago**
 - Price not reflective of actual cost
 - Lack of incentive to conserve
- **Water Conservation**
 - Two components – behavioral and technical

WATER CONSERVATION BEST PRACTICES

- **Technical**
 - Replacing fixtures
 - Water-efficient appliances
- **Outdoor Practices**
 - Landscaping
 - Stormwater diversion and catchment

PRELIMINARY RECOMMENDATIONS

- **Existing Standards**
 - More emphasis on:
 - Stormwater management
 - Creation of new policies/programs
 - Financial incentives
 - Less emphasis on graywater use
 - Metering restaurants

VII. USE OF SUSTAINABLE FURNISHINGS & BUILDING MATERIALS

OVERVIEW OF EXISTING STANDARDS IN CHICAGO

- **LEED**
 - Certified, Silver, Gold, Platinum
 - Government standard for sustainable buildings
- **Green Restaurant Association**
 - Points focus on reused, salvaged, or recycled materials.
- **City of Chicago**
 - Chicago's LEED: the Chicago Standard
 - The Chicago Building Code gives little mention of recycled or sustainable building materials, but the city does have in place a "Green Permit Process" which fast tracks construction permits for environmentally friendly projects.

ENVIRONMENTAL IMPACT OF SFBM

- **Smaller Carbon Footprint**
 - Reduce energy use, cut down on pollution, made without chemicals or petroleum byproducts
 - Low-emission materials: VOC-free paints; beyond VOC free
- **Sustainable Practices**
 - Responsibly grown–FCS certified
 - Rapidly Renewable materials (Bamboo/cork flooring)
 - Recycled content lessens toll from harvesting and producing
- **Health Benefits**
 - Air and water quality improvements

ECONOMIC BENEFITS OF SFBM

- **Salvaged/Reused Materials**
 - Use items otherwise headed to the landfill
 - Cost savings of 50%-75% compared to new materials
- **Energy Savings**
 - Savings from materials that better insulate, light
 - Can save \$6/sqft
- **Reduced Maintenance Costs**
 - Sustainable materials can be more durable, last longer

VIII. ENERGY CONSERVATION & MANAGEMENT

ENERGY USAGE: COSTS & CERTIFICATION

- **Comparable Standards:**
 - Green Seal, Green Restaurant Association, LEED, Bay Area Green Business Program, Greentable Network

Tier	Evaluation \$	Monitoring \$
Tier I (>\$10m)	\$3,500	\$2,450
Tier II (\$5-\$10m)	\$3,150	\$2,205
Tier III (\$3 - \$5m)	\$2,900	\$2,030

- **Average Costs:**
 - Tiered certification for most standards (Green Seal/GRA/LEED)
 - Ex. Bronze certification requires 7% annual reduction in energy usage for Green Seal, plus monitoring/audits
 - Appliance upgrades primary source of points. Calculator available. Upfront cost with amortized energy savings
 - Certification dependent on square footage, type of establishment and annual revenues. Additional monitoring costs
 - Upgrading to renewable sources of energy - premium per kWh
 - Blue Star Energy - renewable RECs for small businesses

CERTIFICATION BENEFITS

- **Qualitative:**
 - Publicity, improving staff morale, new customers, customer loyalty, healthier environment, legislation, emissions reduction
 - Sense of social responsibility
- **Quantitative:**
 - Energy savings: Based on 4,000 sqft with 38kWh/sqft, annual savings ~ \$7,600
 - Lower energy usage = pollution reduction at source of generation = social benefit. Price per ton of carbon reduced depends on area and usage profile.
 - Health improvements - societal cost reduction from hospitalizations
 - Grants and incentives from federal and state governments. Depending on energy usage and efficiency program. Table illustrating grants included

LIMITATIONS & NEXT STEPS

- **Limitations:**
 - Establish location-specific standards. Chicago cooler climate so no “bonus” for not having air conditioner for example.
 - Smart metering: TOU pricing may be disadvantage. Energy efficient appliances will use less energy without altering consumption based on peak pricing models.
 - Grants/Incentives: Good but for capital intensive projects with upfront costs, grants may not be received in time.
 - Depending on building ownership, solar pv may not be option. Renewable purchasing (Blue Star Energy) could be solution
- **Next Steps:**
 - Research hybrid points system based upon energy consumption reduction and net consumption - location specific
 - Quantify social benefit from pollution reduction due to energy efficiency

IX. POLLUTION & CHEMICAL REDUCTION

CLEANING PRODUCTS

- Best practices based on benefits and cost-effectiveness:
 - Concentrated cleaning products with automatic dilution system
 - reduced transportation costs and emissions.
 - GRA's list of endorsed green certified cleaners
 - Good database, provides clear choices for restaurants
 - Non-antibacterial soap
 - Avoids bacteria resistance and allergies; same price point
- Improvements to standards:
 - Categories of green cleaners – flexibility between effectiveness and green; lack of green degreaser
 - New technologies that reduce or eliminate chemicals (Microfibers, electrolyzed water technology)

COOKING APPLIANCES AND EMISSIONS

- Best practices based on benefits and cost-effectiveness:
 - Reuse WFO- convert to bio diesel or cleaning products
 - Low costs, but high returns
 - Electric stoves instead of gas, and effective ventilation
 - High initial costs put pay off in the long run (3.5-5 years)
- Improvements to standards:
 - Lack of current standards (currently limited to charbroilers)
- Challenges:
 - Difficulty in imposing standards due to different emissions from different cuisines/style of cooking/kind of oil used
 - Varying emissions due to size/seating capacity

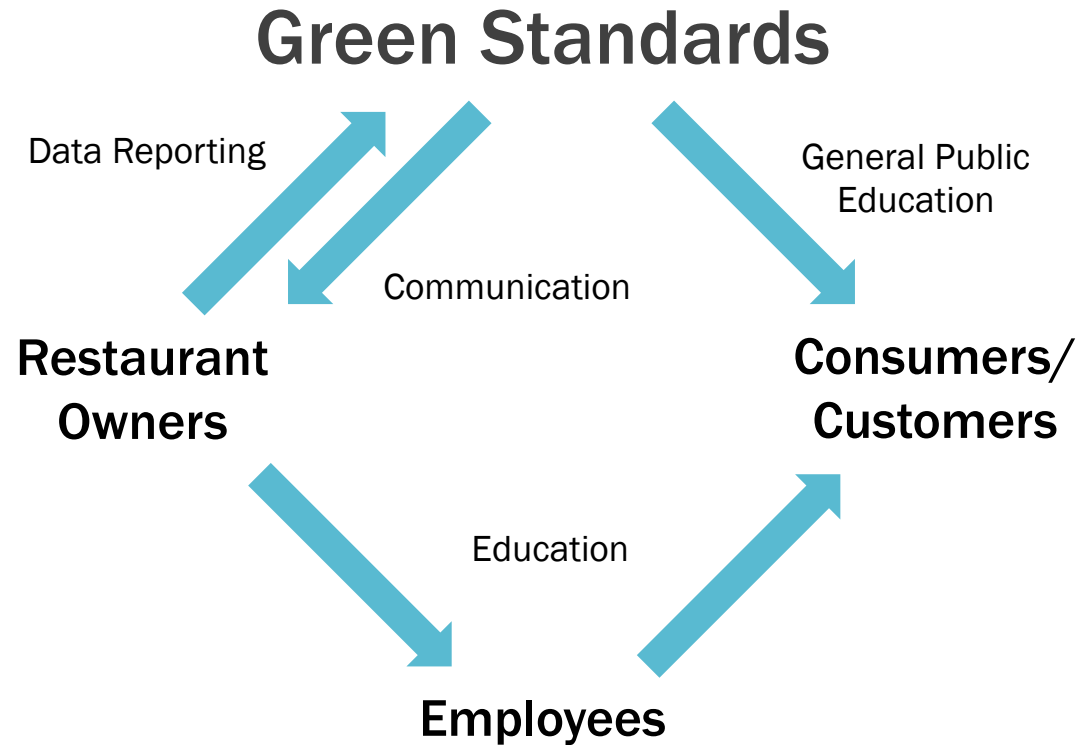
PEST MANAGEMENT AND TRANSPORTATION

- **Pest Management**
 - Best Practices: Integrated Pest Management (“IPM”)
 - Standards: Certified IPM practitioners
 - Effective and attainable to limit to 3 certification agencies
- **Transportation**
 - Best Practices: Alternative proprietary vehicles and incentives
 - Standards
 - Electric, hybrid plug-in and/or biodiesel
 - Incentives for patrons to utilize green transportation options

X. REPORTING, COMMUNICATION, EDUCATION & TRAINING

COMMUNICATIONS

- Green certification agencies → Restaurant Owners
- Green certification → Customers
- Between different green certification agencies



EDUCATION & TRAINING

- **Restaurant Owners**
 - Updates
- **Technical Operators**
 - Resources/education on certification
- **Restaurant Employees**
 - Training and practices
- **Customers**
 - Involvement and education

DATA REPORTING

- **Infrastructure usage and improvements**
 - Waste
 - Water
 - Energy
- **Annual paperwork**
 - Invoices
 - Recertification

XI. LEGAL & POLICY ISSUES

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LEGAL AND POLICY

Policy Area	Green Policy Barriers	Case Study/Recommended Policy
Water	<ul style="list-style-type: none">• Current municipal payment structure undercharges for water• Lack of metering provides no incentives to decrease water use• No storm water reuse	<ul style="list-style-type: none">• Increase the price of water and implement a pay-per-gallon system• Pursue a grey water reuse policy
Pollution	<ul style="list-style-type: none">• No policies regulating cooking emissions• No incentives for restaurants to use green cleaning supplies	<ul style="list-style-type: none">• Mandatory FOG policies in Santa Cruz• Include cooking emissions under EPA's emissions regulations
Waste	<ul style="list-style-type: none">• Compost regulations• Insufficient enforcement of recycling regulations	<ul style="list-style-type: none">• San Francisco's comprehensive compost and recycling program

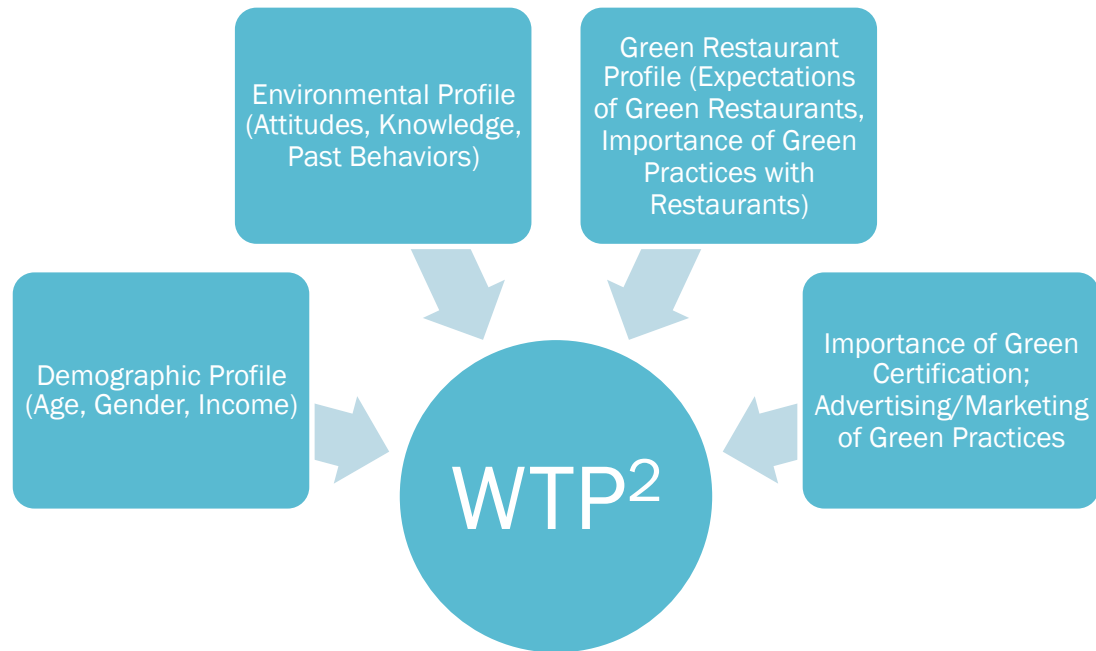
XI. LEGAL & POLICY ISSUES

LEGAL AND POLICY

Policy Area	Green Policy Promotions	Next Steps
Energy	<ul style="list-style-type: none">• Deregulation of utilities allows purchase of electricity from renewable sources• Federal grants for city solar panels• Chicago Region Retrofit Ramp-up (CR3)• Tax deductions through EPACT of 2005	<ul style="list-style-type: none">• Improve accessibility of local loans and financing to support restaurant energy retrofits• Restaurants can purchase renewable power
Building Materials	<ul style="list-style-type: none">• City of Chicago Small Business Improvement Fund can support projects using renewable or recycled materials	<ul style="list-style-type: none">• Develop a more comprehensive tax incentive structure to encourage restaurants to use green building materials
Food	<ul style="list-style-type: none">• No barriers to using locally sourced, organic foods• New policies allowing urban agriculture	<ul style="list-style-type: none">• Expand distributional channels and decrease informational barriers

XII. CONSUMER RESEARCH

THEORETICAL FRAMEWORK

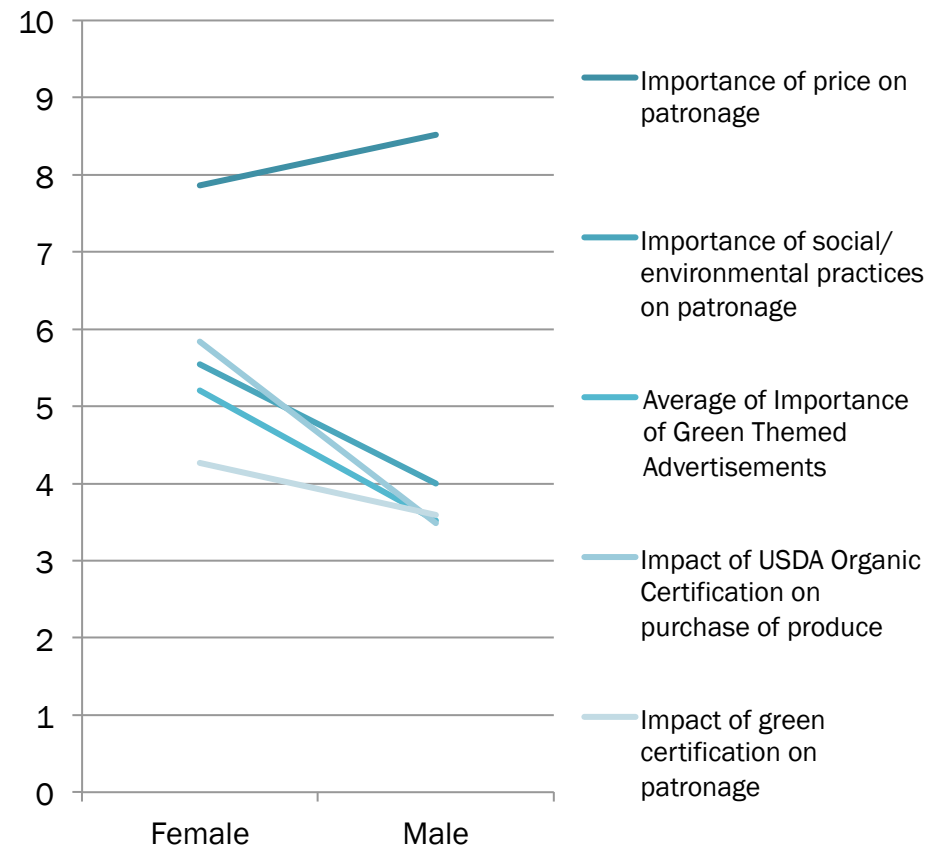


Our Hypothesis: Consumers *value* “green practices,” but this does not fully translate into increased patronage and increased WTP.

DEMOGRAPHIC PROFILE

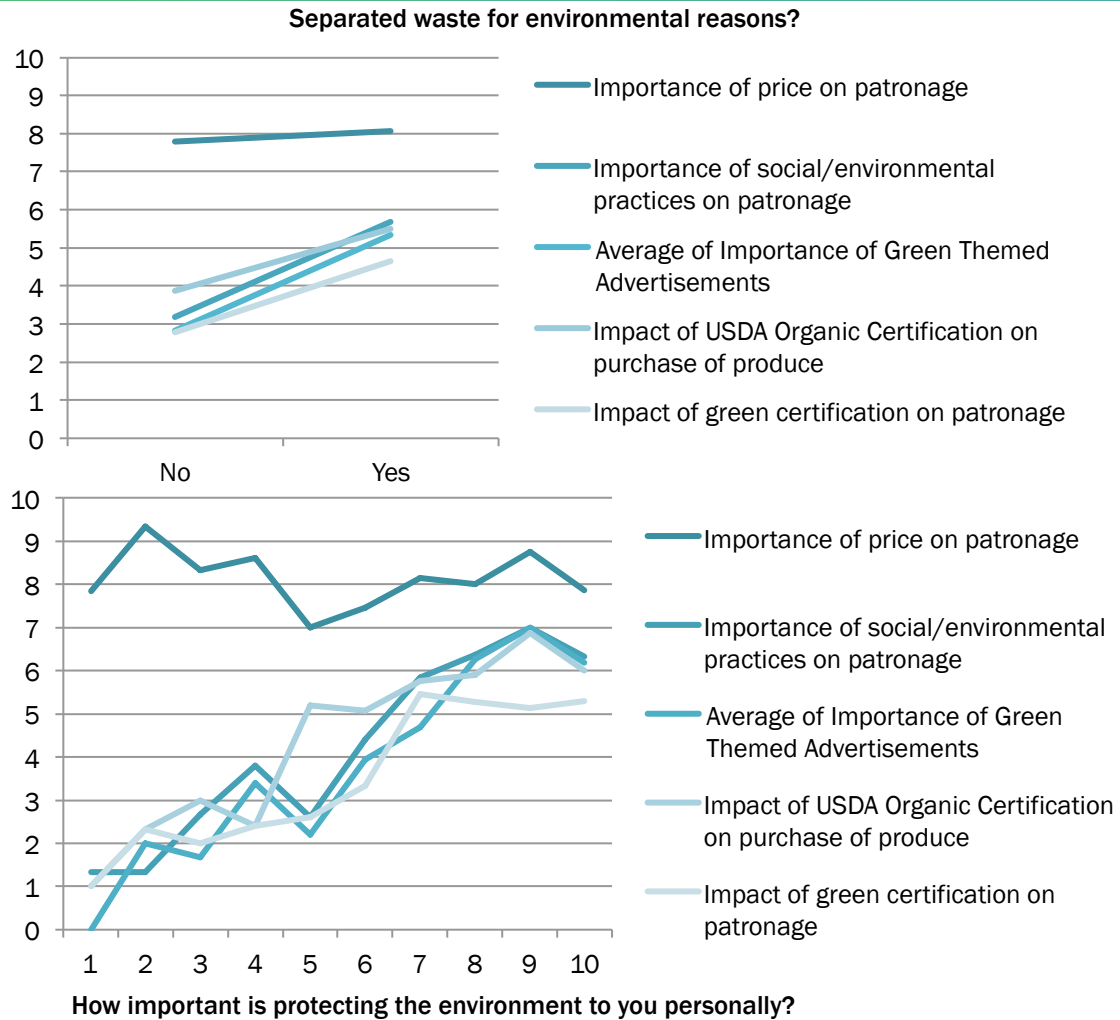
- **Literature Results**
 - Younger consumers more likely to be swayed by green practices and willing to pay more
 - Income positively correlated with willingness to pay
- **Pre-Test Results**
 - Due to restricted sample, not yet able to look at age, income, or neighborhood
 - Women more likely to be influenced by green practices

The effect of gender on...



ENVIRONMENTAL PROFILE

- **Literature Results**
 - Attitudes towards and involvement in green practices are indicators for willingness to pay.
- **Pre-Test Results**
 - Confirmation of above
 - Our sample values and is informed about general green practices but not about restaurant-specific practices

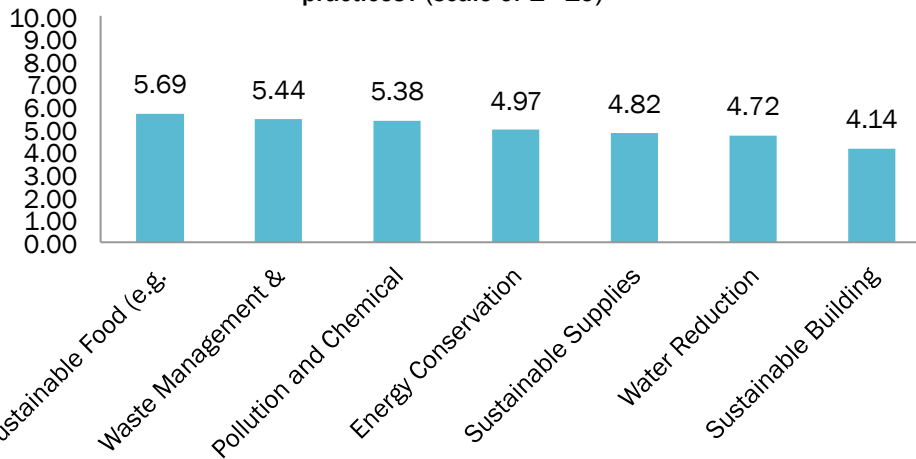


XII. CONSUMER RESEARCH

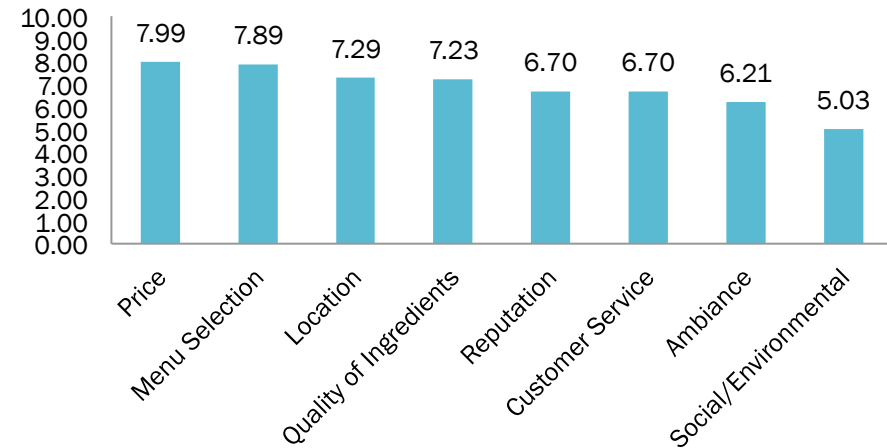
RESTAURANT GREEN PROFILE

- **Literature Results**
 - Consumers value green practices but are not informed about restaurant practices
 - Green practices are less important than other restaurant characteristics
- **Pre-Test Results**
 - Consumers care much less about green practices than other restaurant characteristics
 - Among green practices, consumers value green food and recycling most

When choosing to visit a restaurant, how important is it to you that the restaurant engages in the following environmental practices? (scale of 1 - 10)



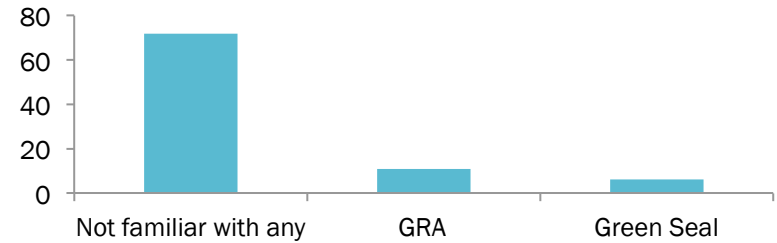
When choosing to visit a restaurant, how important are the following characteristics about the restaurant? (scale of 1 - 10)



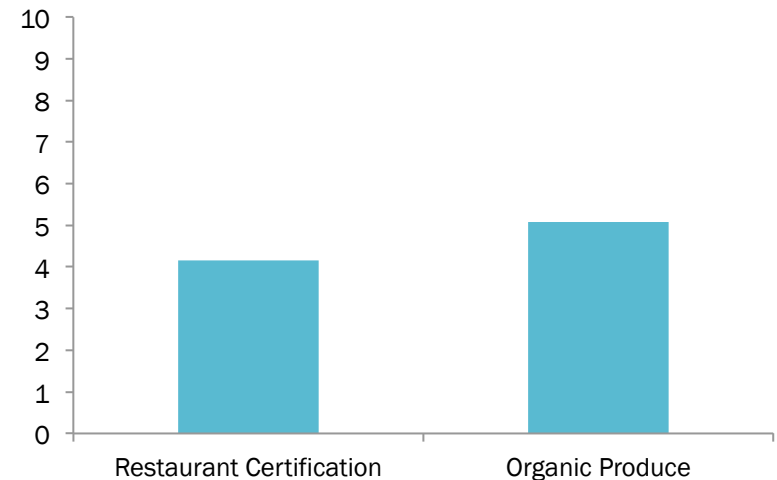
GREEN CERTIFICATION

- Literature Results
 - Customers lack the necessary information to make informed decisions about “green” restaurant purchases.
 - Green certification has yielded significant WTP results in other industries
- Pre-Test Results
 - Consumers know little about green restaurant certification
 - Consumers value restaurant certification less than other types of certification

Which "green certification" do you trust the most? (# of respondents)



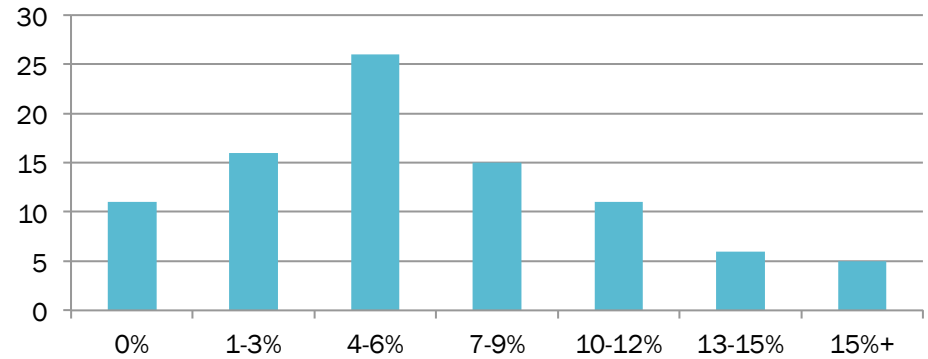
How much do the following certifications affect decisions to purchase?



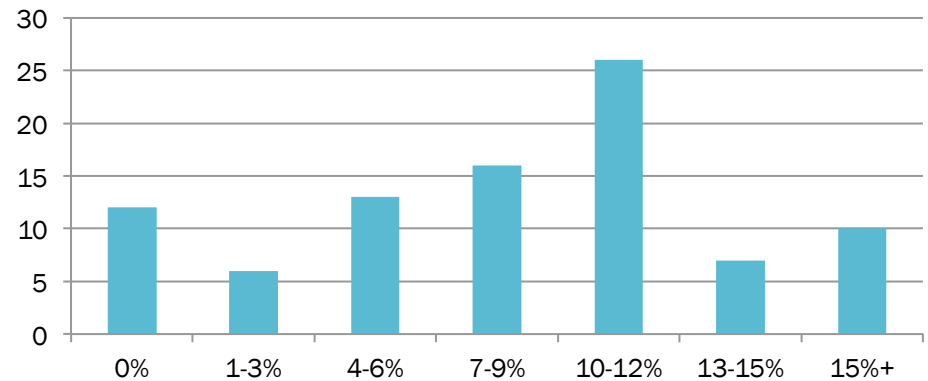
WILLINGNESS TO PAY

- **Literature Results**
 - General increased willingness to pay but only 1-5% on averages
- **Pre-Test Results**
 - Median willingness to pay 4-6% more
 - Median expectation of paying 7-9% more
 - 60% had willingness greater than or equal to expectation

How much more are you willing to pay at a restaurant with environmentally-friendly practices? (# of respondents)



How much more do you expect to pay at a restaurant with environmentally-friendly practices? (# of respondents)



XIII. COMPREHENSIVE ANALYSIS

CASE STUDIES

- Qualitative case studies to analyze the process, motivation and results of certification
 - Two different types of restaurants: modern trendy green restaurant and non-typical green restaurant
 - Frontera Group
 - Simone's Bar
 - Both restaurants had green mindsets before certification
 - Hard to observe any impact on customers

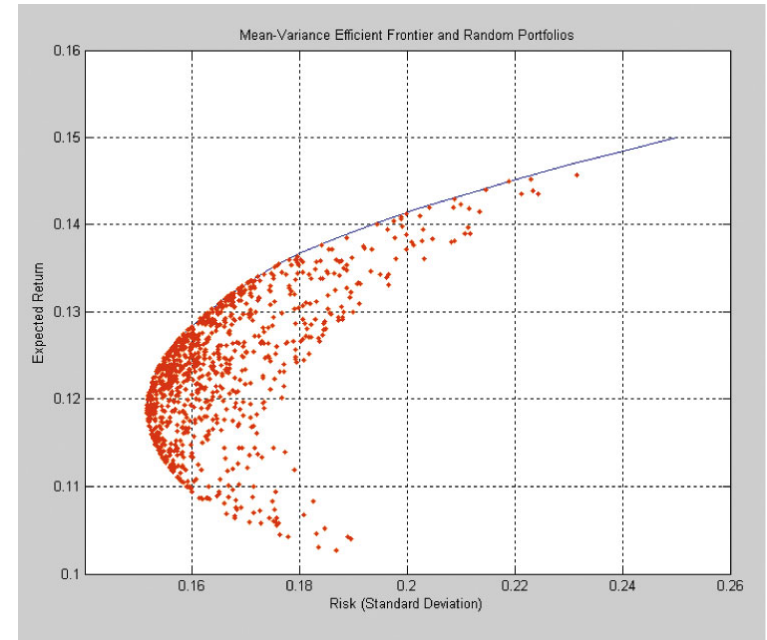
TOOLKIT

- Guiding Principles:
 - Easy to Use
 - Practical
 - Efficacious
- Two Tools to Start
 - For Project Team: Point Allocation Model
 - For Restaurants: Waste Tracker

XIII. COMPREHENSIVE ANALYSIS

TOOLKIT: POINT ALLOCATION

- **Goal**
 - “Build a reliable model to assign points without skewing restaurant operator incentives”
- **Result**
 - We consider all changes recommended in standards, and look at their:
 - Relative Cost
 - Relative Benefits
 - The Interaction between them
 - We assign point values so that all projects, large and small, receive a benefit in points per dollar equal to their estimated benefit to the environment.
 - Enables possibility for easy extension of the standard and point systems



XIII. COMPREHENSIVE ANALYSIS

TOOLKIT: WASTE

Paste Clear [Icons] Merge [Icons] 70 .00 [Icons] Formatting [Icons] [Icons] [Icons] [Icons]

W12 [Icons] fx

1 Version 1.0 February 2012

2

3 **Food Waste Management Toolkit**

4 The Food Waste Management Calculator estimates the cost competitiveness of alternatives to food waste disposal, including source reduction, donation, composting, and recycling of yellow grease. Specifically, the calculator (1) develops an alternative food waste management scenario based on: your waste profile, availability of diversion methods, and preferences; and (2) compares cost estimates for a disposal versus an alternative scenario. The Cost Calculator demonstrates that environmentally and socially responsible food waste management is cost-effective for many facilities and waste streams. The more you know about your current waste management costs, the more accurate the calculator's estimate will be, but default values are provided for many variables.

5 To use this Cost Calculator, navigate to the **Inputs tab**. There you will specify your type of restaurant; types and quantities of food waste; and availability of food recovery method(s). The Inputs tab has notes and instructions to guide you.

6 The **Cost Data tab** provides default data including composting cost data and transportation costs. Users are encouraged to provide their own data for these costs if available. Cost data collected from sources dated before 2012 are adjusted for inflation.

7 The **Cost Graphs tab** graphically portrays the changes in cost over time between the baseline and alternative scenarios developed for your facility based on your inputs and Cost Calculator results.

8 The **Investments tab** includes pricing information for larger capital investments (in-vessel composting, food pulper)

9 The **Composting Environmental Benefits tab** estimates changes in variety of environmental measures based on the alternative scenario developed for your facility. This tab only measures changes resulting from composting preferences selected on the Inputs tab. The tab also provides a link to EPA's Waste Reduction Model (WARM), which estimates greenhouse gas (GHG) emissions of baseline and alternative waste management practices. You may enter the results of the Cost Calculator into WARM to estimate the change in GHGs from the baseline to the alternative scenario from composting.

10 The **Summary tab** provides brief review of the alternative food waste scenario based on your inputs and preferences, and summarizes the scenario's financial and environmental results compared to the baseline.

11 The **Resources tab** provides a summary of EPA's food waste hierarchy, as well as descriptive information and links to additional resources, including resources on the local availability of alternative food waste management methods.

12 The **Default Cost Data tab** is a static version of the Cost Data tab. Refer to it if you change default data in the Cost Data tab, and subsequently want to re-enter default values.

13 The **Lookup tab** contains calculator programming.

14 The **Waste Logbook tab** provides an example of a food waste tracking spreadsheet that you can use to better characterize the quantity and nature of your food waste. Tracking food waste over time can help identify areas in which your operations can reduce food waste and achieve cost savings.


15 The **Visual Log tab** aids in tracking waste. During the first week of visual assessment monitoring, employees separate out compostable waste from non-compostable waste into two separate bins. At the end of the week, the two different types of bags are weighed and an average is found for the weight of each type of waste. During the following weeks of monitoring, employees estimate the percentage of the capacity of the bag that is filled and the percentage of the waste in the bag that is compostable. These numbers are then recorded and can be multiplied by the original average to achieve a weight estimate of the weight produced.

16

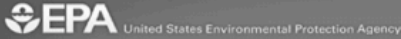
17 Compatible with Microsoft Excel 2007+ for PC and 2011+ for Mac

18 Please direct questions or comments on this cost calculator to: Green Restaurant Research Team at the University of Chicago - eaf@lists.uchicago.edu

This program has been adapted for use by Chicago Restaurants from the original EPA Food Waste Calculator by Jeff Rebertus (EPA)



**GREEN RESTAURANT
RESEARCH TEAM**
AT THE UNIVERSITY OF CHICAGO



XIII. COMPREHENSIVE ANALYSIS TOOLKIT: WASTE

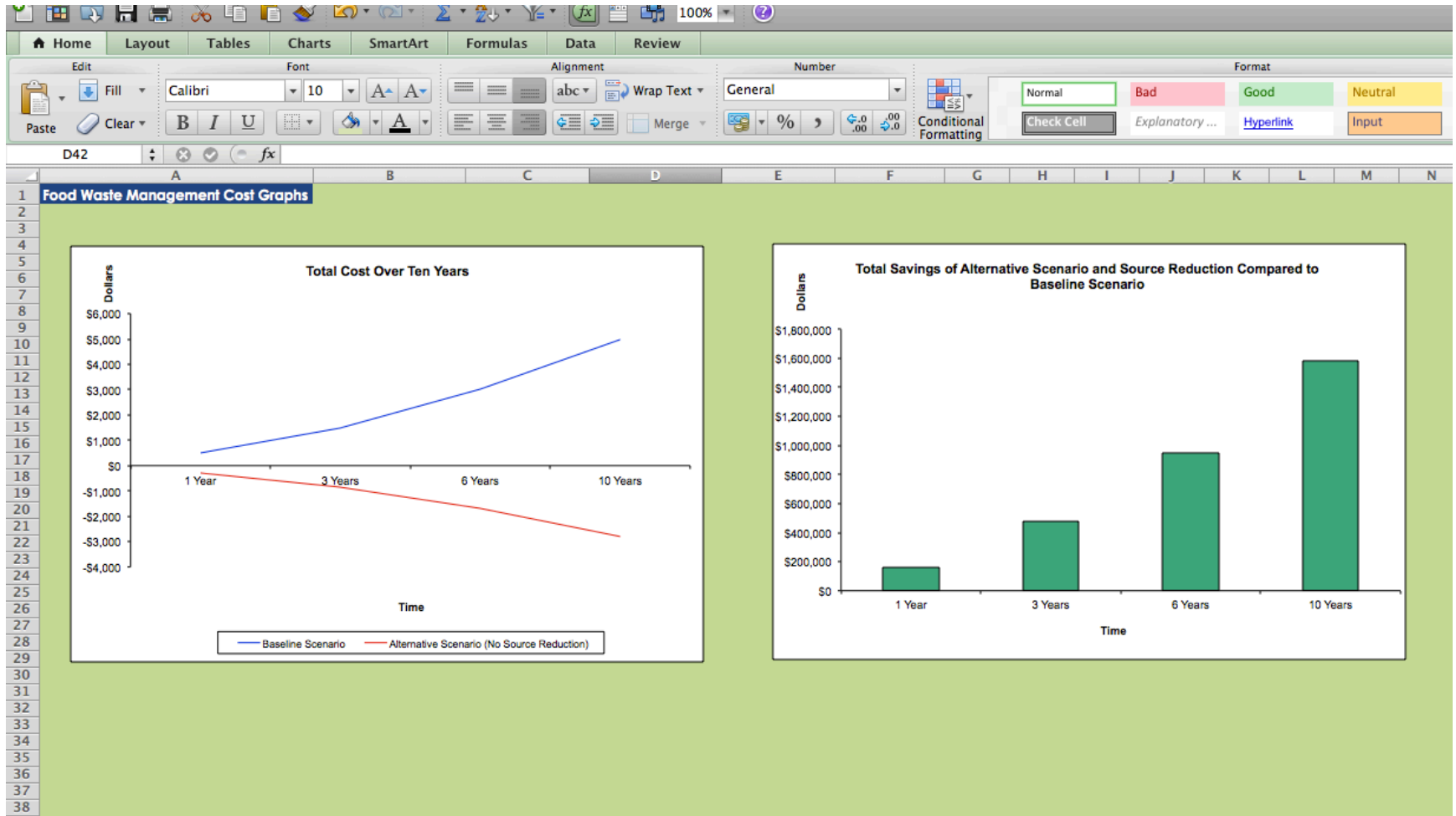
Straightforward and easy data entry.

The screenshot shows an Excel spreadsheet with the following data:

Row	Question	Answer
1	Food Waste Management User Input	
2		
3	Source Reduction	
4	What type of restaurant do you operate?	Catering Service
6	How many pounds of non-perishable food waste do you generate per week?	12
7	What percentage of non-perishable food waste are you willing to source reduce?	10%
8	How many pounds of pre-consumer prepared/whole food waste do you generate per week?	12
9	What percentage of pre-consumer prepared/whole food waste are you willing to source reduce?	30%
10	How many pounds of pre-consumer trim waste do you generate per week?	221
11	What percentage of pre-consumer trim waste are you willing to source reduce?	20%
12	How many pounds of post-consumer plate waste do you generate per week?	200
13	What percentage of post-consumer plate waste are you willing to source reduce?	12%
14	How much yellow grease do you generate per week?	12
15	What is your average purchasing cost per pound for non-perishables?	\$40.00
16	What is your average purchasing cost per pound for pre-consumer prepared/whole foods?	\$12.00
17	What is your average purchasing cost per pound for foods that comprise trim and plate waste ?	\$43.00
18	Non-Perishable Food	
19	Does your facility have access to a local food bank that will accept non-perishable foods?	Yes
20	Does your non-perishable food waste meet the requirements for donation to your local food bank?	Yes
21	Does the food bank offer a regular pick-up service that your facility is eligible for?	Yes
22	Is there a fee for this pick-up?	Yes
23	How is this fee calculated?	Per Trip
24		
25	How much does the pickup cost per trip?	\$5
26	How many trips will be made per month?	7
27		
28		
29		
30		
31	If applicable, enter the estimated value of your annual tax deduction for donation.	
32	Pre-Consumer Prepared/Whole Foods, Trim Waste, and Plate Waste	
33	Food Rescue	
34	Does your facility have access to a local food rescue service that accepts prepared meals?	Yes
35	Are you willing to divert your pre-consumer prepared/whole food waste to a food rescue organization?	Yes
36	Do your pre-consumer prepared/whole foods and food management procedures meet the requirements for donation to a food rescue organization?	Yes
37	Does the food rescue service offer a regular pick-up service that your facility is eligible for?	Yes
38	Is there a fee for the food rescue pick-up?	Yes
39	How is this fee calculated?	Per Trip
40		
41	How much does the pickup cost per trip?	\$5
42	How many trips will be made per month?	7
43		
44		
45		

XIII. COMPREHENSIVE ANALYSIS

TOOLKIT: WASTE



XIII. COMPREHENSIVE ANALYSIS

TOOLKIT: WASTE

Based on your selections and Input, the most environmentally-friendly and cost-effective food waste management scenario for you to employ at your facility is as follows:

Food Waste Type	Food Waste Diversion Strategy
Non-Perishable Food Waste	Disposal
Pre-Consumer Prepared/Whole Food Waste	Disposal
Pre-Consumer Trim Waste	Disposal
Post-Consumer Plate Waste	Disposal
Yellow Grease	For Biodiesel Production

Congratulations! Based on your Input, you would source reduce 62 pounds of non-perishables, 187 pounds of pre-consumer prepared/whole foods, 2,298 pounds of pre-consumer trim waste, and 1,248 pounds of post-consumer plate waste for a total of 3,796 pounds annually.

If you employ the management methods listed above, your facility would save roughly \$158,000 after 1 year and \$1,580,200 after 10 years.

Annually, based the quantity of food waste composted, your facility could potentially reduce the following:

-Particulates equivalent to reducing 0 pounds of PM2.5, which has been linked to respiratory and heart disease. Reducing this level of PM2.5 emissions is equivalent to removing 0 cars off the road for one year.

-Toxics equivalent to 0 pounds of toluene, a toxic chemical that has been found to have acute, long-term, and developmental effects on human health.

-Carcinogens equivalent to 0 pounds of a benzene, a toxic chemical proven to cause leukemia in humans.

-Eutrophication equivalent to 0 pounds of nitrogen, commonly used as a nutrient in fertilizers.

-Acidification equivalent to 0 pounds of sulfur dioxide (SO₂) per year. SO₂ has been linked to acid rain, which damages trees, crops, historic buildings, and monuments; and makes soils, lakes, and streams acidic. This level of SO₂ emissions is equal to the amount of SO₂ generated during the production of 0 Kilowatt-Hours of electricity at the most polluting power plant (in terms of SO₂) in the US.

XIV. SURVEY DESIGN

GRRT RESTAURANT SURVEY

- Designed to Collect:
 - Attitudes/Behaviors of Restaurant Decision-Makers:
 - Owners, Managers, Employees
 - Broad Range of Topics:
 - Food, Supplies, Waste/Water, Marketing, Certification
- Our Goal: Analyze and Predict
 - Current Behavior at Restaurants
 - Motivations for Engaging in Green Practices
 - Possible Incentives to Increase Participation in Green Practices

SPRING QUARTER PLAN

- **Sampling**
 - Representative of Chicago-Restaurant Industry
 - Online Panels
 - Controlled Variables (usually consumer demographics)
 - Industry Expert Interviews
 - Qualitative Data
- **Financing**
 - Searching for University funding
 - For Controlled Chicago-sample
 - \$5/survey
 - n=200; \$1000

XV. QUESTIONS & DISCUSSION

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