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The “Green Eating” Project: A Pilot Intervention to Promote Sustainable and Healthy Eating in College Students

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The “Green Eating” Project: A Pilot Intervention to Promote Sustainable and Healthy Eating in College Students

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INTRODUCTION

Statement of the Problem

People are becoming increasingly more aware of the detrimental nature that our current food supply is having on our environment. Current agriculture and factory farming practices contribute to land degradation, from overgrazing of animals¹ and the practice of monoculturing crops², and can lead to dead zones (areas where no aquatic life can grow) in water. The largest dead zone in the United States is located at the Gulf of Mexico and is caused by agricultural runoff and an overabundance of nitrogen in the water which eventually depletes the oxygen in the water, leaving it uninhabitable for sea life¹. Additionally, the increased use of pesticides has been linked to declining bee populations³ and pesticide-resistance⁴. Food safety issues also arise from our current centralized food system. When food production is centralized to very few meat or produce companies it is easy for large amounts of food to become contaminated. Bovine spongiform encephalopathy (BSE), or “Mad Cow Disease” can end up in the food supply when the unused carcasses of cows are fed back to other cows⁵.

Environmental and food safety issues aside, other issues that may be connected to the structure of our current food system are dietary-related disease like obesity, cardiovascular disease, and diabetes. The current food system uses mass production to produce cheaply made foods in order to decrease expense and increase production. However, these cheaply processed foods are typically high in calories, salt, fat, and sugar. Large amounts of these foods have been linked to the leading causes of death and disease in the United States⁶.

The general public is becoming increasingly aware of the issues that are produced by our current food system. The film media has produced films such as Super Size Me and Food Inc which have become increasingly popular. There has also been an increase in the number of

farmers' markets⁷ over the past few years as well as with organic food sales⁸. People appear to be more interested in where their food comes from, who produced it, and the effect that it has on their bodies.

This interest may be catching on with college students as well. With a possible growing interest in the food system and its effects on the environment, it is possible to design an intervention based on increasing awareness of how sustainable food practices can help to reverse and stop the damage that is being caused by the current food system. Specific behaviors involving food consumption that have been shown to decrease environmental impact include limited meat consumption, eating a plant-based diet, eating organically produced foods, and eating locally produced foods.

The "Green Eating Project" began with a literature review to determine the pro-environmental behaviors of food consumption and then used this information, along with the Transtheoretical Model (TTM) of behavior change, to design an intervention for college students. This pilot study produced a review of sustainable eating, the design of four educational modules promoting sustainable eating practices, design of stage-tailored motivational messages as part of a web-based intervention for college students, and finally it tested the intervention on a sample of students at the University of Rhode Island (URI).

Theory

This intervention applied the TTM of behavior change. The particular constructs of TTM used include Stages of Change (SOC), Decisional Balance (DB), and Self-Efficacy (SE). Interventions have been shown to be more effective when web-based and stage-tailored⁹. The application of stage-tailored interventions based on TTM has been shown to be effective in changing problem behaviors like smoking¹⁰. The central construct of TTM is the SOC construct.

This theory puts individuals in a particular stage based upon how they perceive their motivational readiness to change a particular behavior. The first stage is precontemplation (not intending to change), then contemplation (intending to change in the next six months), followed by preparation (intending to make change in the immediate future), action (have made a change in the past six months), and maintenance (working to prevent relapse)¹⁰.

The DB scale relates to how the individual perceives the advantages (pros) or disadvantages (cons) of behavior change. The pattern of DB for healthy behavior change starts with low pros and high cons in precontemplation, and then as an individual moves through the stages, they have an increase in the perceived advantages and a decrease in the perceived disadvantages¹⁰. Finally, SE refers to the person's confidence in their ability to perform a certain behavior. This intervention attempted to take a sample of college students, determine their individual SOC, DB, and SE, and through the use of a 3-week intervention on "Green Eating (GE)" move them through the stages, increase their perception of the pros and decrease their perception of the cons of the behavior, as well as increase their SE.

METHODS

Study Design

This study was a yearlong project. The first half consisted of designing the intervention, which consists of four educational modules and corresponding motivational messages. The second half of the project consisted of administering a randomized controlled trial (RCT) to a sample of participants at URI. The RCT consisted of two intervention groups, either "Green Eating" or "Sustainable Transportation (ST)". In February 2012, an intervention was administered to a sample of university students in 19 different sections of the Introduction to Communications class. Students who volunteered for the study were sent a survey that evaluated

for GE and ST data and then participants were stratified by class and randomized into one of the treatment groups. The intervention lasted for a total of three weeks at which point the participants were asked to fill out the survey again. The study was approved by the University of Rhode Island Institutional Review Board.

Participants and Recruitment

Participation in this study was voluntary and students were given extra credit for completing the pretest and posttest survey. Participants (n=191) were recruited by class announcements. Enrollment into the study occurred after a student agreed to participate in the study and completed the baseline survey.

Instrument

Survey

The survey was a combination of two previously validated surveys (Green Eating/Alternative Transportation) designed at URI. The pretest and posttest surveys were identical. .

Measures

Stage of Change

A single question was used to identify an individual's particular perceived SOC. Green Eating was first defined as "Eating locally grown foods, produce that is in season and limited intake of processed foods, consuming foods and beverages labeled fair trade certified or certified organic and consuming meatless meals weekly and (if consuming animal products) selecting meats, poultry and dairy that do not contain hormones or antibiotics." Next, participants were

asked to choose an answer that best described their situation at the time, which would indicate their particular SOC: 1. “No, I do not eat green and I do not intend to within the next 6 months (Precontemplation); 2. “No, I do not eat green, but I intend to start within the next 6 months” (Contemplation); 3. “No, I do not eat green, but I intend to start within the next 30 days” (Preparation); 4. “Yes, I have been eating green, but for 6 months or less” (Action); 5. “Yes, I eat green and have been doing so for 6 months or more” (Maintenance). SOC information was used to send participants individual stage tailored “Green Bytes” (motivational messages).

Green Eating Behavior Score

GE Behavior Score was measured for each participant through a set of six questions on the survey. The questions regarded pro-environmental behaviors including choosing locally produced foods, foods from farmers markets, certified organic foods, fair trade certified foods and beverages, and meats and poultry labeled “free range” or “cage free”. The answers were based on a 5-point Likert scale and included: *Barely ever to never*; *Rarely (25%)*; *Sometimes (50%)*; *Often (75%)*; or *Almost always*. Items were scored as 1 for Barely through 5 for Almost Always. Scores were averaged to provide a GE Behavior Score with a range of one to five.

Green Eating Pro Score

A GE Pro Score, or the weight of the perceived advantages of participating in the behavior for the individual, was calculated for each participant in a similar manner. The pro score was calculated using a set of five questions. The participants were asked to rate the importance of each advantage in their deciding to eat green based on a 5-point Likert scale with answers including: *Not at all important*; *A little important*; *Neutral*; *Very Important*; *Supremely important*. Items were scored as 1 for Not at All through 5 for Supremely Important. The five

questions included advantages regarding improving quality of diet, protecting the planet, making them proud, better for their health, and supporting the local economy. Responses to the five questions in the DB scale were averaged to provide a GE Pro Score with a range of one to five.

Green Eating Con Score

A GE Con Score, or the weight of the perceived disadvantages of participating in the behavior for the individual, was calculated using the same 5-point Likert scale and corresponding answers as the GE Pro Score. The GE Con Score consisted of five questions that included disadvantages of eating green which were: not practical in my life, too expensive, too difficult, not available to me, unable to find green foods where I shop. Responses to the five questions in the DB Con scale ranged from one to five. However, unlike the other scales, a low score for cons indicated greatest endorsement of green eating as opposed to other scales where a low score indicated the least endorsement of green eating.

Green Eating Self-efficacy Score

A GE SE Score was calculated for each individual in order to determine their perceived ability to eat green. There was a set of eight questions to determine SE score which also utilized a 5-point Likert scale. The participants were asked to rate how confident they felt that they could eat green under the following circumstances including: when busy, during the semester, when it is inconvenient, when they are eating out, in the dining halls, at home, with family, and over the summer. The answer choices for these questions included: *Not at all confident*, *Not very confident*, *Somewhat confident*, *Very confident*, or *Extremely confident*. The range for SE was 1 for Not Confident through 5 for Extremely Confident. Responses to the eight questions in the self-efficacy were averaged to provide the individual a GE SE Score with a range of one to five.

Demographics

Demographic information collected included ethnicity, age, gender, height, weight, class year, college major as well as food intake information such as cups of fruits and vegetables usually eaten per day.

Procedures

After individuals took the baseline survey and were randomized into a treatment group they were added into either the GE or ST group on SAKAI, the university's class's website. They were prompted to view the first module. The four modules rolled out over a period of three weeks, typically with two to three days in between modules. During the time between modules, two stage-tailored motivational messages ("Green Bytes") per module were sent to each participant through SAKAI as well as their e-mail. Each individual had the opportunity to view four modules and a total of eight motivational messages (See appendix 3 and 4 for the timeline of the intervention and all corresponding e-mail messages). At the end all participants were then prompted to complete the post-test survey.

Intervention

Green Eating Modules

The modules were designed from May 2011 to December 2011. Preliminary research on topics of significant information regarding GE helped to determine the topics for the intervention modules. Based on a literature review, the topics determined included: *Green Eating 101: an Introduction to Green Eating*; *Eating with Ethics*; *Eating Locally*; and *Eating a Plant-based Diet*. The modules were designed using Microsoft PowerPoint software (see Appendix 1 for modules). The modules were meant to be brief and could be completed in less than five minutes with links

to more information if the student wished to learn more on a particular topic. Each module was similar in format and began with a short quiz, an overview of the objectives in that particular module, the information about the objectives which included general information and incorporated links to interactive websites, videos, and printable handouts, and the modules would end with an overview of what was learned, an example of a famous green eater (in attempt to help increase self-efficacy), a sample of goals and encouragement to set a goal this week, and finally an introduction to what would be coming in the next module.

“Green Bytes”

As mentioned, interventions have been shown to be more effective when stage-tailored. While the modules were not stage-tailored, one way to help make the intervention stage-tailored was to design motivational messages to be sent to individuals based on their particular SOC. Messages were constructed based on research into what techniques are more effective in message construction for each particular SOC. In general, individuals in the precontemplation/contemplation stages respond better to messages that are aimed at shifting their decisional balance. For example, a message like, *“Eat green, get lean! Eating a greener diet may help you reach or maintain a healthy body weight!”* would help the individual understand what an advantage of GE behavior would include. It is the goal of these types of messages to increase the individual’s attitude toward the perceived advantages of the behavior and decreasing their attitude toward the perceived disadvantages of the behavior. Messages designed for the ready for action stages (preparation/action/maintenance) are aimed at giving examples of how the individual can participate or maintain their participation in GE behavior. An example of a message in the ready for action stages would be *“Going grocery shopping or out to eat? Don’t*

forget to purchase some locally produced foods! Check out www.farmfreshri.org to find some places that sell local foods.” (See appendix 2 for all messages)

Data Analysis

All statistical analyses were done using IBM Statistical Package for Social Sciences Version 19.0. Chi-square (χ^2) was used to compare differences in categorical variables, independent sample t-tests were run to compare differences in continuous variables, and repeated measures analysis of variance (ANOVA) was used to determine differences between groups for continuous variables.

RESULTS

Baseline data in Table 1 shows that the average age of the 191 participants was 19 years with an average Body Mass Index (BMI) of 23 kg/m². Sixty-three percent of participants were female and 77% lived on campus. The average intake of fruits and vegetables in cups per day was 2.5 cups. The baseline average for GE Behavior Score (\pm standard deviation) was 2.51(\pm 0.73), for GE SE Score was 2.85(\pm 0.77), for GE Pro Score was 3.52(\pm 0.75), and for GE Con Score was 2.89(\pm 0.68). The stage distribution at baseline, shown in Table 2, was 22% in precontemplation, 29% in contemplation, 17% in preparation, 7% in action, and 14% in maintenance.

Results of statistical analyses showed that there were no significant differences in gender, BMI, fruit and vegetable intake, GE Behavior Score, GE SE Score, GE Pro Score, GE Cons Score, or stage distribution between treatment groups. Results also indicated no statistically significant change in main outcome measures from baseline to post-intervention (n=136). Results of repeated measures ANOVA are shown below for main outcome measures.

Outcome Measures

Stage of change

Table 2 shows results of posttest survey data on SOC of completing participants. Comparison of SOC data from baseline to post showed that there was some movement through stages but movement occurred in both treatment groups with no significant difference between groups ($\chi^2 = 5.1$, $p > 0.05$). There was no significant SOC movement found in the GE group from baseline to posttest.

Green Eating Behavior Score

Table 3 indicates data from baseline to post for GE Behavior Score. The results in Table 3 indicate a slight increase in GE Behaviors Score for the GE group but no significant ($p > 0.05$) increase in this score for either group.

Green Eating Pro Score

Table 3 indicates data from baseline to post for GE Pro Score. The results in Table 3 indicate a slight increase in GE Pro Score for the GE group but no significant ($p > 0.05$) increase in this score for either group.

Green Eating Con Score

Table 3 indicates data from baseline to post for GE Con Score. The results in Table 3 indicate a slight decrease in GE Con Score for the GE group but no significant ($p > 0.05$) change in this score for either group. GE Con Score was however trending towards significance ($p = 0.08$).

Green Eating Self-efficacy Score

Table 3 indicates data from baseline to post for GE SE Score. The results in Table 3 indicate a slight decrease in GE Self-efficacy score for the GE group but no significant ($p > 0.05$) increase in GE Self-efficacy Score for either group.

Viewers Only

Table 4 indicates that a significantly higher proportion of participants in the GE group accessed the modules (72%) than in the ST group (53%, $\chi^2 = 6.7$, $p < 0.01$). However, when doing a viewers only analysis as shown in Table 5, there is still no significant ($p > 0.05$) changes in the main outcome measures.

DISCUSSION

The results of this study showed that the GE pilot intervention did not help make any significant movement through stage, did not increase GE Behavior, Pro, or SE Score, and did not decrease GE Con Score for the participants in the GE or ST groups. What this study did find is that 60% of the participants in this study sample were in the pre-action stages. When looking at the number of participants not ready for action and the brevity of the intervention, it would actually not be expected to see movement through the stages for these individuals in such a short period of time. Behavior change for a complicated behavior like GE would not be expected in the period of three weeks. It would be beneficial to have a longer intervention and follow individuals for a period of maybe six to twelve months in order to see the effect of a longer intervention.

Additionally, the intervention did not have an impact on the DB part of the equation. There was a slight increase in GE Pro Score for the GE group and a slight decrease in the GE

Con Score for the GE group, however no significant change in these scores. An intervention that has more impact upon the decision making process of the perceived advantages and disadvantages would maybe be more effective.

One unexpected outcome was a decrease in the SE Score of the individuals in the GE group. We would expect the intervention to increase the SE of the participants; however, it had the opposite effect. This may be attributed to a perceived belief before the intervention that GE was easy. As they learned about GE from the interventions and the complicated nature of it and the amount of things (i.e. eating local, eating organic, eating fair trade, etc.) that they would have to do to be considered a green eater, they may have realized that this is not as easy as they had perceived. If this is the case, we would expect to see a decrease in SE Score because they have actually decreased their confidence in their ability to perform by learning more about GE. Again, a longer intervention that would allow them to set small goals and to build off of these goals may help to increase their SE that was not possible with such a brief intervention. One thing that this does show is that while it may have decreased the participants SE, it shows that they are thinking about the process. It seems from this information that they did learn something even though it was the idea that GE is harder than they had imagined.

When we look at the number of people who viewed the modules we can see that there is some interest in this topic by the students. A total of 62% of participants in both groups most likely viewed the modules at least once. The students received extra credit for completing both surveys and receiving extra credit was not dependent on whether they viewed the modules or not. With this high number of viewers we can probably say that there is interest in GE by this sample of the population.

Post-evaluation feedback was completed by 51 of the participants. A total of six questions were asked in the post-evaluation which included 1. *Rate the degree to which the program motivated you to change*; 2. *Rate the degree to which you liked the program*; 3. *What was your overall opinion of the program?*; 4. *How likely would you be to recommend the program to a friend?*; 5. *What did you like about the program?*; 6. *Ways to improve the program*. The first question asked about how much the program motivated the participant to change their behavior and the answers were based on a 5-point Likert scale which included: *Not at all, slightly, moderately, mostly, and very much*. The majority of the 51 respondents claimed that it moderately motivated (n=27) them to change their behavior and 13 said that it slightly motivated them to change their behavior. The second question which asked how much they liked the program used the same scale and the majority of respondents (n=35) claimed that they mostly liked (n=18) or moderately liked (n=17) the program. Question three asked for their overall opinion of the program which also ranged on a 5-point Likert scale with *not good at all, needs improvement, satisfactory, good, and excellent*. The majority of the participants rated the program as good (n=19) and then as satisfactory (n=16), 9 of the 51 respondents said they needed improvement and 7 rated the program as excellent. The final question using a 5-point Likert scale asked how likely they would be to recommend the program to a friend. The majority of respondents said that they would either moderately (n=19) or mostly (n=14) recommend this program to a friend. The last two questions asked about what they liked and ways to improve the program. Most respondents noted that they liked the information, videos, links, and found the modules informative. Some of the responses for improvements to the modules included more links to videos, shorter modules, more interactive, and include recipes.

Limitations

Limitations of this study included the sample size which was too small to demonstrate significance of the intervention to improve GE behavior. Additionally, the short period of the intervention (three weeks) was also not enough time to move individuals through the SOC and increase GE behavior. The university based sample may not be generalizable to other populations. Also, the use of SAKAI as the platform limits the ability to understand exactly how long participants viewed the modules. We were able to see who accessed the resources tab where the modules were uploaded and how many times they accessed the tab, but we are unable to see which modules were viewed by the particular participants and how long they viewed them.

IMPLICATIONS

This preliminary research leads us to believe that there is an interest in the topic of GE for the students who participated in the study at URI. It is necessary to build and test a longer term intervention in order to see if a GE intervention could truly increase GE behavior. The Nutrition Assessment lab at URI has applied for an innovative technologies grant which will hopefully give the lab the funds they need in order to take the intervention designed in this pilot study and perform qualitative analyses by conducting focus groups and qualitative interviews. Through the use of these interviews, the lab will work with faculty and students from other departments like Natural Resource Sciences for example, to try to design a free-standing interactive website that would be the platform for the intervention. This pilot project is the first of its kind and will be used for the basis of the research to follow. Currently, no known interventions exist that aim to increase sustainable eating behavior in college students.

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Table 1: Baseline description of sample comparison by treatment group

Variable	Green Eating (n=95)	Sustainable Transportation (n=96) Mean ±SD	Total (n=191)
Age (years)	18.93±2.0	18.72±1.2	18.82±1.67
BMI (kg/m ²)	23.03±3.24	23.39±3.48	23.21±3.36
Fruit & Veg (cup/day)	2.57±1.68	2.48±1.48	2.53±1.58
GE Behavior score	2.49±0.74	2.52±0.72	2.51±0.73
GE Self-efficacy score	2.86±0.77	2.84±0.77	2.85±0.77
GE Pro score	3.53±0.81	3.52±0.68	3.52±0.75
GE Con score	2.95±0.67	2.84±0.70	2.89±0.68
		Number (Percent)	
Gender			
Male	33 (34%)	37 (39%)	70 (36%)
Female	64 (66%)	58 (61%)	122 (63%)
Residence			
On-campus	75 (77%)	74 (77%)	149 (77%)
Off-campus	22 (33%)	22 (33%)	44 (23%)
Stage of Change: Pre-contemplation	34 (35%)	28 (29%)	62 (22%)
Stage of Change: Contemplation	30 (31%)	27 (28%)	57 (29%)
Stage of Change: Preparation	16 (16%)	17 (18%)	33 (17%)
Stage of Change: Action	3 (3%)	11 (11%)	14 (7%)
Stage of Change: Maintenance	14 (14%)	13 (13%)	27 (14%)

Table 2: Stage of change at post-test by experimental group

Stage of Change	Green Eating (percent)	Sustainable Transportation Number (percent)	Total
Precontemplation	8 (12%)	16 (23%)	24 (18%)
Contemplation	23 (34%)	19 (28%)	42 (31%)
Preparation	17 (25%)	12 (18%)	29 (21%)
Action	9 (13%)	6 (9%)	15 (11%)
Maintenance	11 (16%)	15 (22%)	26 (19%)
Total	68 (100%)	68 (100%)	36 (100%)

Table 3: Change in outcome measures by experimental group from pre to post

Variable	Group	Pre: mean (±SD)	Post: mean (±SD)	p value	F value (df)	η ²
Green Eating Behavior Score ¹ (n=128)	GE (n=65)	2.52±0.86	2.60±0.87	0.71	0.13 (126)	0.001
	ST (n=63)	2.42±0.81	2.55±0.87			
Green Eating Self-Efficacy Score ¹ (n=129)	GE (n=66)	2.90±0.76	2.96±0.81	0.78	0.08 (127)	0.001
	ST (n=63)	2.88±0.72	2.97±0.74			
Green Eating Pro Score ¹ (n=127)	GE (n=65)	3.62±0.75	3.65±0.79	0.51	0.43 (125)	0.003
	ST (n=62)	3.56±0.72	3.51±0.87			
Green Eating Con Score ² (n=126)	GE (n=64)	2.93±0.64	2.91±0.64	0.08	2.97 (124)	0.023
	ST (n=62)	2.78±0.74	2.97±0.68			

¹Scores 1-5 with 5 equaling greater use of behavior, greater self-efficacy, and greater pros (positive)
²Scores 1-5 with 5 equaling greater cons (negative)

Table 4: Percentage viewed by treatment group

Tx Group	Viewed = Yes	Viewed = No	P value
Green Eating	69(72%)	27(28%)	
Sustainable Transportation	50(53%)	45(47%)	0.009
Total	119(62%)	72(38%)	

Table 5: Change in outcome measures by experimental group from pre to post for module viewers only

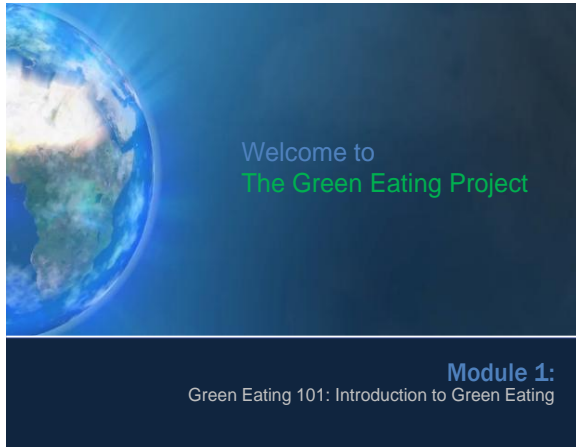
Variable	Group	Pre: mean (±SD)	Post: mean (±SD)	p value	F value (df)	η ²
Green Eating Behavior Score ¹ (n=99)	GE (n=58)	2.55±0.85	2.64±0.87	0.69	0.16 (97)	0.002
	ST (n=41)	2.34±0.87	2.48±0.94			
Green Eating Self-Efficacy Score ¹ (n=100)	GE (n=57)	2.94±0.71	2.97±0.79	0.69	0.16 (98)	0.002
	ST (n=43)	2.94±0.77	3.02±0.71			
Green Eating Pro Score ¹ (n=98)	GE (n=56)	3.68±0.76	3.71±0.79	0.69	0.15 (96)	0.002
	ST (n=42)	3.66±0.64	3.64±0.82			
Green Eating Con Score ² (n=97)	GE (n=56)	2.88±0.64	2.86±0.66	0.10	2.63 (95)	0.027
	ST (n=41)	2.80±0.73	3.00±0.64			

¹Scores 1-5 with 5 equaling greater use of behavior, greater self-efficacy, and greater pros (positive)
²Scores 1-5 with 5 equaling greater cons (negative)

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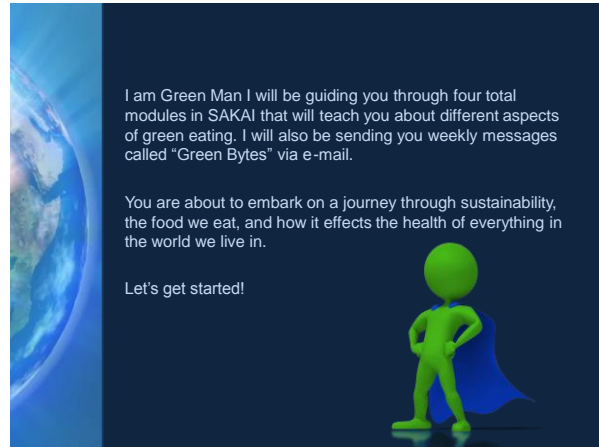
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Appendix 1: Modules



Welcome to
The Green Eating Project

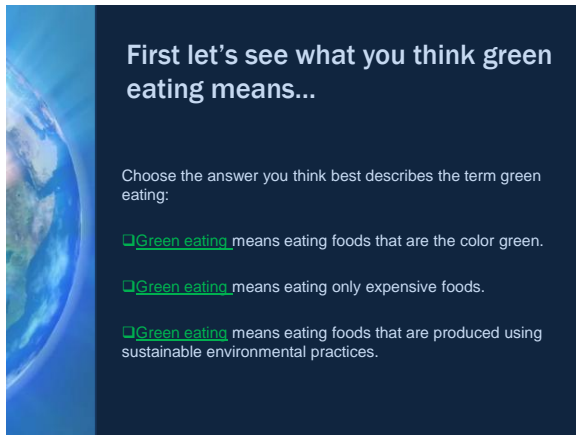

Module 1:
Green Eating 101: Introduction to Green Eating



I am Green Man I will be guiding you through four total modules in SAKAI that will teach you about different aspects of green eating. I will also be sending you weekly messages called "Green Bytes" via e-mail.

You are about to embark on a journey through sustainability, the food we eat, and how it effects the health of everything in the world we live in.

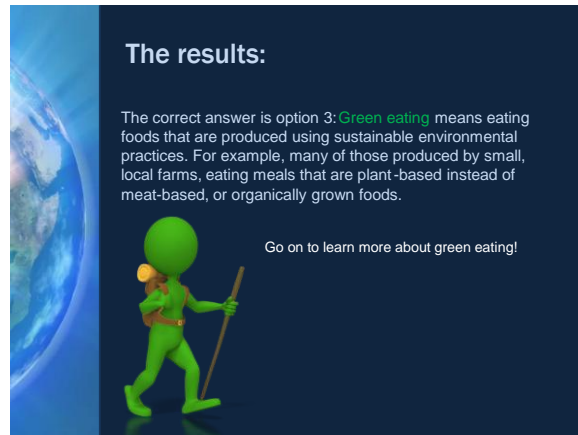
Let's get started!



First let's see what you think green eating means...

Choose the answer you think best describes the term green eating:


- Green eating** means eating foods that are the color green.
- Green eating** means eating only expensive foods.
- Green eating** means eating foods that are produced using sustainable environmental practices.



The results:

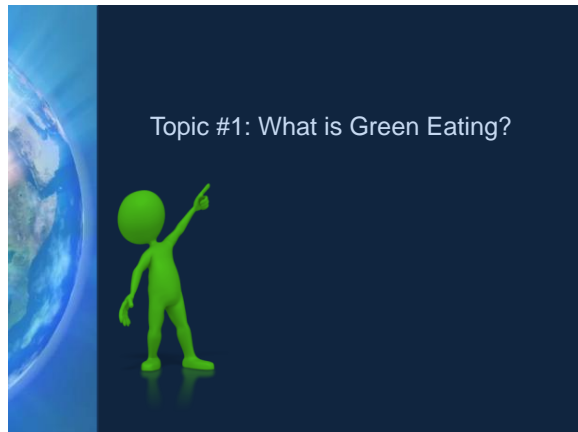
The correct answer is option 3: **Green eating** means eating foods that are produced using sustainable environmental practices. For example, many of those produced by small, local farms, eating meals that are plant-based instead of meat-based, or organically grown foods.

Go on to learn more about green eating!




Today's topics:

- What is green eating?
- What are food systems?
- Issues with unsustainable food systems
- The alternatives: the principles of green eating



Topic #1: What is Green Eating?



What is Green Eating?

Green eating refers to the consumption of food and beverages utilizing principles of *sustainability*.






Green = Sustainable

So what does sustainable mean???

Sustainable refers to processes that replenish environmental resources




Unsustainable refers to processes that subtract environmental resources without replenishing them



Sustainable vs. Unsustainable Food Systems

<p>Sustainable</p> <p><i>Gives back to the resources on which it depends:</i></p>  <p style="text-align: center;">Profitable without damaging environment</p>	<p>Unsustainable</p> <p><i>Destroys resources on which it depends:</i></p>  <p style="text-align: center;">Profitable only through damaging environment</p>
--	--

Topic #2: What are food systems?



Food Systems

Food systems describe the ways in which our food gets to our plate. The two food systems that produce the food we eat are:

The Conventional (or Industrial) Food System: how most of our food is produced



Click on this image to watch a video about the industrial food system

The Alternative (or Sustainable) Food System



Click on this image to read more about sustainable food systems

Let's compare!


Conventional vs Alternative Food Systems

<p>Conventional:</p> <ul style="list-style-type: none"> •Unsustainable •Uses monoculture (growing of only one crop in one place) •Based on mass production •Relies heavily on non-renewable energy like fossil fuels for production and distribution 	<p>Alternative:</p> <ul style="list-style-type: none"> •Sustainable •Uses polyculture (grows a variety of crops and/or animals) •Based on locally produced foods utilizing practices that give back to the resources used •Relies on renewable sources for energy
---	--

Your average conventionally produced food travels 1500 miles!

[Click here to take a tour of the conventional food system](#)

Topic #3: Issues with unsustainable food systems




1. Energy
2. Pollution
3. Health
4. Food Safety

Issue #1: Energy

Problem: Production relies on non-renewable fossil fuels:

- Requires nitrogen fertilizers,
- Diesel gasoline for equipment and
- Petroleum for herbicides and pesticides




17% of fossil fuels used for industrial purposes is used on food. That is equal to the total amount used on transportation.

Click on this image to see 300 years of fossil fuel history in 300 seconds

Issue #2: Pollution

Problem: The large amounts of pesticides and fertilizers used cause detrimental effects to the environment:

- Pests thrive on monocultures which leads to an increased need for pesticides
- Nitrogen from fertilizers leaches into streams and oceans causing dead zones in water where no life will grow. The world's second largest dead zone is in the Gulf of Mexico



The Gulf of Mexico dead zone is roughly the size of New Jersey!


Click on this image to watch a video about this dead zone

Issue #3: Health

Problem: Mass production of cheap, processed foods ≠ healthy population:

- The top 3 leading causes of death in the US are:
 - Heart disease
 - Cancer
 - Stroke


All 3 diseases are diet-related



- Cheap, processed foods are typically high in calories and low in nutrients
- Consuming cheap, processed foods contributes to increased risk of these diseases

Issue #4: Food Safety

Problem: The industrial food system is a **centralized** food system in which many of the foods are produced in the same area.



- If *some* of the food becomes contaminated then *all* of the food can become contaminated
- This can lead to widespread outbreaks of food-borne illness, such as e-coli, which can result in severe sickness even death
- Leaves our food system vulnerable to external threats including terrorist attacks

[Click here for a history of outbreaks of food-borne illnesses](#)

Topic #4: The alternatives - the principles of green eating



Green eating principles

Some alternatives to an industrial food system that we will be discussing over the next few weeks:

- Eating considering **ethical** aspects of food production
- Eating **locally produced** food from trusted farmers
- Eating **plant-based** meals




See how green your eating is by using the [Green Eating Calculator](#).

What we learned today:

- The majority of our food is being produced in an unsustainable way
- Unsustainable food systems cause problems to our health and the world we live in
- There are many alternative choices that we can choose to promote sustainable food systems

Today's famous **green eater**: Natalie Portman




Not only is Natalie a longtime vegetarian, she also designed her own line of animal-friendly shoes called Te Casan.

Set a green goal this week!

Goals should be challenging but attainable, here are some examples you may want to try today or tomorrow:


- Find one locally produced food on or off campus and try it.
- Skip the meat, poultry, or fish for at least one meal.
- Assess what you're eating using the Green Eating calculator and make one healthy change to your diet.
- Or make your own goal!

See you soon!



Next time we will discuss:

"Ethical Eating"



Welcome back to
The Green Eating Project

Module 2:
Ethical Eating

First let's see how you compare to your classmates...

Definition of green eating:

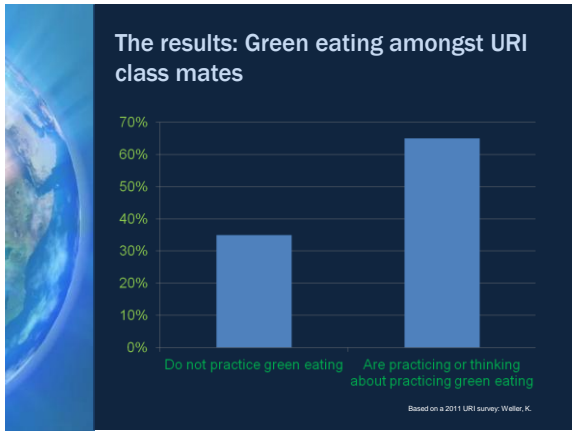
Green eating includes participating in most of these behaviors:

- Eating locally grown foods, produce that is in season and limited intake of processed foods.
- Consuming foods and beverages that are labeled fair trade certified or certified organic.
- Consuming meatless meals weekly and (if consuming animal products) selecting meats, poultry, and dairy that do not contain hormones or antibiotics.

The Question:

Based on the above definition for green eating, click which of the following best describes you now:

- I do not regularly practice green eating and do not intend to start within the next 6 months
- I am thinking about practicing green eating within the next 6 months
- I am planning on practicing green eating within the next 30 days
- I regularly practice green eating and have been doing so for less than 6 months
- I regularly practice green eating and have been doing so for 6 months or more



The results:

Almost twice as many of your classmates are practicing green eating or thinking about it compared to those who are not!

Today's Topics:

- What are the ethics of eating?
- Why consider ethics when eating?
- How to be an ethical consumer
- Understanding labels

Topic #1: What are the ethics of eating?

What is ethics?

Ethics are moral principles that govern a person or group's behavior

So basically, the ethics of eating are moral principles that govern a person or group's food choices

Your food choices impact others

Environment

Animals

People

Food for thought

Some questions you can ask yourself when considering food choices are:

- Were the animals or animal products I am eating humanely raised?
- Were polluting pesticides used to grow the fruits and vegetables I am eating?
- Was the food I consume made using sustainable practices?
- Were the people who produced my food paid living wages and given decent working conditions?

Topic #2: Why consider ethics when eating?

1. The environment
2. The animals
3. The people

Consideration #1: The Environment

Conventional farming practices can:

- Decrease biodiversity (variety of living things)
- Pollute water, land and air with chemical fertilizers and pesticides
- Contribute to soil erosion
- Use large amounts of fossil fuels for production and transportation

Fossil energy inputs are about 30% higher in conventionally produced corn than organically produced.

Consideration #1: The Environment

Concentrated Animal Feeding Operations (CAFOs) are:

- Facilities where large numbers of livestock (cattle, swine, poultry, or other animals) are raised in confined spaces in order to generate the most profit.

Wastes from these operations can:

- Contaminate drinking water with manure, pathogens, and antibiotics
- Contribute to respiratory disorders from dust and odor
- Destroys habitats and populations of surrounding wildlife
- All having negative impacts on the environment and public health

<http://www.epa.gov/gpo2/materials/cowsheds.htm>

Consideration #2: The Animals

CAFOs are also known as factory farms

- Most animals raised for food in the United States come from factory farms
- In factory farms animals are held in confined spaces indoors. They often never go outside during the course of their lives

Some practices that factory farms have been known to use which involve removing animal body parts include:

- Debeaking
- Tail docking
- Ear cutting
- Castration

Germany became the 1st country to grant animals a constitutional right.

<http://www.humanityfirst.org/media/2006/10/06.htm>

Animal Cruelty

Click on the image to view a video of recent animal cruelty in the United States




www.humanascruelty.org

Consideration #3: The People

Farm workers consist of:

- Field crop workers
- Nursery workers
- Those who tend to livestock, ranch, and aquaculture animals
- Those who tend to animals that produce meat, fur, feathers, eggs, milk, honey, etc.
- Farm workers are those people who may produce, pick, clean, and package foods.



The United States gets its food from many different countries as well as domestically. Farm workers from all over the globe are responsible for the food that reaches your plate.

Consideration #3: The People

In the United States, as well as other countries, there are a few groups of people who typically work on farms:

- Hired farm workers (often migrant or seasonal farm workers)
- Family of the farm
- Forced laborers

Forced labor is involuntary work conducted under the threat of penalty rather than voluntary work for the reward of payment. Forced labor is considered modern day slavery.

In 2004, it was estimated that 10% of laborers in agriculture in the United States were forced laborers.

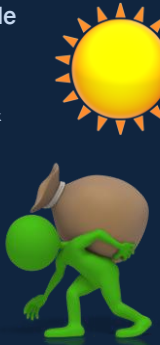
In 2010, two individuals were indicted for running forced labor rings in Florida.

Consideration #3: The People


Some issues facing many farm workers:

- Physically demanding 8-12 hour days in various weather conditions, including sweltering heat
- May receive very little break time and often work with no bathroom
- Exposure to pesticides, herbicides, hazardous dusts and prolonged exposure to UV rays resulting in many health problems including cancers
- Often earn wages below the federal poverty line and have limited access to health care and housing

Remember:
Food is kept cheap due to hidden costs to the workers, animals, and environment



Topic #3: How to be an ethical consumer



Ways to be an ethical consumer


The ethical treatment to workers, animals and the environment lie in your FOOD CHOICES

Cast your vote with your fork at every meal by choosing:

- Locally grown/raised foods from trusted producers
- If you can't eat local choose fair-trade foods
- Purchase products from companies concerned with sustainability
- Choose food manufacturers that treat their animals humanely



Topic #4: Understanding labels



Labels and terms to look for

“Grass-fed” “Pasture-raised”

“Locally produced”



Click on any of the images to find out more!

Where to find ethical foods

[Pat's Pastured](#)
Where you can find locally, ethically, and sustainably raised poultry, livestock, eggs and more!

[Eat Well Guide](#)
For all sustainable foods

[Food for Thought](#)
Organic and natural food store in Wakefield, RI


[Whole Foods](#)
Organic and natural grocery store in Providence, RI

[193° Coffeehouse in Memorial Union](#)
Fair trade coffee and tea at URI

What we learned today:

- Eating should include ethical considerations
- The foods we chose to eat can positively or negatively effect people, animals and the planet
- There are many labels that can help identify ethically produced food products

Today's famous **green eater**: Leonardo DiCaprio




Here is one celebrity you may see on a commercial flight. Not only does Leo refuse to travel on private planes, but he also began a group, called the [Leonardo DiCaprio Foundation](#), to raise awareness of environmental issues.

Set a green goal this week!

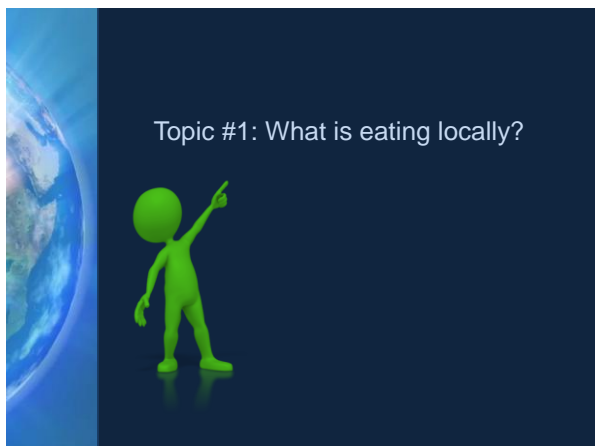
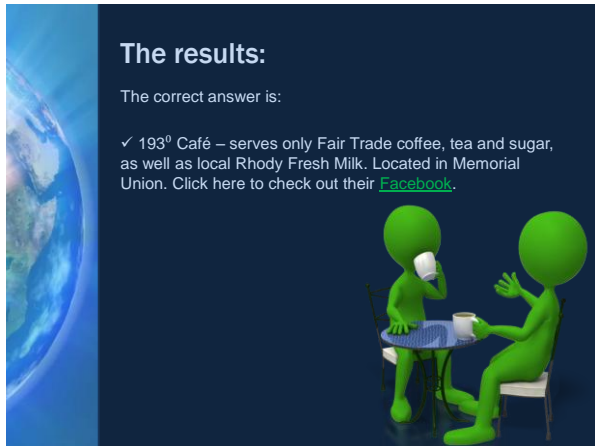
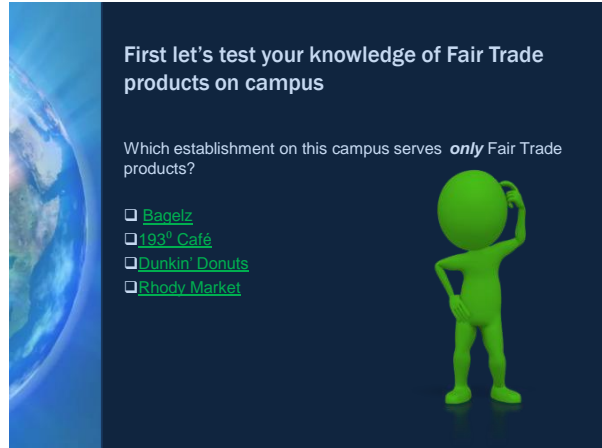
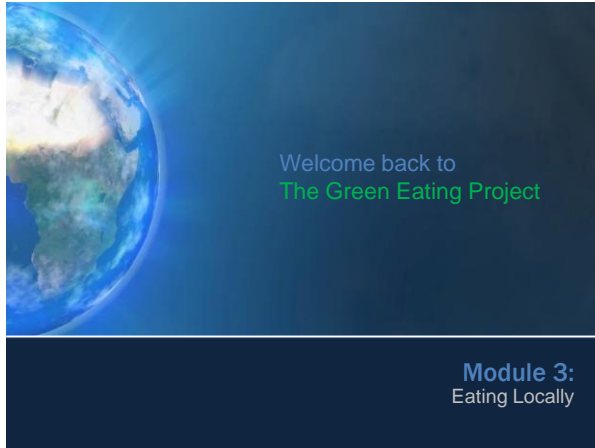
Goals should be challenging but attainable, here are some examples you may want to try today or tomorrow:

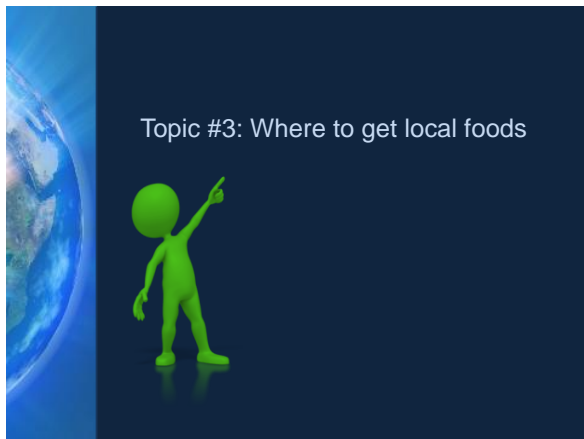
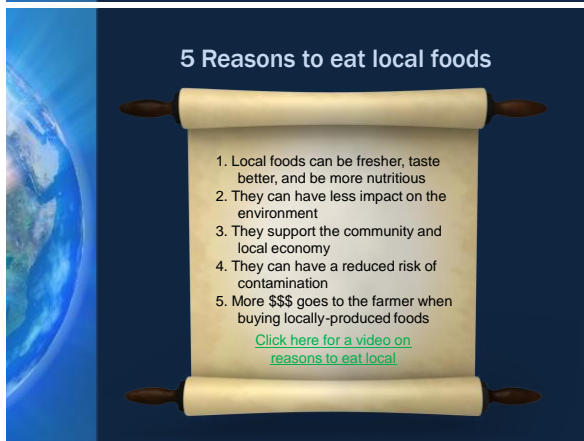
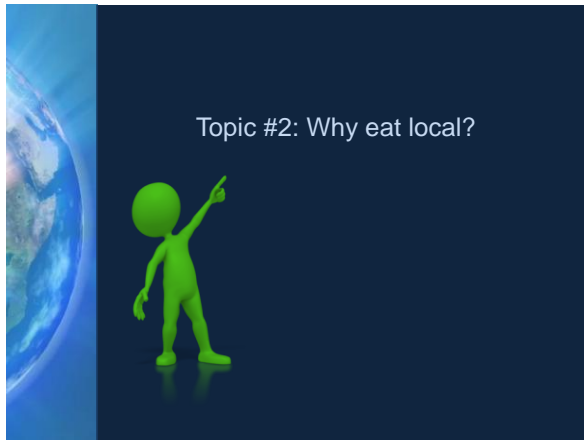
- Visit the 193° Coffeehouse in the Memorial Union and try a fair trade product.
- Find a food with one of the labels shown earlier and try it!
- Discuss the importance of ethical eating with a friend.
- Or make your own goal!

See you soon!



When we will discuss:
“Eating Locally”





Places to get local foods in RI



- Good resources for all things local:
 - LocalHarvest.org
 - EatWellGuide.org
- Farm stands/U-pick's:
 - [RI Local food guide](#)
- Farmer's Markets:
 - [Click here to find farmer's markets in Rhode Island](#)
 - [And try here to find farmer's market all over the country.](#)
- Food Co-ops:
 - [Here is the link to one located right in Wakefield, RI](#)
- Community Supported Agriculture (CSAs):
 - [Check this out for a brochure on CSA's in Rhode Island](#)
- Health food stores and grocers:
 - [Whole Foods](#)
 - [Food for Thought](#)
- Even stores like Shaw's and Stop 'n Shop are selling some locally produced foods



Finding local foods at URI dining halls

Check out the weekly menus for [Butterfield](#) and [Mainfare](#)


The menus use these symbols to tell you whether foods are

-  Vegetarian
-  Vegan
-  Local

If you choose these foods you can be sure you are eating green!

Don't eat at campus dining halls? Check out this link to learn how to pack a [waste-free lunch!](#)

Topic #4: How can I eat locally all year round?



Eating locally year round

During the growing season it can be easy to find a variety of locally produced foods from farmer's markets and the other places we just listed.

But how can you eat locally during a New England winter???

3 words:
Winter Farmer's Markets



Winter Farmer's Markets

Here are four farmer's markets in Rhode Island that are open all year long. Wintertime markets go from November to April:

- [South Kingstown farmer's market](#)
- [West Warwick farmer's market](#)
- [Pawtucket farmer's market](#)
- [Mount Hope farmer's market](#)



Eating Seasonally

Eating seasonally is one way to eat local all year round

To do this, buy foods that are locally in season from any of the places just listed or other places that sell local produce

Continue to the next slide to find out what is in season and when in Rhode Island...

You can eat local no matter what the season!



Local Food Availabilities


SPRING Salad Greens Kale Asparagus Collards Cabbage	SUMMER Broccoli Carrots Cucumbers Cherries Peaches
AUTUMN Tomatoes Spinach Grapes Apricots Cranberries	WINTER Mushrooms Winter Squash Wheat Grass Sprouts Cauliflower

[For a complete printable list of foods in season click here!](#)

What we learned today:

- Eating local can mean many things, the most important thing is knowing where your food came from
- There are many different places that you can get local foods including local farms, grocers, and even the dining halls!
- One way to eat locally all year round is to eat foods that are in season from local producers

Today's famous **green eater**: Alicia Silverstone



This long time green eater is not only a vegan but also started her own line of natural beauty products. She is also the author of the book *"The Kind Diet"*.


Photo credit: Taty Carter/Getty Images

Set a green goal this week!

Goals should be challenging but attainable, here are some examples you may want to try today or tomorrow:

- Check out this website to browse recipes by season and try one! harvesteating.com
- Choose a food that is in season, like winter squash and try it!
- Check out the dining halls menu and make at least one meal with the local, vegetarian or vegan food choices!

See you soon!



When we will discuss:

"Eating a Plant-Based Diet"

Welcome back to


The Green Eating Project

Module 4:
Eating a Plant-Based Diet

Test your knowledge of meat production:

Guess the amount of irrigation water used annually to produce feed for livestock:

- 100 million gallons
- 1 trillion gallons
- 140 billion gallons
- 14 trillion gallons




The results:

✓ The correct answer is D:
14 TRILLION GALLONS is needed to produce enough feed for livestock nationally. This does not include the water used in production or any other part of meat processing...




This is almost as much water in the Chesapeake Bay being used yearly to feed livestock!

Today's Topics



- What is a plant-based diet?
- The effects of animal products on the environment and human health
- The benefits of a plant-based diet
- Plant-based diet survival tips

Topic #1: What is a plant-based diet?




Different levels of plant-based diets

Vegan – excludes all animal products

Lacto vegetarian – excludes meat, poultry, fish and eggs

Lacto-ovo vegetarian – excludes meat, poultry and fish but allows eggs and dairy

Semi-vegetarian – a mainly plant-based diet but includes meat, poultry, fish, eggs, dairy and eggs on occasion or in small quantities



Strange but true: the average meat-based diet requires up to 5 times more land than vegan and vegetarian diets

Topic #2: Animal products, the environment and human health



Enter "The Meatrix"

Winner of the 2005 Webby Award and viewed by over 15 million people, "The Meatrix" will change the way you look at meat! Click the image to view "[The Meatrix](http://www.themeatrix.com)":



Where do animal products come from?

Factory Farming

The majority of animal products we eat such as beef, pork, poultry, milk, and eggs come from industrialized farms or CAFOs as discussed in Module 2.



www.aindustrial.org

Aquaculture

A lot of the fish eaten in this country are also farmed. Aquaculture is the practice of fish farming.



http://www.specificmeat.com/wiki.com/farmpaquaculture-replace-fish-stocks

Industrial food production


Uses large amounts of:

- Chemical fertilizers
- Pesticides
- Fossil fuels
- Water
- Feed (grain)

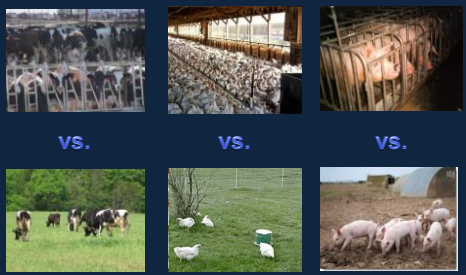
It also causes:

- Greenhouse gas emissions
- Pollution
- Depletion of resources

Meat and dairy production are two of the most environmentally damaging elements of agriculture.




Industrial vs. Traditional production



Since the 1940's food production has changed from traditional methods to industrial methods


Animal products and the environment

Meat production affects all aspects of the environment



The effects of animal feed

- Most livestock are fed soybean, corn, or other grains.
- Animal feed is an inefficient use of energy conversion. For example, it takes 7 kilograms of feed to make 1 kilogram of beef.
- To produce enough grain every year for livestock in the U.S. it takes 149 million acres of cropland, 167 million pounds of pesticides and 17 billion pounds of fertilizer.

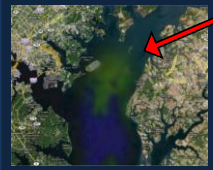


It takes 1,000 tons of water to grow 1 ton of animal feed.

Dead Zones: closer to home

The fertilizers used to grow feed can lead to the production of nitrous oxide, a greenhouse gas emission.

The nitrogen and phosphorous from pesticides and fertilizers can lead to agricultural runoff. This is when they end up in rivers and groundwater, polluting water supplies and hurting marine life.

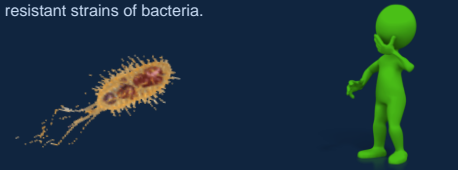


This is a picture of the Chesapeake Bay dead zone which is surrounded by Maryland and Virginia, and parts of New York, Pennsylvania, Delaware, and West Virginia. Click the image to see a short video on this dead zone.

Problems with animal feed

Animal feeds contain many things besides nutrients. They sometimes contain animal wastes and tissues. These contaminants sometimes transmit diseases such as "Mad Cow Disease" which can be dangerous in the food supply.

To combat these diseases, factory farms have been adding antibiotics to the animal feed which may lead to antibiotic-resistant strains of bacteria.



Animal farm waste and pollution

Examples of waste and pollution from the production of animals includes:

- Feces (manure)
- Urine
- Methane gas
- Unused carcasses
- Excess feed
- Feathers



What do they do with all that waste???

It gets stored or spread on the land as fertilizer. Waste can contaminate soil and water and can emit greenhouse gases

- Animal waste can effect the air, water, and land
- Animal waste may contribute to dead zones
- Animal waste is also a major risk to public health



Livestock in the U.S. produce 600 million tons of manure yearly. That is three times more than the entire human population.

Factory farms and human health

From production of meat:

Workers and people living in communities surrounding industrial animal farms breath in air polluted with dust, mold, ammonia, hydrogen sulfide and bacteria, all produced by manure.

Some reported health effects:

- Headaches
- Nausea
- Respiratory problems
- Other physical and mental illnesses



Around 30% of industrial animal farm workers have respiratory diseases such as asthma.

Animal products and human health

From consumption of meat:

Meats and animal products are a major source of saturated fat and cholesterol in the American diet.

A well-planned plant-based diet containing vegetables, fruits, whole grains and low-fat dairy can help protect against these diseases.


Risks associated with eating foods high in saturated fat and cholesterol include:

- Obesity
- Heart disease
- Diabetes
- Stroke
- Cancer



In one year, the average American family of four eats 120 chickens, 4 pigs, and 1 entire cow!

Topic #3: Plant-based diet survival tips



Plant-based diet survival tips:

- Not a vegetarian? Leaving meat out of your diet even one day a week makes a huge difference on the environment! Check out the [Meatless Monday](#) website to find out more and also to find some great vegetarian recipes!
- Many ethnic cuisines are vegetarian. Try incorporating some dishes from Indian, Asian, and Mediterranean cuisines into your diet. For recipes and to learn more about ethnic foods check out [Ethnicvegan.com](#).




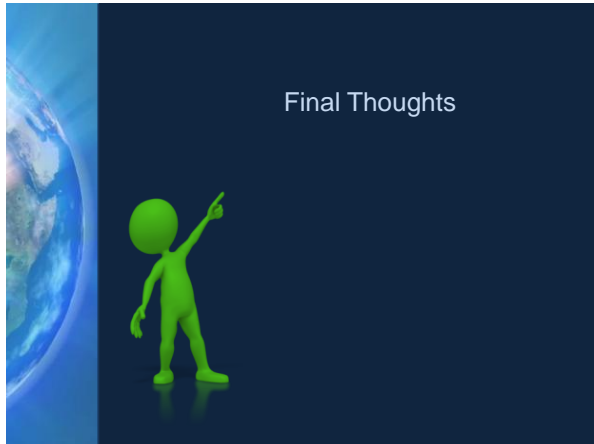
Plant-based diet survival tips:

- Worried about missing protein and other important nutrients with a plant-based diet?
- Soy is a great source of protein (one of the few complete sources among plant foods)! You can also get complete proteins by combining different types of plant foods like rice and beans for example.

Click on the links below to learn more about these individual nutrients:

- [Protein](#)
- [Iron](#)
- [Vitamin B12](#)



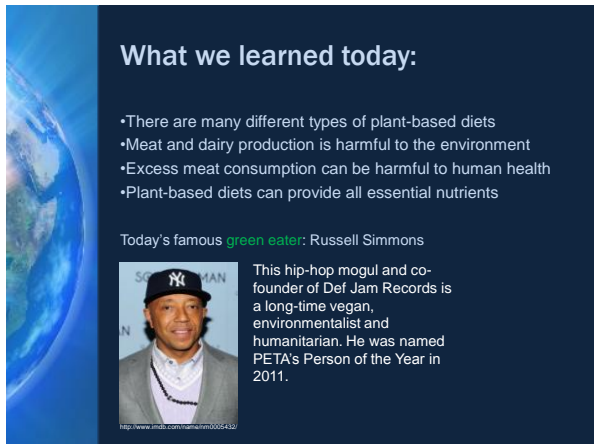



Final Thoughts



Green Eating Guiding Principles

- #1 Eat locally grown, organic, plant-based foods (vegetables, fruits, grains).
- #2 Choose local, or at least foods that were not transported by plane or boat.
- #3 Reduce your meat consumption and choose local, organic, and pasture-raised dairy, meat, and eggs, as well as grass-fed beef.
- #4 When purchasing imported foods or beverages choose fair trade when possible.
- #5 Support companies that consider sustainability a priority over those which do not.



What we learned today:

- There are many different types of plant-based diets
- Meat and dairy production is harmful to the environment
- Excess meat consumption can be harmful to human health
- Plant-based diets can provide all essential nutrients

Today's famous **green eater**: Russell Simmons



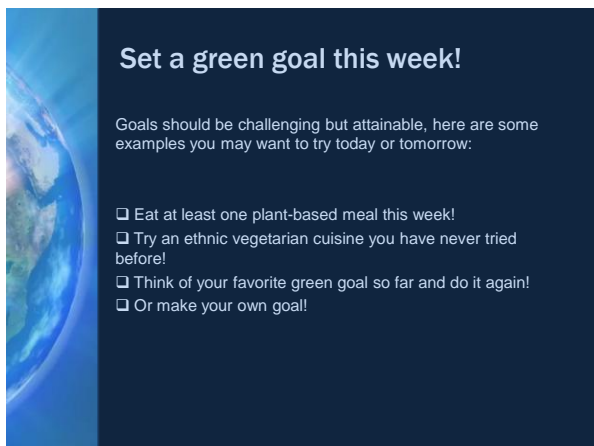
This hip-hop mogul and co-founder of Def Jam Records is a long-time vegan, environmentalist and humanitarian. He was named PETA's Person of the Year in 2011.

<http://www.embz.com/nas/nas1005430/>



Remember

Green eating is not all or nothing.
Try to eat green whenever you can by using the principles of green eating and help make our world a better place to live!



Set a green goal this week!

Goals should be challenging but attainable, here are some examples you may want to try today or tomorrow:

- Eat at least one plant-based meal this week!
- Try an ethnic vegetarian cuisine you have never tried before!
- Think of your favorite green goal so far and do it again!
- Or make your own goal!



CONGRATUALIONS!

You have successfully completed
"The Green Eating Project!"
modules



Here is a link to the final survey. Thank you for participating! Stay tuned for your final green bytes!

Appendix 2: “Green Bytes” (Motivational Messages)

Week 1: Green Eating 101: Introduction to Green Eating

Precontemplation:

1. Eat green, get lean! Eating a greener diet may help you reach or maintain a healthy body weight!
2. When you choose locally produced foods you benefit the climate and support the local economy.

Contemplation:

Meat-eaters

1. Adopting practices like eating meat one less day each week will make a positive impact on our world.
2. Did you know that reducing your consumption of red meat may benefit your health? A large study found that people eating lots of red meat increased their risk of dying from heart disease by 27%.

Vegetarians

1. Congratulations! You are eating green by being a vegetarian. Did you know that if you buy your vegetables from local producers you can help reduce your environmental impact on our world even more?
2. When you choose locally produced foods you benefit the climate and support the local economy.

Preparation:

1. Interested in sustainability? There are many groups you can talk with on campus, like Slow Food. Check out their blog: <http://slowfooduri.wordpress.com/>.
2. You cast your vote for our food system 3 times each day; today try to cast one of those votes for alternative food systems by eating a vegetarian meal or choosing locally produced foods.

Action:

1. Have you had a meatless day yet this week? If not, make today a meatless day! If you have, see if you can make it two this week!

2. Want to know how you can get more involved with sustainability on campus? Do a keyword search for ‘sustainability’ at uri.edu and check out the groups involved with sustainability. Join one this semester.

Maintenance:

1. Although it may be hard to eat green under the stress of school work, you know it will benefit your health and the environment if you do. Keep a supply of sustainable snacks, like locally produced fruits and veggies (i.e. apples and carrots), around so you know you can make green decisions even under stress.

2. Try teaching one of your friends about sustainable eating this week.

Week 2: Eating with Ethics

Precontemplation:

1. Organic food is catching on. Did you know over 75% of consumers in the US purchase organic products?
2. Did you know livestock production is responsible for 70% of deforestation in the Amazon rainforest? Think about eating less meat.

Contemplation:

1. Grass-fed beef is better for the environment than grain-fed beef and better for your health.
2. Did you know that it takes 1,800 gallons of water to produce one pound of beef?

Preparation:

1. An easy way to eat green is to buy foods from local producers whom you know and trust.
2. For at least one meal today, think about who produced that food and how it got to your plate.

Action:

1. Are there still many foods you eat that are not considered green? Think about one of those foods and try to replace it with a more sustainable choice today.
2. Remember, reducing your consumption of animal products can help the environment as well as decrease fat and cholesterol in your diet.

Maintenance:

1. Going out to eat? Don’t forget to think of ways you can eat green while eating out! Try a vegetarian meal or go to a restaurant that purchases from local producers.
2. Remember that eating a veggie-based diet is healthy for you and the environment.

Week 3: Eating locally

Precontemplation:

1. Eating locally grown fruits and vegetables is a great way to improve your impact on our world.
2. By eating locally, around \$.90 of each food dollar goes to the farmer as opposed to \$.20 on the dollar when buying foods produced in other places. That's a difference of \$.70 more going to the farmer!

Contemplation:

1. Not ready to eat locally? Visit www.eatlocalchallenge.com to read about one person's experience with eating local.
2. Did you know that shopping at farmer's markets will help you find good fruits and vegetables?

Preparation:

1. Was eating local one of your goals this week? If so, try a new fruit or vegetable from a local producer. What other ways could you achieve this goal?
2. Have any friends that visit farmer's markets? Take a trip with them to buy some local goodies!

Action:

1. Ready to step up your game? This week try to commit to using 10% of your food bill on foods produced within 100-miles of where you are living.
2. You have learned that eating local is great for the economy. What is your next goal? Can you think of any foods you can get locally in the winter that you have never tried before? Pick a new food and try it this week.

Maintenance:

1. Going grocery shopping or out to eat? Don't forget to purchase some locally produced foods! Check out www.farmfreshri.org to find some places that sell local foods.
2. Don't see enough local foods at your grocery store, dining hall or favorite restaurant? Let the people in charge know that you would like to have more local options available.

Week 4: Eating a Plant-based diet

Precontemplation:

1. If everyone in the US ate no meat or cheese one day a week for one year, it would be equivalent to taking 7.6 million cars off the road.
2. Meat-based diets use around 3 times as many resources as plant-based diets.

Contemplation:

1. If everyone in the US ate no meat or cheese one day a week for one year, it would be equivalent to taking 7.6 million cars off the road.
2. Eating less red and processed meats can reduce your risk of obesity, heart disease, and cancer.

Preparation:

1. Commit to a new goal. Eat a plant-based diet one day a week or try a vegetarian dish at the cafeteria or at home today.
2. Support local! Try some local Rhody Fresh milk this week!

Action:

1. Worried that you will be missing out on protein with a plant-based diet? Try some foods like tofu, quinoa, chickpeas, or seitan or drink milk or yogurt for your protein.
2. Remember, reducing your consumption of animal products can help the environment as well as decrease fat and cholesterol in your diet.

Maintenance:

1. Worried that you will be missing out on protein with a plant-based diet? Try some foods like tofu, quinoa, chickpeas, or seitan, which will give you about as much protein as meat.
2. There are high-fiber, high-energy ways to get plenty of protein. Try packing some snacks for class like almonds, walnuts, or make your own special mix!

Appendix 3: Project Timeline

1/26 – Participant Recruitment Begins:

Pre-test survey is sent out (Instructors post link to SurveyMonkey link to their SAKAI course sites: <http://www.surveymonkey.com/s/GETSurvey2012>)

(Pre-test survey closes 2/5 at midnight and again 2/6 at midnight)

Control group SurveyMonkey link: <http://www.surveymonkey.com/s/GETStudySurvey>

2/5 – Pre-test survey “closes” at midnight

2/6 – Participants are stratified by class and randomized to either group after midnight.

Introduction e-mail is posted to “Announcements” section on SAKAI and sent to participant’s e-mail (see Appendix 1) at 2pm

Module 1 is sent out at 2pm

Survey officially closes at midnight (any new participants are now stratified and randomized to either group and send intro e-mail)

2/7 – Message 1 is sent to all participants at 2pm

Module 1 is sent to any participants that completed the survey on 2/6

Baseline data analysis begins

2/8 – Message 2 is sent to all participants at 2pm

Check SAKAI statistics to see which participants have not accessed the “Read This” section and send those who have not a reminder e-mail through “Announcements” in SAKAI (see Appendix 2).

2/9 – Module 2 is sent to all participants at 2pm

2/12 – Message 3 is sent to all participants at 2pm

Check SAKAI statistics to see which participants have not accessed the “Read This” section and send those who have not a reminder e-mail through “Announcements” in SAKAI (see Appendix 2).

2/13 – Message 4 is sent to all participants at 2pm

2/15 – Module 3 is sent to all participants at 2pm

Check SAKAI statistics to see which participants have not accessed the “Read This” section. ****If there are participants who have yet to access the “Read This” section AT ALL, please have a non-project leader team member send a super-reminder through study’s e-mail (see Appendix 3 for message and Appendix 6 for e-mail information).****

2/17 – Message 5 is sent to all participants at 2pm

2/18 – Message 6 is sent to all participants at 2pm

Check SAKAI statistics to see which participants have not accessed the “Read This” section and send those who have not a reminder e-mail through “Announcements” in SAKAI (see Appendix 2).

2/19 – Check SAKAI statistics to see which participants have not accessed the “Read This” section. ****If there are participants who have yet to access the “Read This” section AT ALL, please have a non-project leader team member send a super-reminder through personal e-mail (see Appendix 3).****

2/20 – Module 4 is sent to all participants at 2pm (SurveyMonkey post-test survey link is at the end of module 4).

Post-test survey is open

2/22 – Message 7 is sent to all participants at 2pm

2/23 – Message 8 is sent to all participants at 2pm

Check SAKAI statistics to see which participants have not accessed the “Read This” section and send those who have not a reminder e-mail through “Announcements” in SAKAI (see Appendix 2).

Post-test survey available from 2/23 – 2/29 at midnight

2/25 – Send reminder to all participants through “Announcements” section of SAKAI to take post-test survey (see Appendix 4)

2/27 - Send reminder to all participants through “Announcements” section of SAKAI to take post-test survey (see Appendix 4)

Check survey completion and send personal emails to non completers - consider class announcements about "last chance"

2/28 - Send reminder to all participants through “Announcements” section of SAKAI to take post-test survey (see Appendix 5)

2/29 – Send reminder to all participants through “Announcements” section of SAKAI to take post-test survey (see Appendix 5)

Use super-reminder process with a "desperate graduate student" message with a "deal" that you will hold the survey open until midnight on 3/1. See appendix 6 for an image that can be used in e-mail.

Post-test survey “closes” at midnight

3/1 – Post-test survey officially closes at midnight

3/2 – Post-test data analysis begins

Notes:

- All documents (Modules) will be uploaded to “Resources” section in Sakai course site. (E-mails automatically sent to participants’ given e-mail addresses, also enables Sakai “Statistics” to be utilized)
- All stage-tailored messages will be sent to participants via “Announcements” feature in Sakai course site. (E-mails automatically sent to participants’ given e-mail addresses)
- **Reminders** will be sent from individual study’s e-mail (see Appendix 7)
- **Super-reminders** will be sent by individual team member other than the project manager once through the study’s e-mail and if necessary once through their personal e-mail

Appendix 4: E-mail messages and E-mail information

4a. Introduction to first module messages:

Sustainable Transportation:

Welcome to the “Sustainable Transportation Project”! Your first fun and exciting module is now available on SAKAI! It can be found in the “Read This” Section under the “Sustainable Transportation” tab on your SAKAI site. You have 3 days to complete the activity at which time your second module will become available. You will receive a new module every 4 days until February 20th, 2012 (a total of 4 modules). In the last module you will be given a link to the follow-up survey. Your participation in looking at the modules and completing the follow-up survey is really important to us. We need your help in designing messages that are suitable for college students. Please feel free to e-mail us any questions you have at:

sustainabletransportationstudy@gmail.com. We are happy you decided to participate in this exciting project!

Thank you!

The Sustainable Transportation Team!

Green Eating:

Welcome to the “Green Eating Project”! Your first fun and exciting module is now available on SAKAI! It can be found in the “Read This” Section under the “Green Eating” tab on your SAKAI site. You have 3 days to complete the activity at which time your second module will become available. You will receive a new module every 4 days until February 20th, 2012 (a total of 4 modules). In the last module you will be given a link to the follow-up survey. Your participation in looking at the modules and completing the follow-up survey is really important to us. We need your help in designing messages that are suitable for college students. Please feel free to e-mail us any questions you have at: greeneatingstudy@gmail.com. We are happy you decided to participate in this exciting project!

Thank you!

The Green Eating Team!

4b. Reminder e-mails:

Sustainable Transportation

We see that you have not accessed the last module for the “Sustainable Transportation Project” in the “Read This” Section on your SAKAI site. There are some very interesting and exciting things waiting for you! Your participation in looking at the modules is really important to us in the outcome of this project. You have the opportunity to be a part of cutting-edge research. Go check them out!

Thank you!

The Sustainable Transportation Team!

Green Eating

We see that you have not accessed the last module for the “Green Eating Project” in the “Read This” Section on your SAKAI site. There are some very interesting and exciting things waiting for you! Your participation in looking at the modules is really important to us in the outcome of this project. You have the opportunity to be a part of cutting-edge research. Go check them out!

Thank you!
The Green Eating Team!

4c. Super-reminder e-mails:

Sustainable Transportation

I see that you have not accessed the last module for the “Sustainable Transportation Project” in the “Read This” Section on your SAKAI site. There are some very interesting and exciting things waiting for you! Your participation in looking at the modules is very important to my research project. Please check them out!

Thank you!
(Team member name)

Green Eating

I see that you have not accessed the last module for the “Green Eating Project” in the “Read This” Section on your SAKAI site. There are some very interesting and exciting things waiting for you! Your participation in looking at the modules is very important to my research project. Please check them out!

Thank you!
(Team member name)

4d. Post-test survey reminder e-mails:

Sustainable Transportation

Congratulations! You have almost completed the GET Study! All you have left to do is fill out the post-test survey to receive extra credit towards your class! If you have already filled out the second survey, please disregard this message. We truly appreciate your participation in this exciting new research and hoped that you have fun and learned something as well! **Survey closes at midnight on February 29, 2012!**

Thank you!
The Sustainable Transportation Team!

Green Eating

Congratulations! You have almost completed the GET Study! All you have left to do is fill out the post-test survey to receive extra credit towards your class! If you have already filled out the second survey, please disregard this message. We truly appreciate your participation in this exciting new research and hoped that you have fun and learned something as well! **Survey closes at midnight on February 29, 2012!**

Thank you!
The Green Eating Team!

4e. Post-test survey FINAL reminder e-mails:

Sustainable Transportation

Congratulations! You have almost completed the GET Study! All you have left to do is fill out the post-test survey to receive extra credit towards your class! If you have already filled out the second survey, please disregard this message. We truly appreciate your participation in this exciting new research and hoped that you have fun and learned something as well! **This is a reminder that the survey closes at midnight tomorrow February 29, 2012!**

Thank you!
The Sustainable Transportation Team!

Green Eating

Congratulations! You have almost completed the GET Study! All you have left to do is fill out the post-test survey to receive extra credit towards your class! If you have already filled out the second survey, please disregard this message. We truly appreciate your participation in this exciting new research and hoped that you have fun and learned something as well! **This is a reminder that the survey closes at midnight tomorrow February 29, 2012!**

Thank you!
The Green Eating Team!



It's a rather interesting phenomenon. Every time I press this lever, that post-graduate student breathes a sigh of relief.

4f. GET Study e-mail addresses information:

Main e-mail: getstudy2012@gmail.com

Green eating e-mail: greeneatingstudy@gmail.com

Green transportation e-mail: sustainabletransportationstudy@gmail.com

Passwords: sustain2012