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Real Food Calculator Final Report

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Introduction

The purpose of this research project is to calculate the amount of “real food” purchased by Carolina Dining Services. We used the national definition of real food, as defined by the Real Food Challenge, our partner in this project. The definition of real food has four components: fair, ecologically sound, humane, and local & community-based. The fair and humane labels refer to the persons involved in production, while ecologically and local refer to *how* the products were produced.

Local and Community-Based

The local food criterion has two components. First, the food must be grown or raised within 150 miles. In addition, there must be either a direct purchasing relationship with the farmer, a transparent business model that verifies farm practices, an independently or cooperatively owned farm within the region, or a farm of small-medium size. Consequently, the company or farm must be within 150 miles and be economically invested in the community. For this reason, companies like Pepsi, and Smithfield are not considered local because they are national companies and not based in the community. Although we’ve been assured that all milk purchased through PET Dairy is from North Carolina cows, we chose to not categorize it as real food because PET’s corporate structure is not community-based, and there’s not enough transparency in the company to determine otherwise.

Ecologically Sound

The Ecologically Sound label is met by several certifications, including USDA Organic, Protected Harvest Certified, Marine Stewardship Council, Biodynamic Certified, Seafood Watch Guide, and Food Alliance Certified.

Humane

Humane categorization includes Certified Humane, pasture raised, and Food Alliance certified products.

Fair

The Fair category includes food that is Fair Trade Certified and businesses that providing living wages, the right to organize and bargain collectively, paid vacation and sick time, health care, job security, seniority, and rights to a grievance process to all employees.

If a product meets one criterion it is considered Real Food B. If it reaches two or more it is considered Real Food A. The product has to qualify for just one category to count toward the total Real Food percentage. However, the product must also have no health concerns, which include high fructose corn syrup, hydrogenated vegetable oil, MSG, rGBH/rBST, sodium nitrate, sodium nitrite, or trans fats.

Importance of Buying “Real Food”

Real Food benefits the environment, public health, the local economy, and satiates consumer demand. The products grown in an ecologically sound manner avoid pesticides, fungicides, insecticides, and fertilizers. These chemical inputs degrade the environment and decrease the nutritional value of food. A study from the *Alternative Medicine Review* scientific journal reveals the nutritional superiority of organic foods versus conventionally grown food: organic produce contains high levels of vitamin C, iron, magnesium, and phosphorous than their conventional counterparts. Additionally, organic food has more antioxidants and contains compounds that improve neuronal and cognitive brain functions. Conventionally raised agriculture exposes the consumer to a host of health effects from the aforementioned chemicals involved in production. Buying locally sourced food also strengthens the local economy. UNC is not only public institution but also the flagship university of this state, and the relationship with the community is important for the educational integrity of this school. It should be a responsibility of a university, partially funded by taxpayers, to instill both a local and global consciousness in its students, faculty, and institutional structure.

Consumers consistently voice desire for locally sourced food. The Carolina student populations as well as the community stakeholders show interest in local food through polling, on-campus activities, and clubs. According to North Carolina State University research, when asked in a survey, a majority of Americans prefer small and local farms. On-campus activities, including Hope Gardens, FLO Food, Net Impact Club, and the Center for Sustainable Enterprise, are active in bringing more sustainable food choices to the UNC campus.

As a leader in sustainable initiatives in the collegiate arena, UNC has a new challenge to incorporate sustainability with our food. Other campuses that are working on increasing their Real Food availability include: UC Berkeley, UC Santa Cruz, UC Davis, UC Irvine, UC Santa Barbara, Brown University, Cabrillo College, Carleton College, Duke University, Eastern Washington University, Hamilton College, Iowa State University, Macalester College, Pacific University, Pomona College, San Rafael School, St. Mary's College, University of Vermont, University of Washington, University of Washington in St. Louis, Western Washington University and Whitman College.

Methodology

This project uses the Real Food Calculator to organize expenditures and facilitate calculations. The Real Food Calculator is a Microsoft Excel workbook created by the Real Food Challenge for college students to audit the sustainability of their dining hall's foods. The Calculator serves as a comprehensive tool for understanding the current purchasing behavior of a university.

The first half of the semester we entered information from five weeks of invoices from Lenoir and Rams Head Dining Halls into the “Line Item Data Template” in the Calculator. This information included product codes, product descriptions, food category (baked goods, dairy, eggs, coffee and

tea, other beverages, produce, poultry, meat, and staples and grocery), weekly expenditure and the total expenditure over the five weeks on each individual product.

After the data entry was complete, we then had to identify real food attributes to each product. Within the calculator there are four categories under which a product can qualify as real food: local and community based, ecologically sound, fair and humane. A product only has to fall under one of the categories to qualify as real food. Food eligible for one category is characterized as Real Food B, while food eligible for two categories is characterized as Real Food A.

To determine if a product met these qualifications we researched the company from which the product was purchased, the farmer who grew the product, and sometime both. We first consulted the products that were tracked as local by Carolina Dining Services. This was only starting point, as we also had to research these companies for their growing practices, certifications, and working conditions. Often times we contacted farmers or companies directly. One problem that we faced was not enough transparency in the business model--especially with products purchased from Sysco. If we were unable to determine these practices, we were forced to categorize the food as conventional on the principle that real food is transparent.

We organized the expenditures of each food item per category (meat, dairy, eggs, etc.) and calculated percentage of real food for each category, as well as an overall percentage combining all purchases. We also considered the percentages for each real food category, including Local & Community Based, Fair, Ecologically Sound, Humane, and Conventional (not real food).

Calculating the percentage of real food in the dining halls requires the access to invoices as well as adequate understanding of the calculator workbook. After all the invoices were recorded, thorough proofing was performed to expunge the likelihood of computer and human error.

Results

Table 1. Real Food as Percentage of Total

Real v. Conventional	% of Total
Conventional	90.1%
Real Food	9.9%

The percentage of real food purchased by CDS over the five-week period for Lenoir and Rams Head Dining Halls is 9.9%, representing a 2.8% decrease from last year

Table 2. Real Food by Category

Total \$ Spent	Category	Conventional	Real Food
\$84,676	Baked Goods	97%	3%
\$177,626	Meat	79%	21%
\$85,109	Poultry	100%	0%
\$123,290	Dairy	94%	6%
\$29,974	Eggs	97%	3%
\$34,557	Fish/Seafood	73%	27%
\$3,210	Coffee and Tea	74%	26%
\$29,163	Other Beverages	100%	0%
\$164,484	Produce	80%	20%
\$199,856	Staples	99%	1%
\$931,766	TOTAL	90%	10%

Meat, seafood, coffee and tea, and produce are categories with notable high percentages of real food. Poultry had no real food, and staples and grocery and other beverages had negligible amounts.

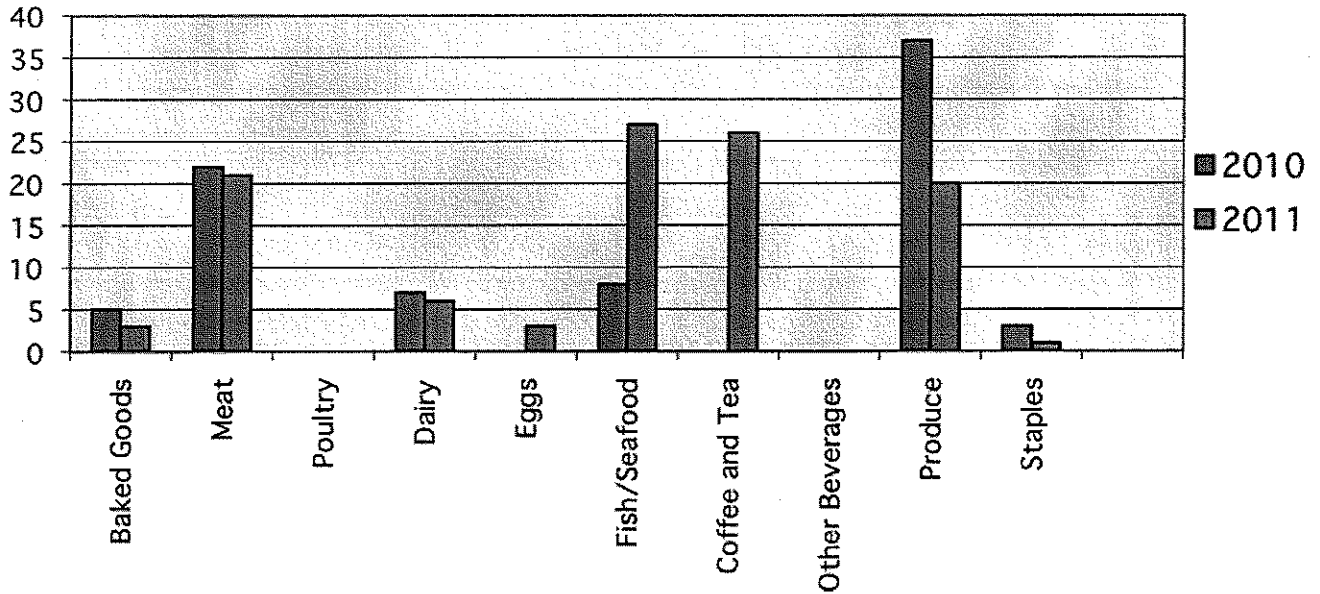
Analysis

The results from this year's Calculator were compared to those of last year as seen in Graph 1. Total real food decreased by 2.8% from 2010 to 2011, although this percentage might be higher if seafood from Inland purchased in 2010 was not flown (and therefore qualifies as real food B).

One of the most alarming reductions was in produce, which decreased by over 16%. The main cause of this was the reduction in organic produce. In 2010, 20% of produce was ecologically sound (and all of the ecologically-sound food purchased by CDS is organic). This year, only 3% of produce was ecologically sound.

Although the meat category decreased, we still think improvement was made within that category. The large purchase of Cane Creek steers occurred in the last week, and therefore the Calculator could not account for

Graph 1. Percent Real Food by Category



Ways to Improve Dining Hall Purchasing

The calculator provides a transparent record of real food and conventional food purchased and can be used as a comparison between previous years as well as between other schools. By breaking the total percentage down into categories, the most sustainable and efficient areas are highlighted, as well as areas of necessary improvement. There is room for improvement in each of the categories (local and community-based, ecologically sound, fair, and humane).

Organic purchases are essential to nourishing, healthful food in the dining halls. Buying the “Dirty Dozen” as organic produce is an efficient way to improve the health of students. Celery, peaches, strawberries, apples, domestic blueberries, nectarines, sweet bell peppers, spinach, kale, collard greens, cherries, potatoes, imported grapes, and lettuce are more likely than any other produce to contain harmful pesticides. The Environmental Working Group asserts that the twelve fruits and vegetables dubbed the “Dirty Dozen” contain 47 to 67 pesticides per serving. Purchasing the organic options of these fruits and vegetables reduces exposure to pesticides by up to 80%. Conversely, the “Clean 15” are fifteen fruits and vegetables that have little to no traces of pesticides when conventionally produced. These include: onions, avocados, sweet corn, pineapples, mango, sweet peas, asparagus, kiwi fruit, cabbage, eggplant, cantaloupe, watermelon, grapefruit, sweet potatoes, and sweet onions. It’s economical to purchase the Dirty Dozen as organic and the Clean 15 as conventional.

Table 3. Increases in Real Produce

Increase in Real Produce	Increase in Real Food
10%	1.75%
16%	2.81%
20%	3.52%
30%	5.28%

Purchasing from Albert's Organics has decreased in the last year, and it is our recommendation to return to previous buying habits. In the five weeks sampled, 20% of produce was sourced locally. If we increased sustainable produce purchasing to 50% (a 30% increase), the real food percentage would increase by 5.3%. Last year 36% of produce was considered real. Reverting purchasing to last year's level of 36% would increase the amount of real food by 2.8%. It is important to note that while produce is currently being purchased from Freshpoint and Albert's Organics, a much

higher quantity must be purchased to replace their conventional counterparts and increase the real food percentage.

For example, because Stonyfield yogurt is organic and the cows are raised humanely, it is classified as Real Food A. Conventional yogurt is still being purchased through Sysco. It would be an easy step for Carolina Dining Services to switch its yogurt purchasing to all organic. By shifting all yogurt purchasing to Stonyfield, the percentage real food would increase by .44%. This may not seem like a large increase, but half a percentage represents 5% of our current real food purchases.

Because of the large volume purchased, cheese is a single product that by shifting to an organic option would have a significant impact on the total real food percentage. When looking at the costs of conventional versus organic cheese it is important to keep the following in mind: conventional cheese plants ship their milk from all over the nation, using a great amount of fossil fuels for transportation. According to a study by the Environmental Working Group the cheese's carbon footprint is among the worst when compared to other animal products. It's estimated that 3 miles is driven for every 4oz. of cheese consumed. However, organic cheese plants often receive their milk from local dairy farms, hence their fossil fuel emission is significantly less than that of conventional cheese plants whose products travel a greater distance. Furthermore, conventional cows are only used for an average of 18 months for milking, while organic cows can last up to 15 years--drastically outlasting conventional cows in sustainability. Buying organic cheese also benefits the health of our students because no hormone supplements are given to organic cows, eliminating the chances of breast cancer and prostate cancer associated with several hormones. Additionally, no chemicals or pesticides are used on the grazing land. According to the *Alternative Medicine Review* organic dairy has higher levels of omega-3 and omega-6 fatty acids. Hence, by shifting some of the cheese purchases to organic or local, the health of our students and environment would be improved and protected. To give numbers to this statement, if we changed the amount of cheese currently purchased to 10% real food, the total real food percentage would

Table 4. Increases in Real Cheese

Real Cheese	Increase in Real Food
10%	0.6%
20%	1.21%
30%	1.82%
40%	2.43%
50%	3.04%
60%	3.65%
100%	6.1%

increase .6%. If we bought 20% there would be a 1.2% increase in total real food. If we bought 40% there would be a 2.4% increase in total real food percentage. 50% sustainable cheese reflects a 3% increase in real food percentage. If all cheese were sustainable, the real food percentage would increase by 6%.

The most effective purchase of dining services in terms of sustainability is meat from Cane Creek Farm. The Cane Creek purchases alone account for 22% of the 10% total real food percentage. However, these purchases only account for 2.4% of the total money spent on food purchases in the five-week period. These Cane Creek purchases represent 24% of the total beef purchased. The quality of grass-fed beef is much higher than that of conventional beef fed on a corn and grain diet. The *Union of Concerned Scientists* performed comparison studies between grass fed and grain fed cattle and came up with the following results: grass fed beef is lower in fat and also has a ration of omega-3 and omega-6 fatty acids as compared to grain fed cattle. Also, grass fed beef produces a higher yield of meat for comparable amounts of meat when put up against conventional meat. It would be in the best interest of Carolina Dining Services to increase the purchases from Cane Creek Farm and decrease purchases of the conventional alternative, Smithfield. Since small-scale producers like Cane Creek cannot provide the volume needed by an institution such as UNC, it's necessary to expand purchasing relations to other meat producers that value transparency ensure healthy and humanely raised meat, like Applegate Farms

The area with room for most improvement purchasing modification is poultry. Within the poultry purchases none of the food purchased is considered real food. Buying either local, organic, or humanely raised poultry would improve the real food percentage as well as the quality of food the dining hall offers to students. Seeing as the Cane Creek purchases compose such a large percentage

of UNC's real food purchases, finding a sustainable poultry producer could have the same positive impacts.

Table 5. Increases in Real Poultry

Real Poultry	Increase in Real Food
10%	0.90%
25%	1.81%
30%	2.73%
40%	3.64%
50%	4.55%
60%	5.47%
70%	6.38%
80%	7.29%
90%	8.21%
100%	9.12%

Based on the current amount of poultry purchased, if we switched to purchasing 25% sustainable poultry (comparable to the Cane Creek beef purchases), there would be a 2.3% increase in total real food. If we purchased 50% there would be a 4.6% increase in total real food. If we purchased 80% sustainable poultry there would be a 7.3% increase. If we purchased 100% sustainable poultry there would be a 9.1% increase in real food percentage.

We understand the limitation of a successful business model. There are concessions that need to be made in order to provide enough quantity at a low enough price to meet consumer demands. The amount of money spent on desserts in the dining halls is extremely high, especially when taking into consideration the small nutritional content in those food items.

Almost \$25,000 was spent on cookies alone during the five-week period, and counts as 0% real food. This is just one of the many desserts offered at the dining halls. Spending less on desserts and

increasing the purchases of healthy, organic, local, fair, and humane food could be a change in purchasing that positively impacts for health of our community and environment, as well as the health of the student body.

Some improvements in seafood purchasing have been made, but a few improvements in the method of purchasing would radically improve the amount of real food in the seafood category. Although Carolina Dining Services purchases all its fish from the Seafood Watch Guide's "Best Choices" category, all except the fish purchased through Inland are air-flown, thereby disqualifying it from being considered real food. The environmental toll from flying seafood across the country negates the sustainable harvesting. We live just miles away from the bounty of North Carolina fishing, and it would service the local economy as well as the environment to make purchases of fish closer home.. If all of the seafood purchased was not air-flown but still a "Best Choice," the total real food percentage would increase by 2.7%.

Carolina Dining Services has the unique and powerful opportunity to improve the food purchases of this university, simultaneously improving the health of our students and environment. An environmentally responsible food service operation considers the life-cycle impact of food when choosing what to serve. CDS is in a great position of power to make these changes in food purchases.

With the suggestions made throughout this report (changing the rest of the yogurt to Stonyfield, 25% sustainable poultry, 40% sustainable cheese, 30% more sustainable produce, and not purchasing any air-flown seafood,) the total real food percentage would be 23.04%. Without the sustainable cheese purchase, the percentage would be 20.64%. The 20% threshold is significant because many other leading schools in sustainability are expected to sign the 20% by 2020 Campus Commitment with the Real Food Challenge, committing to 20% real food by 2020. Duke University is expected to sign the campaign on Earth Day of next year. With a return to the 36% sustainable produce that was purchased last year, the real food percentage would be 12.7% - almost identical to the percentage last year.

Calculator Shortcomings

The strict guidelines of the Calculator impose certain limitations on what food can be categorized as real. While the ultimate goal is provide food that falls within the Calculator's guidelines, it's important to make purchases that are the "less of two evils." For example, while PET Dairy does not count towards the real food percentage, it is a better purchase than milk from halfway across the country.

The short sampling period does not reflect the fluctuations in real food purchased throughout the year. Using the sampling period of September might reflect a higher real food percentage than for the entire year, because it is the time of year when seasonal produce is most available.

Conclusion

We appreciate Carolina Dining Service's cooperation with us throughout the semester. Although the total real food percentage decreased this year, we believe that through the tracking system and the continued use of the Calculator, the level of awareness about improving the quality of food has increased. After the combined efforts of the Real Food Challenge interns and Carolina Dining Services, increasing the amount of real food is much more attainable than it was just a couple of years ago.

Carolina Dining Services has been named a "Pioneer Award" recipient for completion of the Real Food Calculator.