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# USING THE REAL FOOD CALCULATOR TO ASSESS THE UNIVERSITY OF MAINE'S DINING PURCHASES WITHIN A FOOD SYSTEM CONTEXT

by

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A Thesis Submitted in Partial Fulfillment
of the Requirements for a Degree with Honors
(Ecology and Environmental Sciences)

The Honors College

University of Maine

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This study investigated the University of Maine's food purchasing using the Real Food Calculator to determine the Real Food percentage. Real Food is defined by the Real Food Challenge as local, humane, fair, and ecologically sound. The Real Food Challenge is an organization that seeks to create systemic food system change through student efforts on college campuses by shifting food purchasing to 20% Real Food by 2020. The University of Maine had 5% Real Food in the 2012-2013 academic year. While there are limitations to Real Food and the Real Food Calculator, it may produce a change in the food system nationally if many colleges and universities purchase Real Food. The University of Maine has a variety of options to increase food purchasing to 20% including buying organic eggs, purchasing more local food, avoiding disqualifiers, and focusing on other organic products. Applying a variety of strategies would increase the University of Maine's impact on the food system.

I would like to thank Audrey Cross for joining me in my Real Food Challenge journey and supporting me with the research of this thesis. I would also like to thank my roommate Sam Kwok and my boyfriend Tim Saarinen for always validating my concerns and cheering me on. Finally I would like to thank my parents and committee members for their patience with me throughout this process.

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## Chapter 1: Introduction

In recent years, authors like Michael Pollan and movies like *Food Inc*. have brought the food industry into public consciousness, particularly issues in the food system that people would like to change. There are many different groups trying to change specific aspects of the food system, including animal rights activists, people against genetically modified plants, workers' rights groups, anti-hunger organizations, and seed banks trying to save heirloom varieties of plants. While all of these single-issue movements are important, systemic change in the entire food industry is needed. The Real Food Challenge (RFC) uses a multi-faceted framework to create that change.

The RFC uses the framework of "Real Food" to encompass food industry workers' rights, ecologically sound means of producing food, an anti-genetically modified food sentiment, a concern for consumer health, a preference for local food, animal rights, and educated consumers. Real is defined as ecologically sound, local, humane or fair (Real Food Challenge, n.d.-b). Their target for change is colleges and universities with a goal to shift food purchasing towards Real Food, through student leadership and empowerment, in order to create systemic changes in the food system. This is facilitated by a tool called the Real Food Calculator to measure Real Food on campuses. This thesis will explore the University of Maine's food purchasing though the Real Food Calculator and how the Calculator and the RFC meet their goals of systemic change through this framework.

Chapter 2 of this analysis will explore the problems in the food system that the RFC focuses on, and Chapter 3 will discuss the RFC as an organization. Chapter 4 will explore the Real Food Calculator and its methodology both in general and on the

University of Maine campus. Chapter 5 will present the results of the Calculator assessment at the University of Maine. Suggestions for how to increase Real Food based on those results will be made in Chapter 6. Finally, Chapter 7 will look at challenges and opportunities the University of Maine has in making changes to their food purchasing. It will also explore the Real Food Calculator and how the tool is helpful to the RFC goals and how the model of switching college and university food purchasing can affect the food system in general.

## Chapter 2: Conventional Food System Challenges

The U.S. conventional food system is focused on producing a large amount of food at a low cost (Heller & Keoleian, 2003). This goal means the food system structure must take advantage of economies of scale and is national and often global (Monteiro, Moubarac, Cannon, Ng, & Popkin, 2013). The goals and scale of the food system cause problems, such as, mistreatment of farmworkers, soil degradation, unhealthful foods, mistreatment of animals, pollution, licensing agreements for seeds, food deserts, dwindling farm profit margins, and destruction of community based food systems. Organizations such as the RFC are trying to reduce the negative impacts of the food system by shifting purchasing away from problematic food sources. This chapter will briefly explore those issues within the food system.

### *Soil Quality and Nutrient Runoff*

The U.S. food system relies on methods of farming that are harmful to the environment. One result of such methods is soil degradation. Topsoil is created very slowly and is the substrate for all of our land-based foods, so land is an incredibly important resource for the food system. While natural processes can degrade soil, agriculture degrades it significantly faster. Activities like plowing and tilling can expose soil to wind and rain which can move it off of agricultural land (Montgomery, 2007). The use of monocultures also can degrade soil quality. Mono-cropping often leads to having fields bare for a large part of the year and minimal crop rotation, if any. When fields are bare, they can be degraded faster and nutrients are more likely to leach out of the soil (Heller & Keoleian, 2003). A lack of a substantial crop rotation can lead to the soil losing

structure. A crop rotation and minimal tillage can help the soil retain adequate structure and store water for ideal crop growth (Munkholm, Heck, & Deen, 2013).

Fertilizer and pesticide use is common in conventional farming practices. These chemicals are often associated with environmental damage (Wilson & Tisdell, 2001). Fertilizers are often applied excessively, which combined with high precipitation, leads to runoff (Paulson & Babcock, 2010). When fertilizer material containing soluble nitrogen or phosphorus enters a body of water, it can cause eutrophication due to increases in the limiting nutrient, which leads to algal blooms. The decomposition of these algal blooms can decrease water quality, water oxygen content, resulting in fish kills and dead zones (Heller & Keoleian, 2003). Twelve out of fourteen U.S. ecoregions had freshwater areas that exceeded the U.S. Environmental Protection Agency's median level of total phosphorous and nitrogen (Dodds et al., 2009). Eutrophication can also result from manure runoff from manure lakes found at industrial livestock facilities (Environmental Protection Agency, 2015).

***Pesticide Use***

Pesticides are associated with a variety of environmental problems. Insecticides are created with the purpose of destroying or inhibiting crop-damaging insects. Often these will kill beneficial insects as well as the damaging ones (Larson, Redmond, & Potter, 2014). Recently, pesticides have been implicated in the death of many bee colonies (Johnson, Ellis, Mullin, & Frazier, 2010). In addition, pesticides are often sprayed and do not stay only on the area intended. The chemicals often enter the water supply during irrigation, rain, or erosion events (Heller & Keoleian, 2003). Out of a sample of U.S. water supply wells, 70% have detectable levels of one or more harmful

chemicals with pesticides being the second most common (Squillace, Scott, Moran, Nolan, & Kolpin, 2002). Herbicides can also enter the water supply and have been detected in 99% of urban streams and 50% of wells (USGS, 2001) Some types of pesticides can bioaccumulate through the food chain and have a high level of persistence even after they have been banned, so may continue to accumulate (Basu & Dasgupta, 2012).

***Genetically Modified Organisms***

Herbicides are designed to kill weeds and often must be applied before the plant has germinated to prevent damage to the crop (Penton Business Media Inc., 2014). Genetically modified crops now allow certain herbicides to be applied to the growing crop without damage to the crop. However, genetically modified organisms (GMOs) can contribute to pest and weed resistance to herbicides and pesticides. These are often termed superweeds and superbugs, respectively. The usage of the same few herbicides and pesticides increases because of the available GMOs on the market and those become the only thing these organisms have to defend against. The insect or weed survivors of exposure to the chemical (e.g. Roundup or glyphosate) or toxin (e.g. Bt) reproduce since resistance to herbicides and pesticides is a beneficial trait that is passed on. Such increased resistance reduces the efficacy of GM technology since the chemicals or toxins used will no longer work on the target organisms (Barton & Dracup, 2000).

GMOs are "organisms that have been created through the gene-splicing techniques of biotechnology" that create varieties that cannot be made through traditional breeding (Non-GMO Project, 2015). GMOs typically are patented and have the protection of intellectual property rights, which has a variety of implications. One is that

farmers must pay a technology fee for their seeds. When a farmer chooses to purchase a GMO, it will be more expensive than traditional varieties because the company is taking royalties for the use of that product. Since the use of seed is now a licensing agreement, the farmer is paying more for the use of whatever gene has been patented. Also, since there is now a contract involved with seed purchasing, it includes a "no reuse clause" that prevents the farmer from saving seed. This means in order to achieve the same benefit each year, a farmer must now pay for seed and pay for more expensive seed. Farmers are often willing to pay extra for the seed and be committed to the contract with the no reuse clause because they believe it will increase their yields.

Many farmers have adopted GMOs because they believe they will increase yields, save time, and lower the use of inputs (Fernandez-Cornejo & Caswell, 2006). In 2005, GMO soy occupied 85% of soybean acreage (Fernandez-Cornejo & Caswell, 2006). Despite the popularity of these crops, there are drawbacks. Entering the GMO market puts farmers on a technology treadmill (Cochrane, 1979) where they must keep up with new trends to try and increase yields (Mascarenhas & Busch, 2006). Since none of the products are differentiated (i.e. all corn is corn, all soy is soy) increasing yields is the only way to increase profits.

In addition to intellectual property concerns and their effect on pest and weed resistance to pesticides, GMOs may threaten biodiversity and may have human health concerns. As a more limited number of strains of GMO crops are adopted ubiquitously throughout the world, fewer traditional varieties are being conserved (Garcia, 2005). Having a variety of genetic material makes crops more resistant to pests and diseases and

could help the food system to function as climate change continues to affect the food system.

Finally, there is no scientific consensus on health impacts of GMOs. There has been insufficient testing of GMOs by independent sources and none of these studies have looked into long term impact on human health (Vendômois, Cellier, Vélot, Clair, & Mesnage, 2010). European treatment towards GMOs has been based on the precautionary principle. Until Europeans are more certain of the effects on human health, they prefer to avoid GMOs. In the U.S. the attitude has been to use GMOs until there is a scientific consensus against them, given the lack of documented problems (Wiener & Rogers, 2011).

***Agricultural Working Conditions***

Farms are often trying to cut costs, including labor costs. Migrant workers make up as much as one-third of all farmworkers in the U.S. (Kandel, 2008; Passel, 2006). Many migrant workers are paid very low wages, 59% less than the median of all wage and salary workers (Kandel, 2008), and are often tied to farms directly through migrant farm work visa programs (Griffith, 2009). Farms have even been involved in modern day slavery. For example in the tomato industry of Immokalee, Florida, there have been nine convicted cases of modern day slavery since 1997 (Coalition of Immokalee Workers, 2012).

Other labor issues are also common in the food system. Food systems laborers and workers are sometimes being unfairly treated or poorly treated (Wartman, 2012). The Occupation Safety and Health Act of 1970 (OSHA), National Labor Relations Act of 1935 (NLRB), and the Fair Labor Standards Act of 1938 (FLSA) have been put in place

to protect workers' rights. Worker mistreatment can include not setting up the proper facilities and protocols for worker safety and attempting to prevent unions that can help ensure workers' rights (National Labor Relations Board, n.d.; Occupational Safety & Health Administration, n.d.; Schlosser, 2002; United States Department of Labor, n.d.). Most workers in the United States, including food workers, are covered by OSHA and FLSA (Occupational Safety & Health Administration, n.d.; United States Department of Labor, n.d.). Workers in unions are covered by NLRA (National Labor Relations Board, n.d.).

### *Animal Rights*

Animals can also be mistreated in conventional agriculture practice. American appetites for meat are increasing, which is making it more profitable to put as many animals as possible into a feeding facility (Daniel, Cross, Koebnick, & Sinha, 2011). Pigs are often kept in gestation crates which do not allow them to turn around or move very much at all. Chickens are often in battery cages that do not allow them to spread their wings and move (Centner, 2010). Laying hens can be subjected to forced molting towards the end of their laying cycle. The most common form of forced molting is to withhold food for 5 to 14 days to force the hens to shed and regrow their feathers(Bell, 2003). The hens have a period of no egg laying and then return to high egg production once the molting is completed (Fraser, Mench, & Millman, 2001). Cows are often kept in concentrated animal feeding operations (CAFO) to gain weight before slaughter. These conditions involve many cows in pens that are often standing in their own feces with limited mobility. The cows are fed a diet primarily of corn which their bodies are not equipped to digest properly (Owens, Secrist, Hill, & Gill, 1998).

***Human Health Impacts***

In CAFOs the animals are often given antibiotics as a preventative measure because they are so likely to get sick (McLeod-Kilmurray, 2012) and to increase weight gain (Eyssen & Somer, 1962). Providing animals with antibiotics creates antibiotic resistant pathogens, which could be harmful for human health (Van Den Bogaard & Stobberingh, 2000). Cows are also often given rBST which is a hormone that promotes milk production (Olynk, Wolf, & Tonsor, 2012). Humans can be exposed to this hormone through eating or drinking products from these cows. These hormones also play a role in the human body and are affecting human health as people eat products containing these hormones. One potential impact of hormone exposure may be breast cancer (Breast Cancer Fund, 2013).

Other ingredients that are added to foods include acesulfame-potassium, butylated hydroxyanisole (BHA), caramel coloring, Olestra (Olean), partially hydrogenated oils (trans-fats), propyl gallate, saccharine, sodium nitrate, sodium nitrite, as well as artificial food coloring agents such as Red #3, Yellow #5, Yellow #6, and Blue #3. These ingredients have potentially deleterious effect on human health and have all been listed by the Center for Science in the Public Interest's list of ingredients to avoid. Some of these ingredients have been connected to an increased risk of heart disease, digestive tract problems, and some are even carcinogens (Center for Science in the Public Interest, 2013; El-Wahab & Moram, 2013; Houben et al., 1992; Kantor, 1996; Kulawik, Özogul, Glew, & Özogul, 2013; Roy, Davidson, & Swithers, 2007; Sindelar & Milkowski, 2012).

### *Local Economic and Local Agricultural Development*

The current food system has an impact on local economies in many areas, including Maine. The U.S. food system promotes cheap, energy dense, processed foods (Drewnowski & Darmon, 2005). The focus on processed foods benefits large national or international corporations, likely to own and supply stores with processed foods made with corn, soy, and other cash crops. That, in turn, benefits farmers who can create large amounts of these crops. Smaller farmers and those that grow things like mixed vegetables for local consumption do not benefit from the overall system. In 2012, 7.8% of U.S. farms were involved in local food markets according to the USDA (Low et al., 2015).

Small farmers may not be covered by laws and policies that apply to larger farms. Most government policy is designed to benefit large farms that produce raw agricultural inputs used to manufacture cheap, energy dense processed foods. Many smaller farms cannot get assistance from agricultural subsidies that larger farms have access to. In 2004, the largest farms, 7.5% of all farms by number, received 56% of government payments (Weber & Becker, 2006). This makes it difficult for small farms to start up and to stay in business. These small farms often cater to the local population.

### *Chapter Summary*

Myriad problems in the current food system have negative impacts on the Earth, consumers, animals, and communities. Farming practices such as excessive tilling and the use of herbicides and pesticides can be harmful to the Earth. GMOs have intellectual property right issues and may be harming human health and biodiversity. Food industry jobs can have a variety of worker's rights violations from slavery to preventing unions.

Animals are exploited through industrial food production practices. Ingredients added to food could be harmful to human health and the system is not equipped for small farmers to succeed. Many of these issues are interconnected, and these problems are a part of the entire United States food system.

## Chapter 3: The Real Food Challenge

This chapter will explore the foundation of the RFC, both its goals, as well as its organizational history to understand where the ideas and goals came from. Current progress on RFC goals is discussed in terms of signatories to the Real Food Campus Commitment and current Real Food campaigns. Finally, their decision to focus on colleges and universities is explored.

The RFC is an organization dedicated to building a food system that supports producers, consumers, communities, and the earth. The RFC recognizes the myriad of issues within the food system, especially those discussed above, and looks to empower youth, particularly college students, to work with their schools to help promote an alternative food system. The RFC is a national organization that assists students in developing campaigns at colleges and universities across the country. The campaigns focus on including a variety of stakeholders such as students, administrators, dining workers, and farmers in order to create a food system that benefits producers, consumers, communities, and the Earth. The goal of these campaigns is to get more "Real Food" on campuses. Real is defined as ecologically sound, local, humane or fair (Real Food Challenge, n.d.-b).

The idea for RFC began at the W.K. Kellogg Foundation's 2006 Food and Society Conference. Members of The Food Project (TFP), an organization focused on high school students, and the California Student Sustainability Coalition (CSSC) met there and were inspired by the W.K. Kellogg Foundation's announcement that they would move from 2% to 10% good food. These groups realized that their work towards a more just and sustainable food system could be driven by a similar tactic, shifting a

percentage of food purchases on college and university campuses. At the 2007 Food and Society Conference the two groups officially created a Steering Committee and Design Team to move the project forward. TFP and CSSC co-sponsored and funded RFC until 2012. Currently RFC's programs are funded mostly through student fundraisers and staff are funded by private grants and donations (Real Food Challenge, n.d.-b). Today RFC has four core team members, six regional coordinators, and 13 regional field organizers as paid staff (Real Food Challenge, 2013).

The primary goal of the RFC is for colleges and universities to have 20% of their purchasing be Real Food by 2020 (Real Food Challenge, n.d.-d). According to the RFC website, 363 campuses are currently involved in campaigning for Real Food (Real Food Challenge, n.d.-a). Campaigning ranges from completing the Real Food Calculator, to engaging in a university system-wide push for Real Food, to educating students and administration about Real Food. The campaign actions should work towards the signing of the Real Food Campus Commitment. This is a pledge, signed by the University president, to work to move their campus to at least 20% Real Food by 2020 and to create a food systems working group, a food policy, and a plan of accountability including implementing the use of the Real Food Calculator (Real Food Challenge, n.d.-d). Since 2008, 63 schools have signed the Real Food Campus Commitment including the entire University of California and California State University systems (Real Food Challenge, n.d.-c).

RFC focuses on colleges and universities which are part of a group called institutions. Institutions include colleges, hospitals, and prisons (Hardesty, 2008). Food purchasing in this group differs from K-12 schools or restaurants because institutions

service a large amount of people and typically must provide all three meals per day. The institutions require a large amount of food with consistent quality to provide for the people in their care (Perry, n.d.). Although there are differences in the three types of institutions, they all have similar models, opportunities, and challenges in obtaining food (Hardesty, 2008; Hart, n.d.).

The RFC focuses on colleges and universities for a variety of reasons. One very important reason is that universities have large food budgets with a combined purchasing power of $5 billion (Real Food Challenge, 2011). The RFC wants to shift $1 billion of these food budgets nationally to make the demand for Real Food something the institutional supply chain will pay greater attention to. Another reason is that students are the consumers of the food. Although the college and university system appears slow to change, students are the customers. They pay for the meal plans that dictate food purchases and, students often can make a difference about what they are eating if a large amount of them demand a change (Bilodeau, Podger, & Abd-El-Aziz, 2014). Students have historically been a driving force to bringing about changes in colleges and universities, including the food movement (Barlett, 2011a). The RFC puts students in charge of the changes they wish to see and helps them to get their input into university and dining decision making. Students come up with strategies, run the campaigns, and become an integral part of the process moving towards Real Food. RFC works on building student leadership so that students can do things like talk to administrators, run the Real Food Calculator, and help make decisions as part of the Food Systems Working Group.

Finally, universities are places where many students are assessing their eating habits for the first time. In places like grocery stores or restaurants the consumers have a choice whether or not to purchase the food, but in universities students often are required to purchase a meal plan. This means that the university is guaranteed to be serving a large population of people and also that the people it is serving are entirely reliant on the food that is being served. Dining halls can be places of knowledge for students about what they eat as they develop lifetime habits. Colleges influence how students interact with food and can offer an opportunity for students to be educated in how the food system works (Rojas et al., 2011). Education is one of the goals of the RFC.

Barlett (2011) found that many of the farm to college and farm to institution programs focused on food purchasing. Many universities are trying to improve sustainability in their purchasing (Barlett, 2011a). RFC is one way for students to help dining and universities to take on that task. Most of the schools Barlett (2011) researched did not have adequate or any accountability measures or ways to track the sustainability changes being made. Many of the changes were being included in food service contract language, but without ways to accurately see if those changes were being met (Barlett, 2011b). RFC has a tool specifically focused on accountability and transparency: the Real Food Calculator. It is included in the Real Food Campus Commitment to institutionalize the accountability process.

## Chapter 4: Methods

This chapter will explore exactly how the Real Food Calculator works. It begins with a general overview of the Calculator and moves on to a discussion of the criteria. Then the disqualifiers are explained. A general overview of the Calculator process is included. Finally, this section explores the specifics of the assessment at the University of Maine in Orono, Maine.

### *The Real Food Calculator*

The Real Food Calculator is a tool created by students for students working on the RFC to measure a campus' movement towards its Real Food goal. It provides a comprehensive picture of dining purchasing. The Calculator is part of the Real Food Campus Commitment. It acts as a way to track progress and keep those involved in the transition to Real Food accountable to making steps towards the goal of 20% Real Food. It includes criteria, backed up by third party certifications, and disqualifiers. The disqualifiers complement the certifications by including problems that are often not covered in certifications.

Food must fulfill at least one of the following four criteria to count as Real Food: 1) ecologically sound, 2) local, 3) humane, or 4) fair. If a food product only meets one of the criteria it is referred to as Real Food B. If a product meets two or more criteria it is considered Real Food A. If a product has any disqualifiers, regardless if it has met a criterion, it cannot count as Real Food. If no information can be found on a product, or not enough information to verify it as real, it cannot count as Real Food. Transparency is an important aspect of Real Food. The products are divided into five categories: Real Food A, Real Food B, disqualified, insufficient information, and typically conventional.

The Real Food criteria have been chosen to support a food system that benefits producers, consumers, communities and the Earth.

*The Criteria*

Ecologically sound ensures that the product is being produced and processed in a way that respects the earth and avoids damaging it. Some certifications that can count are: *USDA Organic*, *Rainforest Alliance Certified*, Monterey Bay Aquarium Seafood Watch Guide "Best Choices" or "Good Alternative", and *Bird Friendly* by Smithsonian Migratory Bird Center. Multi-ingredient products must have at least 50% of ingredients that fit the criteria for ecologically sound. If produce is grown at the university or college and they use organic practices it can count without a third party certification.

Local is a criteria used to support small, community based producers. To count as local, a product must be grown, processed, and distributed within 250 miles of the institution. These products should be from independently owned businesses that have full decision making power. A company owned by a larger corporation that has ceded its decision making power to the larger corporation does not count as local. Products from a cooperative must be from a true cooperative and not be contracted to a larger corporation. In addition, the business must gross less than 1% of the industry leader of that product. Finally, if it is a multi-source product, at least 50% of the ingredients must adhere to the local criteria.

Humane is a criteria which ensures the proper treatment of animals in the food system. Some certifications that count as humane are: *Animal Welfare Approved* by Animal Welfare Institute, *Global Animal Partnership* Steps 4-5+, *Certified Humane* by Humane Farm Animal Care, *Certified Organic* by USDA-AMS, and *AGA Grassfed*. In

the humane category, some of the certifications require extra research to determine that the producer is not disqualified because of a Concentrated Animal Feeding Operation (CAFO).

Fair represents both treating the labor force with respect and providing suitable working conditions. Some certifications that count as fair are: *Ecocert Fair Trade Certified*, *Fair Trade Certified* by Fair Trade USA, *Food Justice Certified* by Agricultural Justice Project, *Fair for Life Certified* by IMO, and Fair Food Standards Council Fair Food Program. Produce of a single source product can confirm in writing that they provide a living wage, right to benefits (paid sick time, employee sponsored health insurance, paid vacations, holidays off, and workers compensation), day of rest and overtime, seniority, equal pay for equal or equivalent work, right to return to seasonal position, and freedom of association to all of their employees. The company must be willing to provide this information in writing for accountability and transparency. Multi-source products must have over 50% of the ingredients certified as fair in order to count.

***Disqualifiers***

Disqualifiers are included in the Real Food Calculator to account for certain issues that most certifications do not take into account. A product qualified for a certification that counts as Real Food would not be able to count if it has one or more disqualifier. Certain disqualifiers have specific time limits based on that statute of limitations for those citations or violations, including OSHA, NLRB, and FLSA violations and being found guilty of criminal charges of slavery or indentured servitude. OSHA, NLRB, or FLSA violations disqualify a product for 3 years after that violation. Slavery disqualifies a product for 10 years. Other disqualifiers only count when they are

present. Those include CAFOs, GMOs, and these unhealthful ingredients: acesulfame-potassium, butylated hydroxyaisole (BHA), caramel coloring, olestra (Olean), partially hydrogenated oils (trans-fats), propyl gallate, rGBH/rBST, saccharine, sodium nitrate and nitrite added, as well as the use of the artificial colors Red #3, Yellow #5, Yellow #6, or Blue #3.

***Calculator Process***

Prior to running the Calculator, a baseline survey about the details of how dining is operated needs to be completed by the students and head of dining services. This survey identifies if the school is contracted or self-operated, the number of dining facilities, the number of employees, whether the school offers special dietary plans, and what distributors or vendors are used. There are multiple ways to run a university dining operation and the baseline survey tells the student exactly what they are working with. The baseline survey is entered on the RFC online web app and can be accessed by student researchers, RFC, and the designated institutional official. This confirms to the RFC that the students have begun engaging with dining and that the students know important information about the dining structure.

After completion of the baseline survey, an assessment plan needs to be filled out detailing who will be doing the Calculator assessment and how, e.g. who is doing the work, the timeline, and if representative months or the entire year will be used. This needs to be approved by both the institutional official and Calculator representatives from RFC before research can begin to ensure that all parties agree.

Once these are completed, data can be gathered by the student. RFC recommends using two representative months of the academic year. One should be a fall harvest

season and one should be a winter month. Students obtain purchasing invoices from the months of their choice from a representative of their college or university's dining management. If these are digital, they can be directly uploaded onto the Calculator web app to save the step of hand typing each invoice. Paper copies must be entered in an Excel spreadsheet in order to be uploaded.

***The University of Maine Assessment***

Dining at the University of Maine was assessed for the 2012-2013 academic year. September and February were used as representative months of the whole year, as agreed upon in the assessment plan. September is during the harvest season and February is during the winter season, with little local food typically available in Maine. Averaged, these two months represent the University of Maine's purchasing for that academic year. Invoices were provided by the University of Maine dining for the three main dining halls, Hilltop, York, and Wells to determine what was purchased. These three venues account for 41.53% of total food purchasing at the University of Maine. Future assessments should also include retail locations like the Oakes Room, the Bear's Den Café and Pub, and the Bears Den Marketplace in the Memorial Union, which will help get a more accurate picture of purchasing.

The University of Maine is a self-operated school, buying directly from distributors. During the year of the analysis Sysco had the grocery and produce contract and PFG Northcenter had the meat contract. In order to determine which of the five food categories each product belonged in, additional information needed to be obtained from the food distributors. Many items coming from these companies were branded by those companies or had a "packer" label. These distributors work with other companies to

create products that carry a label associated with that distributor despite the product being made by another company. Packer often means that a food came from more than one company or source. The information about these branded and packer items determination of the origins of most products. Obtaining this information required contacting Clark Hincher from Sysco and Chris Haddad from PFG Northcenter, representatives from their companies. Due to the sensitive nature of this information, each product had to be cross referenced with the separate materials that each of those companies provided without revealing any specific product information on the spreadsheets or invoices. That information had to remain confidential throughout the Calculator process.

After finding the branded and packer information, most of the information needed to verify or disqualify a product was available on company websites. Certifications were listed on product descriptions, packaging, and websites. Written proof of fair conditions was not requested, so that aspect is missing from this assessment. Often, ingredients were on company websites. If they were not, they were often available in another location online such as websites that sell these institutional products independently or access to that information was provided by Sysco or PFG Northcenter. OSHA violations were found by searching the OSHA website for a company name. Other labor violations were found by searching for a company name with the keywords NLRB, FLSA, and slavery. CAFOs are regulated by the EPA because of the Clean Water Act, so searching on the EPA website for a company name and CAFO will bring up an EPA report if one exists.

The Real Food and disqualifier results of each product were recorded on a spreadsheet. The comments section was used to record why a product was either classified as disqualified or Real in order to allow further analysis. The code “no info”

was also used for products that did not have enough information to make a determination of Real Food, disqualified, or typically conventional.

**Figure 1: Screenshot of September 2012 spreadsheet**

| | A | B | C | D | E | F | G | H | I | J | K | L |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Product Vendor | Product Code | Product Label/Brand | Product Description | Total Money Spent on Product | Product Category | Disqualifier | Local | Humane | Fair | Ecologically sou | Comments |
| 207 | Sysco Food Service | 1679950 | Packer | Herbs/Cilantro/Fresh/4oz | $10.94 | Produce | No | No | No | No | No | |
| 208 | Sysco Food Service | 1329721 | Packer | Herbs/Dill/Fresh/4oz | $6.26 | Produce | No | No | No | No | No | |
| 209 | Sysco Food Service | 1908342 | Sys Imp | Herbs/Parsley/Bunch/(6ct) | $13.60 | Produce | No | No | No | No | No | |
| 210 | Sysco Food Service | 1680008 | Packer | Herbs/Rosemary/Fresh/4oz | $20.84 | Produce | No | No | No | No | No | No info |
| 211 | Sysco Food Service | 1680032 | Packer | Herbs/Tarragon/Fresh/4oz | $11.58 | Produce | No | No | No | No | No | No info |
| 212 | Sysco Food Service | 1680040 | Packer | Herbs/Thyme/Fresh/4oz | $6.93 | Produce | No | No | No | No | No | |
| 213 | Sysco Food Service | 6033801 | Wrthgtn | Hot Dogs/Vegetarian/Soy/Leanie (1.4 oz) | $45.11 | Grocery/Staple | Yes | | | | | Soy |
| 214 | Sysco Food Service | 34629 | Landmarks | Ice Cream/Landmark/Cookie Dough/1Qct | $37.08 | Daily | No | Yes | No | No | No | |
| 215 | Sysco Food Service | 5387410 | Whrfds | Ice Cream/Whrfds/Chocolate Chip/1Qct | $32.24 | Daily | Yes | No | No | No | No | NLRB |
| 216 | Sysco Food Service | 5393434 | Whrfds | Ice Cream/Whrfds/Cookie-n-Cream/1Qct | $64.48 | Daily | Yes | | | | | NLRB |
| 217 | Sysco Food Service | 5394880 | Whrfds | Ice Cream/Whrfds/Mini Choc Chip/1Qct | $32.24 | Daily | Yes | | | | | NLRB |
| 218 | Sysco Food Service | 5373006 | Whrfel | Ice Cream/Whrfel/Chocolate/1Qct | $42.36 | Daily | Yes | | | | | NLRB |
| 219 | Sysco Food Service | 5392640 | Whrfel | Ice Cream/Whrfel/Coffee/1Qct | $105.84 | Daily | Yes | | | | | NLRB |
| 220 | Sysco Food Service | 5386928 | Whrfel | Ice Cream/Whrfel/Strawberry/1Qct | $42.36 | Daily | Yes | | | | | NLRB |
| 221 | Sysco Food Service | 5371613 | Whrfel | Ice Cream/Whrfel/Vanilla/1Qct | $381.24 | Daily | Yes | | | | | NLRB |
| 222 | Sysco Food Service | 2812188 | House Rec | Jelly/Assorted/#60/PC | $16.91 | Grocery/Staple | Yes | | | | | HFCS |
| 223 | Sysco Food Service | 4243923 | Smucker | Jelly/Grape/Cup | $10.11 | Grocery/Staple | Yes | | | | | HFCS |
| 224 | Sysco Food Service | 2274124 | Minmaid (Special O) | Juice/MM/Apple/Concentrate (Ex1) | $566.31 | Other Beverage | No | No | No | No | No | |
| 225 | Sysco Food Service | 7246333 | Minmaid | Juice/MM/Cranberry/Drink/Mini Pac" | $978.88 | Other Beverage | No | No | No | No | No | |
| 226 | Northcenter Foodservice Corp | 12019 | Minmaid | Juice/MM/Cranberry/Drink/Mini Pac" | $94.50 | Other Beverage | No | No | No | No | No | |
| 227 | Northcenter Foodservice Corp | 43045 | Minmaid (Special O) | Juice/MM/Orange/Concentrate/Ex1" | $254.67 | Other Beverage | No | No | No | No | No | |
| 228 | Sysco Food Service | 2288542 | Minmaid (Special O) | Juice/MM/Orange/Concentrate/Ex1" | $723.72 | Other Beverage | No | No | No | No | No | |
| 229 | Northcenter Foodservice Corp | 43046 | Sys Nat | Juice/MM/Orange/Concentrate/Ex1" | $169.78 | Other Beverage | No | No | No | No | No | |
| 230 | Sysco Food Service | 1985274 | Sys Nat | Kale/Clean/Ready to Use | $23.61 | Produce | Yes | | | | | OSHA, NLRB, possible slavery |
| 231 | Northcenter Foodservice Corp | 951870 | Packer | Kale/Green/12ct | $15.06 | Produce | No | No | No | No | No | |
| 232 | Sysco Food Service | 7449051 | Heinz (Maine Day $ __?) | Ketchup/Fancy Pouch | $764.72 | Grocery/Staple | Yes | | | | | ALC 12/12/14: OSHA violation within 3 years |
| 233 | Sysco Food Service | 6640969 | Sys Nat | Lettuce/Green Leaf/Crowns | $85.96 | Produce | Yes | | | | | OSHA |
| 234 | Sysco Food Service | 2189819 | Sys Nat | Lettuce/Romaine/Chopped | $348.02 | Produce | Yes | | | | | OSHA, NLRB, possible slavery |
| 235 | Sysco Food Service | 6524458 | Sys Imp | Lettuce/Shredded/1/4in (Supmp) | $312.80 | Produce | Yes | | | | | OSHA, NLRB, possible slavery |
| 236 | Sysco Food Service | 9516907 | Sys Cls | Lettuce/Spring Mix/Sweet Con Pkw | $114.72 | Produce | Yes | | | | | OSHA, NLRB, possible slavery |
| 237 | Sysco Food Service | 420778 | Whrfds (Special O) | Margarine/Liquid (dc) | $286.39 | Daily | Yes | No | No | No | No | OSHA |
| 238 | Sysco Food Service | 6631123 | Whrfds | Margarine/Spread/Zff (DUB) | $39.16 | Daily | Yes | No | No | No | No | OSHA |

When the relevant information for each invoice item was recorded in a spreadsheet, the spreadsheets were reformatted and uploaded into the RFC Calculator web app. The Calculator then indicated products that did not fully upload or needed more information for troubleshooting. It also provided suggestions for products that other schools had researched before as part of a new database. The database utilizes products researched by other schools that are verified by RFC to provide information on frequent or popular products. After fixing the products that did not upload correctly and potentially incorporating the extra information provided by other schools to complete some products, the data was complete.

An exit interview was scheduled with an RFC Calculator representative so that RFC could discuss the process and results before ultimately releasing the results. This allows RFC to verify the results and see if anything was problematic that needs to be fixed and to allow researchers to provide feedback on the process. Once the exit

interview was complete, the Real Food percentage was calculated and the breakdown of the real products was available.

The 2012-2013 academic year data was divided by the Calculator into total purchasing, Real Food (its components Real Food A and Real Food B), and Not Real Food. Total purchasing, Real Food A, and Real Food B were broken down further into product categories. Real Food was broken down into product categories and Real Food criteria. The separate Real Food criteria were also broken down into product categories. The Calculator only provided Not Real Food as a total number. Not Real Food was broken down further into typically conventional, disqualified, and not enough information as well as into product categories. This means all of the purchasing can be broken down into five overall categories: 1) Real Food A, 2) Real Food B, 3) disqualified, 4) not enough information, or 5) typically conventional. These will be discussed in the results section.

## Chapter 5: Results

This chapter analyzes the results from the University of Maine Calculator assessment. It begins by including an overview of total University of Maine food purchasing. The discussion then moves on to Real Food purchasing followed by an analysis of how that is made up by the four Real Food criteria. The disqualifiers are explored, first by percent of total purchasing and then by percent of product categories. Finally, the differences between the two representative months are discussed. The data in this chapter is from two months of purchasing and may not be annually representative.

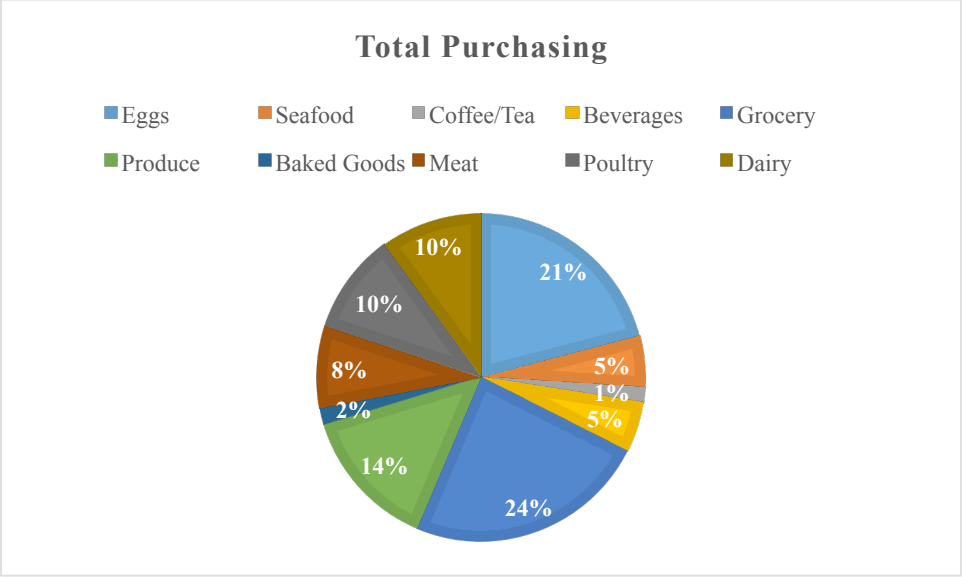
This section is broken down into two subsections, Total Purchasing, which covers Real Food in terms of Real Food A and Real Food B in all the product categories and Real Food criteria, and Disqualifiers, which covers the different disqualifiers and how those are distributed over product categories, as well as products without enough information and those that are typically conventional.

### *Total Purchasing*

The two months of data accounted for $222,630 and 1,013 products. Total purchasing by product category is shown in Figure 1. Of total purchasing, the largest product category was grocery worth $53,174. Grocery covers quite a lot of food products including anything canned, most processed and frozen foods, pasta and other pantry foods. The second largest product category was eggs worth $47,037. This includes whole and liquid eggs. Produce is 14% of purchasing ($31,972) and includes all fresh fruits and vegetables as well as frozen but otherwise unprocessed fruit and vegetables. Dairy and poultry both accounted for 10% of purchasing, worth $22,441 and $21,158, respectively.

Dairy is all milk, cheese, and ice cream products. Poultry is any chicken product, except eggs.

**Figure 2: Total Purchasing by Product Category**




Meat was worth $18,356, which includes all beef, pork, sausage, bacon, etc. Seafood and beverages were worth $10,100 and $11,200, respectively. Seafood includes any fish or seafood product and beverages are any non-milk or non- coffee/tea beverages, including milk substitutes. Baked goods were worth $3,819 which includes bread, muffins, bagels, etc. Finally, tea and coffee were 1.5% of purchasing worth $3,372.

***Real Food***

The University of Maine purchased 5% Real Food worth $10,888 during the studied months. Two percent of the total was Real Food A worth $4,012 and 3% was Real Food B worth $6,876. Table 1 shows the cost and percentages of each product category that was categorized as Real Food A, Real Food B, and Not Real Food (typically conventional, not enough information, and disqualified). Not Real Food will be discussed later in terms of its components. No baked goods, poultry or eggs counted as

Real Food. Of the seafood, 37% was Real Food with 20% categorized as Real Food A and 17% as Real Food B. Meat had 10% Real Food, all Real Food A. The beverage category had 2% Real Food, all Real Food B. In the dairy category only 1% was Real Food, all Real Food B. Two percent of the grocery category was Real Food, all Real Food B. Eight percent of the produce category was Real Food, mostly Real Food B. In the coffee and tea category, 33% was Real Food, 2% Real Food A and 31% Real Food B.

**Table 1: Real Food A, Real Food B, and Not Real Food value and percentage by product category for September 2012 and February 2013**

| | --------- Real Food --------- | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Product | ------ A ------ | | ------ B ------ | | --- Not Real Food --- | | ---- Total ---- | |
| Category | $ | %[a] | $ | %[a] | $ | %[a] | $ | %[a] |
| Baked Goods | 0 | *0* | 0 | *0* | 3,819 | *100* | 3,819 | *100* |
| Beverages | 0 | *0* | 193 | *2* | 11,007 | *98* | 11,200 | *100* |
| Coffee/Tea | 51 | *1.5* | 1,042 | *31* | 2,279 | *67.5* | 3,372 | *100* |
| Dairy | 0 | *0* | 226 | *1* | 22,215 | *99* | 22,441 | *100* |
| Eggs | 0 | *0* | 0 | *0* | 47,037 | *100* | 47,037 | *100* |
| Grocery | 0 | *0* | 1,178 | *2* | 51,997 | *98* | 53,175 | *100* |
| Meat | 1,783 | *10* | 0 | *0* | 16,572 | *90* | 18,355 | *100* |
| Poultry | 0 | *0* | 0 | *0* | 21,158 | *100* | 21,158 | *100* |
| Produce | 150 | *0.5* | 2,509 | *8* | 29,312 | *91.5* | 31,971 | *100* |
| Seafood | 2,027 | *20* | 1,728 | *17* | 6,345 | *63* | 10,100 | *100* |
| **TOTAL** | **4,011** | ***2*** | **6,876** | ***3*** | **211,741** | ***95*** | **222,628** | ***100*** |

[a] Percent of total for product category, not percent of food type (A, B, or Not Real Food).

Real Food A is the more stringent of the two types of Real Food, so many product categories did not have any products that counted towards it. As such, Real Food A is 51% ($2,027) seafood, 44% ($1,783) meat, 4% ($150) produce, and 1.3% ($51) coffee and tea. Food only needs to meet one of the criteria to be classified as Real Food B, so more of the product categories had products that represent Real Food B. Thirty-six percent ($2,509) was produce, 25% ($1,728) seafood, 17% ($1,178) grocery, 15% ($1,042) tea and coffee, 3% ($226) dairy, and 2.8% ($193) beverages.

***Real Food Criteria***

The Calculator also breaks down the Real Food by the four Real Food criteria. That includes percentage of the total purchasing that went towards each Real Food criterion and the breakdown of that percentage into product categories. Each product category was also broken down to show the percentage that counted for each Real Food criterion.

Table 2 shows the four Real Food criteria divided by product category.

**Table 2: Real Food Criteria by product category**

| Product Category | Local | Ecologically Sound | Fair | Humane |
|---|---|---|---|---|
| Baked Good % | 0 | 0 | 0 | 0 |
| Beverage % | 0.2 | 2 | 0 | 0 |
| Coffee/Tea % | 0 | 12 | 100 | 0 |
| Dairy % | 3 | 0 | 0 | 0 |
| Eggs % | 0 | 0 | 0 | 0 |
| Grocery % | 0.8 | 21 | 0 | 0 |
| Meat % | 24 | 19 | 0 | 100 |
| Poultry % | 0 | 0 | 0 | 0 |
| Produce % | 45 | 2 | 0 | 0 |
| Seafood % | 27 | 44 | 0 | 0 |
| **TOTAL %** | **100** | **100** | **100** | **100** |

Three percent of the total purchasing was local food, accounting for $7,426. No baked goods, poultry, eggs, or tea and coffee counted towards local. Local comprised of $3,313 of produce, $2,027 of seafood, $1,783 of meat, $226 of dairy, $60 of grocery, and $16 of the beverage category.

Four percent of the total purchasing was ecologically sound, accounting for $9,401. No baked goods, poultry, dairy, or eggs counted as ecologically sound.

Ecologically sound was made up of $4,137 of seafood, $1,961 of grocery, $1,783 of meat, $1,093 of tea and coffee, $236 of produce, and $190 of beverages.

The fair criterion only had one product that counted, a coffee product from the coffee and tea category, worth $51, accounted for less than 1% of total purchasing. No other product categories had any products that counted as the fair Real Food criterion.

One percent of purchasing counted as humane food accounting for $1,783. The produce, beverage, baked goods, and coffee and tea product categories cannot count towards humane. One hundred percent of the humane category was comprised of meat.

Table 3 shows the product categories by the Real Food criteria. Some product category had products that qualified for more than one of the Real Food criteria, so totals cannot be shown in the table.

Large percentages of the seafood category counted as local and ecologically sound, 20% and 41% respectively. Many of these products counted as both, but overall this product category had very high amounts of Real Food. Coffee and Tea also had a high amount of Real Food as a percentage of the product category: 32% ecologically sound and 2% Fair.

The meat category had a moderate amount of Real Food as a portion of meat purchasing. The Local, Ecologically Sound and Humane criteria all accounted for 10% of the meat category. The same products counted as all three criteria, so the total amount of Real Food from this product category is 10%.

**Table 3: Product categories by Real Food Criteria Percentage and Dollars**

| | ----Local---- | | Ecologically Sound | | --------Fair-------- | | ------Humane------ | |
|---|---|---|---|---|---|---|---|---|
| Product Categories | $ | % | $ | % | $ | % | $ | % |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Baked Goods | 0 | *0* | 0 | *0* | 0 | *0* | 0 | *0* |
| Beverage | 16 | *0* | 190 | *2* | 0 | *0* | 0 | *0* |
| Coffee/Tea | 0 | *0* | 1,093 | *32* | 51 | *2* | 0 | *0* |
| Dairy | 226 | *1* | 0 | *0* | 0 | *0* | 0 | *0* |
| Eggs | 0 | *0* | 0 | *0* | 0 | *0* | 0 | *0* |
| Grocery | 60 | *0* | 1,961 | *4* | 0 | *0* | 0 | *0* |
| Meat | 1,783 | *10* | 1,783 | *10* | 0 | *0* | 1,783 | *10* |
| Poultry | 0 | *0* | 0 | *0* | 0 | *0* | 0 | *0* |
| Produce | 3,313 | *10* | 236 | *1* | 0 | *0* | 0 | *0* |
| Seafood | 2,027 | *20* | 4,137 | *41* | 0 | *0* | 0 | *0* |

The produce category also had a moderate amount of Real Food, mostly concentrated in the local criteria (10%), but some was in the ecologically sound criteria (1%). The total food purchasing was higher in produce than meat, so 10% of the produce category is a higher dollar figure than 10% of the meat category.

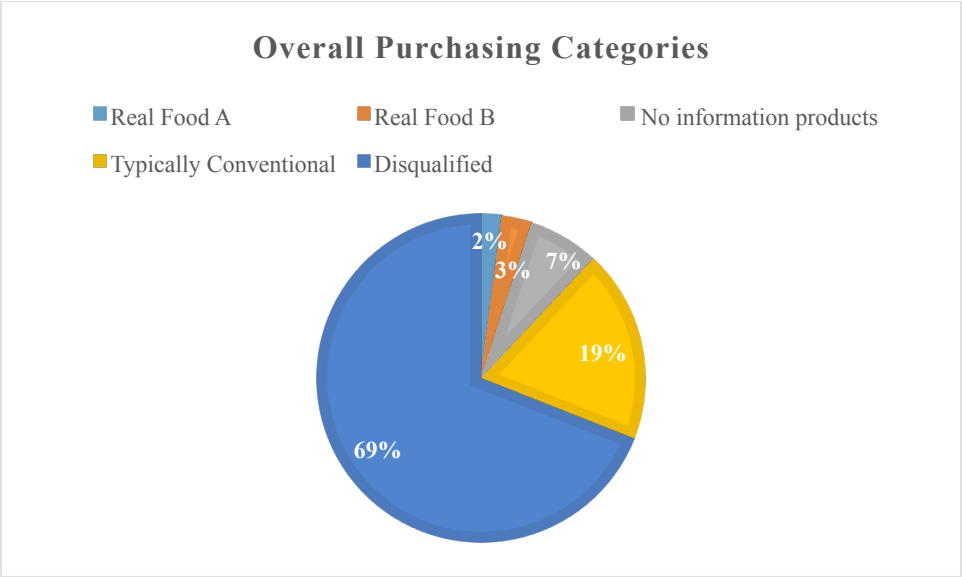
The beverage, dairy, and grocery product categories had minimal percentages of Real Food. The beverage and grocery category had <1% of their product category purchasing that counted as local. Dairy was at 1% for local. The beverage, and grocery categories also had products that counted as ecologically sound at 2% and 4% respectively.

***Disqualifiers***

Thus the University of Maine had 5% Real Food. The great majority of food purchased, 95%, was labeled as Not Real Food. Out of total purchasing that breaks down to be 69% disqualified, 19% typically conventional (the products had information, were not disqualified, and not real), and 7% did not have enough information to classify them as real or not (Figure 3). The typically conventional and the not enough information products were not broken down by product category. The disqualifiers were broken down

into the specific disqualifiers and then the product categories within each disqualifier. Some products had more than one disqualifier. All disqualifier percentages are out of total purchasing.

**Figure 3: Total Purchasing in Percentage of Overall Categories**




The five possible disqualifiers and the percentage of total purchasing in each product category that had each disqualifier are shown in Table 4. All of the percentages in this table are a portion of the total purchasing. The most common disqualifier that was NLRB, OSHA, and FLSA labor violations. These accounted for 48.5% of total purchasing accounting for $108.622. Eggs made up 20.2% ($46,168) of purchasing under this violation. Grocery was 10.3% ($22,669) of purchasing with labor violations. The egg and grocery categories were two of the largest of total purchasing and also had the highest incidence of this disqualifier. Meat accounted for $10,636 of total purchasing with this violation and produce was $10,293. All other categories had <5% of total purchasing spent on food with labor violations, and the coffee and tea category had no food with labor violations.

Food produced using slavery accounted for 0.1% ($209) of total purchasing. These products were entirely concentrated in the grocery category. No products in any other category had this disqualifier. Food produced using CAFOs accounted for 10.3% ($23,117) of total purchasing, primarily in the poultry (4.7%; $10,590), dairy (4%; $8,830), and meat (1.3%; $3,042) product categories (Table 4). Baked goods, produce, coffee and tea, seafood, and beverage cannot have this disqualifier and no eggs had this disqualifier.

**Table 4 Disqualifiers by total purchasing percentage of product categories**

| | Labor | CAFO | GMO | Ingredients | Slavery | **TOTAL %** |
|---|---|---|---|---|---|---|
| Baked Goods % | 1.23 | 0 | 0.43 | 0 | 0 | **1.66** |
| Beverage % | 1.29 | 0 | 1.00 | 1.20 | 0 | **3.49** |
| Coffee/Tea % | 0 | 0 | 0 | 0 | 0 | **0** |
| Dairy % | 2.98 | 4.03 | 0.04 | 0 | 0 | **7.05** |
| Eggs % | 20.21 | 0 | 0 | 0 | 0 | **20.21** |
| Grocery % | 10.25 | 0.25 | 5.68 | 2.27 | 0.10 | **18.55** |
| Meat % | 4.67 | 1.27 | 0.04 | 0.17 | 0 | **6.15** |
| Poultry % | 2.51 | 4.73 | 0.12 | 0.18 | 0 | **7.54** |
| Produce % | 4.56 | 0 | 0 | 0 | 0 | **4.56** |
| Seafood % | 0.73 | 0 | 0 | 0 | 0 | **0.73** |
| **TOTAL %** | **48.45** | **10.27** | **7.30** | **3.82** | **0.10** | **69.94*** |

* Rounding errors since some products had more than one disqualifier

Food containing GMOs accounted for 7.3% ($16,342) of total purchasing. Grocery has the highest percentage of total purchasing spent for food containing GMOs (5.7%; $12,795), with all other product categories containing 1% or less of total purchasing (Table 4). No produce, eggs, seafood, or coffee and tea had this disqualifier.

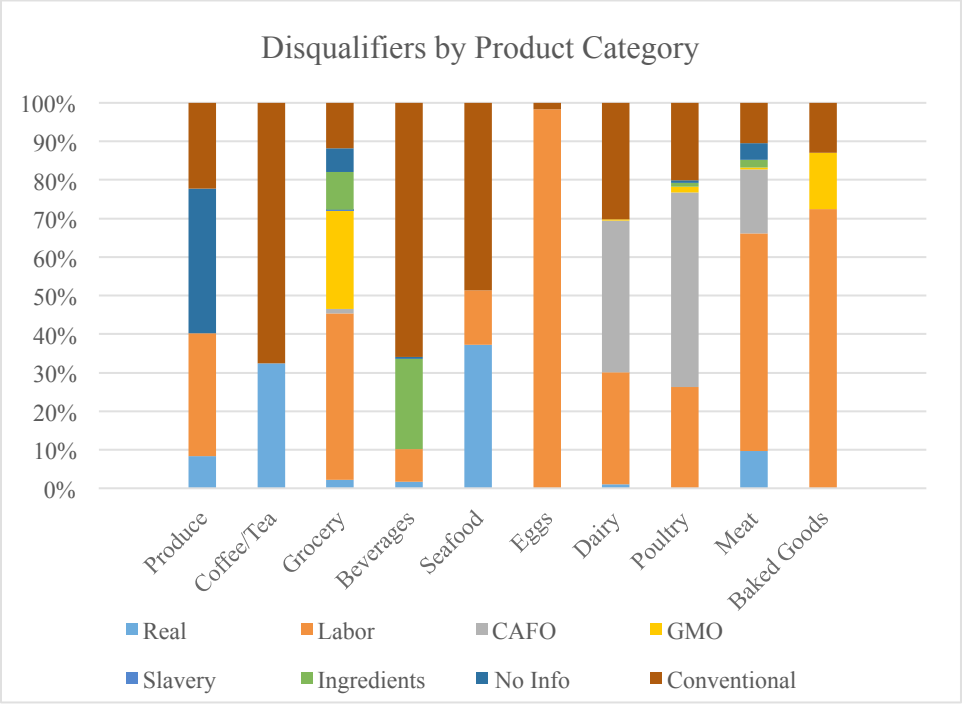
Finally, food containing unhealthful ingredients account for 3.8% ($8,512) of total purchasing. No products from baked goods, produce, dairy, eggs, seafood, or, coffee and tea were disqualified because of unhealthy ingredients. Grocery products account for $5,131 of the total purchasing with unhealthful ingredients. Beverages account for

$2,620. Poultry and meat account for $409 and $352 respectively of total purchasing associated with this disqualifier.

Each product category had a different prevalence of each disqualifier. The most common disqualifier regardless of product category was labor violations. The applicable product categories all had a substantial portion of the CAFO disqualifier. GMOs and unhealthful ingredients have about the same level of prevalence in product categories. Figure 4 shows each product category with the percentages of each disqualifier for each and Real Food. The percentages will be discussed below. No information products were in quite a few product categories, but were most prevalent in produce. Every product category had typically conventional products and that area made up a large portion of most categories.

In the produce category 8.3% was Real Food. About 30% of produce was disqualified for labor violations. About 38% of produce did not have enough information to label it Real Food or disqualified and the remaining 22% was typically conventional. Coffee and tea had the largest percentage of Real Food at 32.4% and also did not have any disqualified products. The remaining products were typically conventional.
The beverage category had 1.7% Real Food products, with about 30% disqualified. Only 0.6% of the beverage category did not have enough information. The remaining 65.9% was typically conventional.

**Figure 4: Product categories divided into percentage of Real Food and disqualifiers**




The grocery category had 2.2% Real Food. It did have products that qualified for each type of disqualifier and the largest of those was labor violations with 43.1%. Slavery only appears in this category and was 0.4% One point two percent of grocery purchasing was disqualified for CAFOs. GMOs accounted for 25.4% of the grocery sections and unhealthful ingredients were 9.7%. The remaining products had not enough information or were typically conventional at 6.2% and 11.8%, respectively.

The seafood category had 37.2% Real Food and about 14% was disqualified for labor violations. The remaining 48.7% was typically conventional.

The egg category had no Real Food. The majority of this category was disqualified for labor violations, 98.4%. The remaining 1.6% was typically conventional.

One percent of the dairy category was Real Food. Labor violations were responsible for disqualifying 29.1% of this category's purchasing. Thirty nine point three

percent was disqualified for CAFOs. GMOs did disqualify 0.3%. The remaining 30.3% was typically conventional.

The poultry category also had no Real Food. The largest disqualifier in this category was CAFOs with 50.1%/ The next largest was labor violations with 26%. GMOs disqualified 1.4% and ingredients disqualified 1%. Not enough information products only accounted for 0.7%. The remaining 19.9% was typically conventional.

The meat category had 9.7% Real Food. Labor violations disqualified 56.5% and is the most prevalent disqualifier in this category. CAFOs disqualified 16.6%. GMOs disqualified 0.5% and ingredients disqualified 1.9%. Four point three percent did not have enough information. The remaining 10.5% was typically conventional.

Baked goods had no Real Food. The largest disqualifier in this category is labor with 72.5%. GMOs were the second largest with 14.5% disqualified. Finally the remaining products were typically conventional at 13%.

***Representative Months***

Purchasing differed between September and February, the two months assessed. In September 2012 the University of Maine had lower food purchasing costs than in February 2013. Total food costs in September were $92,648.29 and 475 products were purchased. Total food costs in February were $129,981.55 and 583 products were purchased. More money was spent purchasing Real Food in February, but the specific percentage of Real Food for February ($6,126 at 4.7%) was lower than that of September ($4,870 at 5.3%). Without assessing more months in each season, it is hard to know whether differences between September and February are due to the seasons or to some other factor.

## Chapter 6: Discussion

This chapter looks at what the raw data could mean for the University of Maine and explores some possible ways to increase the Real Food percentage. These suggestions also contain some analysis of what increasing the Real Food percentage may mean for the food system. Suggestions are made about the disqualifiers and how to avoid them. This chapter explores reasons that making those switches would be helpful for the University of Maine or easy to complete. This chapter also includes barriers to switching and limitations of the data. There will also be a look at the Real Food Calculator itself and the benefits and possible problems with the tool and the process that RFC suggests. Finally this chapter explores how colleges and universities could impact the food system through RFC and the Calculator.

### *Strategies to Increase the Real Food Percentage*

Since the percentage of Real Food is 5% at $10,888 in the 2012-2013 academic year, the University of Maine would need 15% more Real Food by 2020 to reach the RFC goal of 20%. All numbers in this section are annualized by percentage of the total budget. In terms of the annual budget, the University of Maine is spending around $275,000 on Real Food. Moving to 20% would mean switching $825,000 extra dollars to Real Food. One strategy for doing this would be for the University of Maine to move purchasing away from some of the products that were disqualified. The 7% of purchasing spent on food that has no information also suggests a need for more transparency in the supply chain.

The University of Maine has been increasing their local procurement, which would help the Real Food percentage if those products are not disqualified. Part of that

increase has involved a partnership with Lakeside Family Farm, which provided 60% of the local produce obtained in the 2012-2013 academic year. That accounts for 0.83% of total Real Food. Since that year, the sourcing from this farm has increased (Glenn Taylor, Director of Dining Services, personal communication). That is likely to have contributed to an increased Real Food percentage in recent years compared to 2012-2013. It would likely improve the Real Food percentage if the University of Maine can continue their relationship with Lakeside Family Farms or farms like it to obtain more produce.

Only 10% of the produce was local. A barrier to local food purchasing is Maine's short growing season, however Maine Organic Farmers and Gardeners Association (MOFGA) has a list of 20 foods that can be accessed from Maine all year. Half of that list is produce, so if all apples, potatoes, blueberries, carrots, garlic, onions, greens, winter squash, pumpkin, and cabbage were sourced locally, that would help increase the percentage. If all of those products except the apples and blueberries, since Lakeside does not provide those products, were purchased from Lakeside in this assessment it would add an additional 2.4% ($132,000) Real Food bringing the total up to 7.4%. It may be difficult for this one farm to actually provide all of these products for the University of Maine, so if another partnership could be established it would make this suggestion more likely. This would also diversify purchasing to support a higher number of local Maine farms. Some of the apples were purchased from local farms. Blueberries purchased locally were purchased by Wyman's which do not count because that company has greater than 1% of the revenue of the industry leader.

The University of Maine does buy quite a lot of local potatoes by the standard of 250 miles. In just the two months of September and February, the University spent

$4,935 on local potatoes or 2.2% of purchasing, translating to $121,550 a year spent on just local potatoes. About 85% of those local potatoes are disqualified or unable to count as local because the company is too large or there were labor issues. One company, Naturally Potatoes, would count for another $17,050 local but they had a labor disqualifier in 2009. That means any year after the 2012-2013 academic year they would count as Real Food. Just including this company in this assessment increased the Real Food percentage to 5.3%. If it is included in local food, Naturally Potatoes would count for 9.1% of local food. Other places that the University of Maine purchases potatoes from, except Lakeside Family Farms, will likely not count as Real Food due to disqualifiers. The University of Maine could shift to purchasing more potatoes and potato products to Naturally Potatoes to increase the Real Food percentage. If all of the potatoes in this assessment were purchased from Naturally Potatoes and Lakeside Family Farms, assuming the same prices, the Real Food percentage would increase to 8%.

Another opportunity to increase the Real Food percentage is eggs. Eggs are 21% of purchasing worth $1,155,000 annually and 98.4% of them are disqualified for labor issues. The latest disqualification occurred in 2012/2013, so that means that in 2016 the eggs would no longer be disqualified. While all the eggs are Not Real Food, the company that the University purchases from has organic options. This is an opportunity to shift $1,122,000 of annual purchasing with one switch. Just switching the eggs, as they were in the 2012-2013 academic year, and keeping the former Real Food products would get the University of Maine to 25.4% Real Food, over the 20% goal. If a shift this large were not viable due to the cost of organic options or volume, shifting part of the eggs would make a significant impact on the Real Food percentage. If only 25% of the eggs are switched to

the organic option that would move the Real Food percentage to 10.1%, doubling the current 5%. Another option for eggs would be to move a portion or all of their purchasing to a local source. That switch would have a similar impact on the Real Food percentage. A local company without disqualifiers would need to be located and contracted for that option to work.

Obtaining the RFC goal of 20% through organic egg purchasing is possible. This would mean that the food system issues the University of Maine would be avoiding through Real Food would be very limited. The purchasing switch would only affect egg laying chickens and their conditions. If the University of Maine switched to local eggs that would impact the chickens and help support local farms. Choosing to switch only one product to reach the goal is an option that does not make a large impact on the food system or fully utilize the Real Food criteria to support a food system that benefits producers, consumers, communities, and the Earth.

In addition to switching towards Real Food, switching away from disqualifiers may make future changes more easily accessible to the University. Sixty nine percent of the food was disqualified. Often avoiding disqualified food would mean there is more food that is typically conventional if it does not qualify as Real Food. There is an opportunity in the typically conventional food to have it verified in the future to meet Real Food criteria. If a product has a disqualifier, that option is not as readily available. Also, avoiding disqualifiers can help make a difference in the food system. If the University of Maine is clear they do not want products because of the ingredients, GMOs, CAFOs or labor issues that may help the industry to avoid those things themselves, especially if other colleges and universities have the same standards.

One disqualifier that will likely be easy to eliminate entirely is slavery. Only food from one company was associated with slavery and it provided some canned vegetables. It should be viable to switch away from a company that was only providing a small portion of the canned vegetables. Slavery is a disqualifier that lasts 10 years, so this is not a situation where it would be worth it to wait out the violation. This would only shift 0.01% of purchasing away from this disqualifier, but it would ensure that the University of Maine is not supporting slavery.

GMO ingredients like corn and soy are in many processed products and are in 7.3% of the University of Maine food purchasing. These ubiquitous ingredients are hard to avoid because they are unlabeled. There are organizations like the Non-GMO Project that certify if products do not have GMOs in them. There is a limited selection of products that have this certification, but purchasing those products would avoid some of the disqualifiers. Just avoiding these disqualifiers will not necessarily increase the amount of Real Food since it must have a third party certification that qualifies for Real Food criteria.

Another route would be to utilize the USDA Organic certification which does not allow GMOs. If all of the products disqualified for GMOs were switched to USDA Organic, the Real Food percentage would increase to 12.3%. Often USDA Organic certified products are more expensive than other products, so that may not be the best course of action to merely avoid disqualifiers. For example, in 2006, organic soybeans were priced at $14.64 per bushel versus conventional at $5.48 (McBride & Greene, 2009). Many of the products with GMOs were processed foods like pre made soups, salad dressings, and bagels. Some of the soups had organic options from the same

company that could be taken advantage of to switch some products. Salad dressings could be made in house so the purchasing of ingredients could be more closely controlled. With products like bagels, switching away from the companies would probably be the best solution.

Concentrated animal feeding operations (CAFOs) disqualifiers were the second largest disqualifiers found by this assessment. This disqualifier is often associated with expensive products such as beef, dairy, poultry, and eggs, so the percentage of total purchasing would be high. At the University of Maine, 10.3% of total purchasing was CAFO with meat at 1.3%, poultry at 4.7%, and dairy at 4%. No eggs had this disqualifier. A problem with moving away from CAFOs is that multi-source products like milk that get aggregated can have sources that are and are not CAFOs. If that is the case, the item still counts as disqualified by RFC since it cannot be verified that the source is not CAFO. At the University of Maine, most of the milk was disqualified for labor. Moving away from CAFOs would involve finding some very well researched companies and possibly developing a partnership with them so that the University of Maine would be able to source as much as possible from them. Switching poultry away from CAFOs would move the University of Maine away from the majority of this disqualifier. If all the disqualified poultry were switched to local sources as well, it would mean the Real Food percentage would increase by 4.7% points.

Unhealthful ingredients were the second smallest disqualifier for purchasing. Many of these were processed products, like soda, and it is unlikely for those to change. Since some of these ingredients were present in meat at 0.2% and poultry products at 0.2%, it would be possible to move away from them by working to avoid the CAFO and

labor disqualifiers. Product switches away from other disqualifiers could positively impact this one since it often appeared with other disqualifiers. Otherwise, it may not be worth the efforts for the University of Maine to specifically work on switching away from these products.

The last disqualifier is labor issues. This is the most common disqualifier from the assessment with 48.5% of total purchasing disqualified. All manner of products were disqualified, so there is no single solution. In some instances, like Naturally Potatoes, it may be best to wait out the disqualifying period, if the product does not have a new violation. This is best for products that had minimal violations in the past, and those that may count as Real Food once the labor violation is gone. There are a few products for which that is true such as some potatoes and tortillas. Some companies had more than one labor violation for many years, such as Tyson and Hormel. Those are the products and companies that the University of Maine may consider switching away from.

Switching away from companies that sell products that had a variety of disqualifiers like meat and poultry may positively impact the labor disqualifier as well as CAFOs and ingredients. However given the amount of products that have labor violations, this will be a difficult disqualifier to avoid. This is especially true as a company could receive a violation at any time. A company that was previously real may get a violation after a switch was already made and the products would no longer count. In instances like that, it may be worthwhile to enter into a dialogue with the companies about how worker rights and safety are a priority of the University of Maine. Building a relationship and communicating may motivate companies to maintain OSHA, NLRB, and

FLSA standards to the best of their ability to have a contract with the University of Maine.

***Benefits to Real Food***

The University of Maine self-operated dining does not contract out its food service and instead creates contracts with distributors. The University of Maine, while it does have to adhere to its contracts with its distributors, does not have to adhere to compliance rates or preferred vendors from a food service company. Compliance rates are a contractual obligation to buy a certain percentage of food from preferred vendors. Preferred vendors are vendors the food service company is able to use for a cheaper rate. This allows the University greater autonomy when creating contracts and making decisions. This can also mean that the University of Maine can choose to do things like increase local food purchasing and be responsive to student requests. Students have been successful at getting Fair Trade coffee in the Oakes Room (Griffin, 2006), showing the University of Maine's adaptability in terms of food procurement. As the University of Maine works to change some of their food sourcing, it may help the University to have more concrete goals using the Real Food criteria.

The University of Maine is also using Association for the Advancement of Sustainability in Higher Education's (AASHE) Sustainability Tracking, Assessment & Rating System (STARS) (Association for the Advancement of Sustainability in Higher Education, 2013). STARS helps colleges and universities track their overall sustainability using a point system. The STARS section on food is directly tied to the RFC Calculator criteria. STARS gives points based on the percentage of food that is "local and community based AND/OR Third party verified to be ecologically sound, fair and/or

humane" ("STARS- OP 6: Food and Beverage Purchasing," n.d.). The third party certifications listed, reflect those approved by RFC. Increasing the amount of Real Food on campus would directly help the University of Maine increase their STARS score.

In addition to being self-operated and responsive to student requests, the University of Maine is the largest college in Maine. With a $5.5 million dining budget, the University can influence the Maine economy and set an example. The size of the school means it can have a large economic impact and it may entice companies to want to work with it. The size could also work in terms of pricing. With such large orders, bulk pricing could be in effect for both local and conventional products. Local is often more expensive, even with bulk pricing.

***Cost***

Cost is an important factor driving purchasing decisions. It is difficult to predict added costs because of things like bulk pricing and the bargaining ability of institutions. While many products that count as real can be more expensive, others, like in-season produce, can actually be cheaper to procure (MacDonald, 2000). There is no current data on the cost impacts of Real Food.

Schools already in implementation of the Real Food Campus Commitment have taken different routes to maintain cost effectiveness. Two schools that have been in implementation in the northeast are the University of Massachusetts at Amherst and the University of Vermont. The following will explore how the two schools are dealing with price and implementing Real Food.

The University of Vermont has contracted their food service with Sodexo. The techniques they have used to maintain cost effectiveness take into account the rate of

compliance and the preferred vendors, which is part of being contracted. Compliance is buying a percentage determined in the contract from preferred vendors. For Sodexo, complying with the preferred vendors is more cost effective (Caylin McKee Sustainability Manager at Sodexo, Personal Communication, May 7, 2015). The school can have non-compliant products. In terms of Real Food, if a food is both real and compliant it is sometimes not any more expensive. That is the first priority. The second priority is to focus on food that is real and fits within approved regional vendors. If a switch to Real Food does end up costing more, another product that is not expected to be real can be made compliant to offset the costs. This avoids as much extra cost as possible. These switches have been the low hanging fruit and can only continue for so long.

Another way the University of Vermont has worked to save costs is through their own labor force. Items purchased that are processed, like carrots or beets being peeled and cut before getting to the school, can be bought without that processing and processed by the labor force at the school. This is only effective if the labor force can quickly and efficiently process those products and the labor costs do not outweigh the savings.

At the University of Vermont the meal plan costs have not been changed due to RFC. They are currently working on implementing the Real Food Campus Commitment, but have not yet completed a Real Food Calculator assessment. It is likely the costs will increase as the University of Vermont approaches 20%, but reducing costs throughout the process can help. The cost increase could either be absorbed by the university or could be passed on to the students in the form of a meal plan increase, student fee, or individual item prices could increase (Caylin McKee Sustainability Manager at Sodexo, Personal Communication, May 7, 2015).

The University of Massachusetts at Amherst has self-operated dining. Their cost saving techniques have emphasized internal operations rather than different vendors. An important aspect of that has been menu planning and waste reduction. In order to offset the costs of increasing the Real Food procurement, there was a focus on reducing the total amount of food wasted. To do this the dining halls went trayless which reduced the total amount of food necessary. There has also been a focus on smaller portion sizes and more cook to order food. In addition to the smaller portion sizes, they have focused on reducing the portions of meat specifically, as that is often the most expensive portion of the meal. The appearance of red meat on the menu has been reduced from 4-5 days to 2-3 days a week as well. A great deal of menu planning was involved to make this a possibility. There has been a focus on flavor, so these new, smaller, flavorful dishes must be created and tested. One thing that has helped the University of Massachusetts Amherst in their implementation has been a grant from the Kendall Foundation to assist them in creating the structures needed to obtain more Real Food. In general, the cost of meal plans at the University of Massachusetts Amherst have gone up, but this price increase has not been attributed to Real Food (Hannah Weinronk RFC Student Leader, Personal Communication, May 7, 2015).

The University of Maine has options to minimize costs as Real Food is increased. They can continue to haggle down prices and get bulk pricing, and they can implement some of the other techniques other universities have used. A more expensive real product could be offset by going to a generic product for food that will likely remain conventional, such as items that do not have Real alternatives or that are not worth switching. There can be a greater focus on cook to order foods and smaller portion sizes.

The University of Maine could also purchase unprocessed vegetables and train their staff to do the processing, but the high volume of products may make that an inefficient use of employee time.

***Barriers to Real Food***

Other challenges include the need for such a large volume of food that it can be difficult to find local producers to meet the demand. Also, if a school wishes to purchase directly from a source, the school often requires very large amounts of liability insurance to protect the school and student population (Barlett, 2011a; Hart, n.d.). A further challenge in places like Maine is the short growing season. Most of the cheapest local food happens in the summer when students are not on campus. There is a very short time period when schools are in session and when the farms continue to produce. Local food can be obtained during winter months if it has been properly stored, but that relies on external or on-campus storage possibilities. If a farm must store the produce until the school purchases it that is often included in the price. Institutions can purchase in season foods and store them in their own facilities, if they are available, to avoid the higher price. The University of Maine does purchase local food in the winter months and MOFGA's Maine Local Twenty are possibilities to increase the level of local food that schools can purchase.

Many issues in obtaining local or Real Food are related to the contracts institutions sign. Even self-operated campuses have contracts with distributors that they must adhere to. These contracts vary in length, but while a campus is contracted to a service it can be very difficult to switch companies. Clauses can be written into contracts to allow more freedom if necessary. The University of Maine has a local food clause that

prioritizes local food and allows the dining director to purchase from a different vendor if he is able to obtain something locally through the distributors with the contract (Hall & Grant, 2015). Contracts can also help institutionalize goals so that distributors and food service companies must also comply with goals the colleges and universities have. Steps like that can be taken for Real Food to help institutions have more freedom to make decisions.

Of course, all of these suggestions and observations are from a student perspective and the procurements system can be complicated. What seems to be feasible from this perspective may not be feasible from an administrative position. The suggestions above do reflect the information that has been learned through the Real Food Calculator process and may help to provide new insights to the University of Maine and their dining procurement. The Calculator provides a variety of new information, but the administrative interpretation of the data may be somewhat different than the student perspective.

These data covered the three main dining halls and did not include retail or a la carte dining options. The Real Food percentage may have been increased if those were included due to things like more fair trade coffee, chocolate, and local snack options. In future assessments those areas should be included to get a more accurate picture of the University of Maine purchasing. Future assessments would also give a more recent picture of the University of Maine purchasing. It would allow comparisons from year to year to see what is improving and how the distributors affect purchasing.

***Limitations of the Calculator***

The Calculator itself has limitations. One of its limitations is that it focuses on third party certifications. This is excellent for maintaining standards and preventing companies from making claims they cannot back up, but it does limit smaller companies. Most certifications take time and resources to obtain and smaller companies may embody the values of the certifications and RFC, but be unable to afford certification. This also may limit companies that may be certified by regional certifications that are just as stringent, but possibly easier to obtain than the national version. The Calculator currently does not allow for any regional certifications. There is some allowance under the fair criteria by allowing companies to confirm in writing that they meet certain criteria, but that was not explored or requested during this assessment. In future assessments that may be able to increase the Real Food percentage through the fair criteria.

In this assessment, seafood was a significant part of the Real Food criteria. The seafood criteria relied on one organization which seems to be less stringent than other criteria in the Calculator. RFC has a Calculator Working Group that has been assessing the seafood criteria and they are looking for an alternative certification. This does not affect the current assessment, but it may affect future assessments. The Monterey Bay Aquarium Seafood Watch Guide that RFC uses to assess the seafood also does not have every location that seafood may come from. That was apparent in this assessment when seafood came from locations that were not listed in the guide. A few seafood products may have been counted as Real Food if the Seafood Watch Guide had had those locations in their database.

The Real Food criteria are put into practice through the third party certifications that RFC determined fit each criterion. This means that each certification must be doing its job properly for the Real Food criteria to be working. In terms of things like USDA Organic that have a legislated meaning, it is likely that the certification is working properly. The construction of the Real Food Calculator involved a team of student researchers investigating each of these certifications and deciding whether or not to include them as part of the criteria. Even within independent organizations, these certifications tend to be difficult to get and do indicate that a company must consider how it is producing the products it sells. RFC set up the Calculator so that the certifications can change over time to continue to reflect the criteria. A new Calculator Working Group is currently working on investigating these and new certifications to maintain the standards.

One certification of concern is the Fair Trade Certified by Fair Trade USA. It has recently separated from the European Fair Trade standards that it used to adhere to. The difference is that Fair Trade USA allows plantations while the European version does not. This makes Fair Trade USA certification easier to obtain and it allows a model of farming that RFC does not necessarily agree with. Whether or not this will still count is to be determined by the Calculator Working Group.

The Calculator also could better utilize the over one hundred colleges and universities that are working on assessments. Each school must start their assessments from scratch even though many schools purchase similar or the same products and have assessed them before. This is beginning to be addressed by a database that is available on the Calculator website, but that is rather small currently. If the colleges and universities

could communicate more effectively about the products, it may make the assessment process easier and more efficient. The process currently is effective but time consuming. Utilizing the combined knowledge of hundreds of students doing similar work would likely reduce the time needed for each assessment.

## Chapter 7: Conclusions

This analysis has shown that the University of Maine has 5% Real Food in the 2012-2013 academic year. The data on the products shows that there are many options to increase Real Food up to the 20% goal the RFC puts forth including buying organic eggs, purchasing more local food, avoiding disqualifiers, especially on products that would be Real Food other than the disqualifier and switching more products to USDA Organic products.

Real Food is generally beneficial to the University of Maine. There is a strong focus on sustainability and an effort to continue improving as evinced by the participation in the STARS program and the increase of local purchasing in the years since this analysis. There are limitations to the Calculator and the RFC, but the overall ideals and goals are very strong and have a variety of accountability methods built within the Real Food Campus Commitment. There are limitations to colleges and universities such as cost and uniformity, but other schools have been able to mitigate those issues. Participation in this organization may help the University of Maine meet some of its own sustainability goals and to improve the state of Maine's and the national food system.

### *Effectiveness of the RFC*

Can the RFC make a difference using the Real Food Calculator, its certifications and disqualifiers? In terms of an individual school, switching purchasing away from the problematic products may be a symbolic gesture. Money is being shifted, but if only a single school is shifting purchasing away from particular products, then a company can simply sell somewhere else. Where the RFC does matter is as a national organization and movement. If many schools begin shifting away from certain products because they are

not Real Food, companies may begin to see a trend reflecting the values of the next generation. If the trend is large enough, companies may begin attempting to get certifications that will help them count as Real Food or attempt to avoid disqualifiers to keep business with the schools. RFC has created transparency agreements with some of the food service companies, so large players in this industry are already aware of this organization and what they stand for. As purchasing shifts towards Real Food, those products gain market share. That could also help tip the scales in favor of a more just food system. Currently, large changes in the food system have not happened, but as more schools, including the University of Maine and the over 100 other schools working on the Calculator, make changes and increase their Real Food percentage, then RFC's mission to avoid those issues in the food system and help promote a better food system could come to fruition.

In order for companies to see a trend, schools attempting to reach the 20% Real Food goal should make their changes carefully. As was shown in the discussion, the University of Maine could surpass the 20% goal by switching one product category: eggs. If the University of Maine chose to do that, it would only support organic products. This would not have a large impact on the issues in the food system. If the University of Maine were to switch a larger variety of products, it could lead to a larger impact on the food system and avoiding the issues discussed earlier. The Calculator only requires 20% Real Food and while any change would make some difference, there are routes that could make a significantly larger impact.

Ideally, colleges and universities would purchase as much Real Food A as possible and minimize purchasing products with disqualifiers. Real Food A requires at

least two Real Food criteria, so that would make a larger statement for each product. Most of the issues within the food system are represented through disqualifiers, so merely switching typically conventional products to Real Food will not affect those. It is important for whoever is actually making the changes to keep RFC's goals in mind in addition to just reaching the 20% Real Food goal. This is partially accounted for by the Food Systems Working Group formed by the Real Food Campus Commitment. It requires that students and various stakeholders have a role in the decision making and implementation process. Students familiar with RFC can help to steer decisions towards product switches that help the school reach 20% Real Food, but also can help avoid those problems in the food system that inspired Real Food in the first place. This is where transparency is helpful. Keeping transparency for the background decisions of switching to Real Food allows people to have a say and keep colleges and universities from meeting the bare minimum goals. The educational goal of RFC also helps keep students and stakeholders informed to keep colleges and universities accountable for switching to food that will do the most good.

## References


Association for the Advancement of Sustainability in Higher Education. (2013). STARS. Retrieved from https://stars.aashe.org/

Barlett, P. F. (2011a). Campus Sustainable Food Projects: Critique and Engagement. *American Anthropologist*, *113*(1), 101–115. doi:10.1111/j.1548-1433.2010.01309.x

Barlett, P. F. (2011b). Campus Sustainable Food Projects: Critique and Engagement. *American Anthropologist*, *113*(1), 101–115. doi:10.1111/j.1548-1433.2010.01309.x

Barton, J. E., & Dracup, M. (2000). Genetically modified crops and the environment. *Agronomy Journal*, *92*(4), 797–803.

Basu, S., & Dasgupta, S. (2012). Environmental Pollutants and Biodegredation, *12*(3), 2–4.

Bell, D. D. (2003). Historical and current molting practices in the U.S. table egg industry. *Poultry Science*, *82*(6), 965–970.

Bilodeau, L., Podger, J., & Abd-El-Aziz, A. (2014). Advancing campus and community sustainability: strategic alliances in action. *International Journal of Sustainability in Higher Education*, *15*(2), 157–168. doi:10.1108/IJSHE-06-2012-0051

Breast Cancer Fund. (2013). Bovine Growth Hormone (rBGH)/Recombinant Bovine Somatotropin (rBST). Retrieved from http://www.breastcancerfund.org/clear-science/radiation-chemicals-and-breast-cancer/bovine-growth-hormone.html

Center for Science in the Public Interest. (2013). Chemical Cuisine: Learn About Food Additives. Retrieved from http://www.cspinet.org/reports/chemcuisine.htm

Centner, T. J. (2010). Limitations on the Confinement of Food Animals in the United States. *Journal of Agricultural and Environmental Ethics*, *23*(5), 469–486. doi:http://dx.doi.org/10.1108/17506200710779521

Coalition of Immokalee Workers. (2012). Anti-Slavery Campaign. Retrieved from http://ciw-online.org/slavery/

Cochrane, W. W. (1979). *The Development of American Agriculture: A Historical Analysis* (2nd Editio.). Minneapolis: University of Minnesota Press.

Daniel, C. R., Cross, A. J., Koebnick, C., & Sinha, R. (2011). Trends in meat consumption in the USA. *Public Health Nutrition*, *14*(4), 575–583. doi:10.1017/S1368980010002077

Dodds, W. K., Bouska, W. W., Eitzmann, J. L., Pilger, T. J., Pitts, K. L., Riley, A. J., … Thornbrugh, D. J. (2009). Eutrophication of U. S. freshwaters: Analysis of potential economic damages. *Environmental Science and Technology*, *43*(1), 12–19. doi:10.1021/es801217q

Drewnowski, A., & Darmon, N. (2005). Food Choices and Diet costs: an Economic Analysis. *American Society for Nutritional Sciences*, (135), 900–904.

El-Wahab, H. M. F. A., & Moram, G. S. E.-D. (2013). Toxic effects of some synthetic food colorants and/or flavor additives on male rats. *Toxicology and Industrial Health*, *29*(2), 14–17. doi:http://dx.doi.org/10.1108/17506200710779521

Environmental Protection Agency. (2015). How do CAFOs Impact the Environment? Retrieved from http://www.epa.gov/region07/water/cafo/cafo_impact_environment.htm

Eyssen, B. Y. H., & Somer, P. D. E. (1962). The Mode of Action of Antibiotics in Stimulating Growth of Chicks. Louvain, Belgium: Rega Institute for Medical Research.

Fernandez-Cornejo, J., & Caswell, M. (2006). The First Decade of Genetically Engineered Crops in the United States. *Crops*, 30. Retrieved from http://www.ers.usda.gov/publications/eib11/eib11.pdf

Fraser, D., Mench, J., & Millman, S. (2001). Farm Animals and Their Welfare in 2000. In D. J. Salem & A. N. Rowan (Eds.), *The State of Animals 2001* (pp. 87–99). Washington, DC.: Humane Society Press.

Garcia, M. a. (2005). Transgenic Crops: Implications for Biodiversity and Sustainable Agriculture. *Bulletin of Science, Technology & Society*, *25*(4), 335–353. doi:10.1177/0270467605277293

Griffin, D. (2006). It's Not a Hoax... Fair Trade is in Oakes. Retrieved from https://mainecampus.com/2006/02/09/its-not-a-hoax-fair-trade-is-in-oakes/

Griffith, D. (2009). Unions without Borders: Organizing and Enlightening Immigrant Farm Workers. *Anthropology of Work Review*, *30*(2), 54–66. doi:10.1111/j.1548-1417.2009.01020.x

Hall, A., & Grant, M. S. L. (2015). *REQUEST FOR PROPOSAL GROCERY , MEAT , FISH AND PRODUCE PRODUCTS FOR THE RFP # 45-15*.

Hardesty, S. D. (2008). The growing role of local food markets. *American Journal of Agricultural Economics*, *90*(5), 1289–1295. doi:10.1111/j.1467-8276.2008.01219.x

Hart, P. (n.d.). Feedback from Organizational Food Buyers about Purchasing Foods Directly from Local Growers Summary Report, (September 2014).

Heller, M. C., & Keoleian, G. a. (2003). Assessing the sustainability of the US food system: a life cycle perspective. *Agricultural Systems*, *76*(3), 1007–1041. doi:10.1016/S0308-521X(02)00027-6

Houben, G. F., Abma, P. M. H., Van Den Berg, H., Van Dokkum, W., Van Loveren, H., Panninks, A. H., … Ockhuizen, T. (1992). Effects of the Colour Additive Caramel Colour III on the Immune System: A Study with Human Volunteers. *Fd Chem. Toxic*, *30*(9), 749–757.

Johnson, R. M., Ellis, M. D., Mullin, C. a., & Frazier, M. (2010). Review article Pesticides and honey bee toxicity – USA. *Apidologie*, *41*, 312–331. doi:10.1051/apido/2010018

Kandel, W. (2008). Profile of Hired Farmworkers, A 2008 Update. *Economic Research Report*, *60*.

Kantor, M. a. (1996). Olestra: Questions Still Unanswered. *Journal of Nutrition Education*, *28*(4), 191–192. doi:10.1016/S0022-3182(96)70068-7

Kulawik, P., Özogul, F., Glew, R., & Özogul, Y. (2013). Significance of antioxidants for seafood safety and human health. *Journal of Agricultural and Food Chemistry*, *61*(3), 475–491. doi:10.1021/jf304266s

Larson, J. L., Redmond, C. T., & Potter, D. a. (2014). Impacts of a neonicotinoid, neonicotinoid-pyrethroid premix, and anthranilic diamide insecticide on four species of turf-inhabiting beneficial insects. *Ecotoxicology*, *23*(2), 252–259. doi:10.1007/s10646-013-1168-4

Low, S. A., Adalja, A., Beaulieu, E., Key, N., Martinez, S., Melton, A., … Jablonski, B. B. R. (2015). *Trends in U . S . Local and Regional Food Systems : A Report to Congress*.

MacDonald, J. M. (2000). Demand, Information, and Competition: Why do Food Prices Fall at Seasonal Demand Peaks? *The Journal of Industrial Economics*, *48*(1), 27–45.

McBride, W. D., & Greene, C. (2009). The profitability of organic soybean production. *Renewable Agriculture and Food Systems*, *24*(04), 276. doi:10.1017/S1742170509990147

McLeod-Kilmurray, H. (2012). Commoditizing Nonhuman Animals and Their Consumers: Industrial Livestock Production, Animal Welfare, and Ecological Justice. *Bulletin of Science, Technology & Society*, *32*(1), 71–85. doi:10.1177/0270467612444585

Monteiro, C. a., Moubarac, J. C., Cannon, G., Ng, S. W., & Popkin, B. (2013). Ultra-processed products are becoming dominant in the global food system. *Obesity Reviews*, *14*(S2), 21–28. doi:10.1111/obr.12107

Montgomery, D. R. (2007). Soil erosion and agricultural sustainability. *Proceedings of the National Academy of Sciences of the United States of America*, *104*(33), 13268–72. doi:10.1073/pnas.0611508104

Munkholm, L. J., Heck, R. J., & Deen, B. (2013). Long-term rotation and tillage effects on soil structure and crop yield. *Soil and Tillage Research*, *127*, 85–91. doi:10.1016/j.still.2012.02.007

National Labor Relations Board. (n.d.). Employee Rights. Retrieved from https://www.nlrb.gov/rights-we-protect/employee-rights

Non-GMO Project. (2015). Genetically Modified Organisms: Frequently Asked Questions. Retrieved from http://www.nongmoproject.org/about-gmos-2/

Occupational Safety & Health Administration. (n.d.). Worker's Rights. Retrieved from https://www.osha.gov/workers/index.html

Olynk, N. J., Wolf, C. a., & Tonsor, G. T. (2012). Production technology option value: The case of rbST in Michigan. *Agricultural Economics (United Kingdom)*, *43*, 1–9. doi:10.1111/j.1574-0862.2012.00615.x

Owens, F. N., Secrist, D. S., Hill, W. J., & Gill, D. R. (1998). Acidosis in Cattle: A Review. *Journal of Animal Science*, *76*(1), 275–286.

Passel, J. S. (2006). *The Size and Characteristics of the Unauthorized Migrant Population in the U . S . Estimates Based on the March 2005 Current Population Survey*. *Pew Hispanic Center*.

Paulson, N. D., & Babcock, B. a. (2010). Readdressing the fertilizer problem. *Journal of Agricultural and Resource Economics*, *35*(3), 368–384.

Penton Business Media Inc. (2014). Post-emergence herbicide application tips. *Corn and Soybean Digest*, 14–17. doi:http://dx.doi.org/10.1108/17506200710779521

Perry, A. (n.d.). *A report on issues facing Maine farmers and stragies for private philanthropy* (Vol. 7). Ellsworth, ME.

Real Food Challenge. (n.d.-a). All Participating Schools. Retrieved from http://db.realfoodchallenge.org/schools/

Real Food Challenge. (n.d.-b). Frequently Asked Questions. Retrieved from http://www.realfoodchallenge.org/about/faq

Real Food Challenge. (n.d.-c). Press and Success. Retrieved from http://www.realfoodchallenge.org/press-and-success

Real Food Challenge. (n.d.-d). Real Food Campus Committment. Retrieved from http://www.realfoodchallenge.org/commitment

Real Food Challenge. (2011). Explaining the Real Food Campus Commitment.

Real Food Challenge. (2013). Our Team. Retrieved from http://www.realfoodchallenge.org/about/ourteam

Rojas, A., Valley, W., Mansfield, B., Orrego, E., Chapman, G. E., & Harlap, Y. (2011). Toward Food System Sustainability through School Food System Change: Think. *Sustainability*, *3*(12), 763–788. doi:10.3390/su3050763

Roy, S. L., Davidson, T. L., & Swithers, S. E. (2007). The effects of high-intensity sweeteners (saccharin and acesulfame potassium) on food intake and body weight regulation in rats. *Appetite*, *49*(1), 325. doi:10.1016/j.appet.2007.03.171

Schlosser, E. (2002). Fast Food Nation: What the All-American Meal is Doing to the World (p. 1461). New York: Penguin Books. doi:10.1136/bmj.324.7351.1461

Sindelar, J. J., & Milkowski, A. L. (2012). Human safety controversies surrounding nitrate and nitrite in the diet. *Nitric Oxide - Biology and Chemistry*, *26*(4), 259–266. doi:10.1016/j.niox.2012.03.011

Squillace, P. J., Scott, J. C., Moran, M. J., Nolan, B. T., & Kolpin, D. W. (2002). VOCs, pesticides, nitrate, and their mixtures in groundwater used for drinking water in the United States. *Environmental Science and Technology*, *36*(9), 1923–1930. doi:10.1021/es015591n

STARS- OP 6: Food and Beverage Purchasing. (n.d.). Retrieved September 28, 2014, from http://umaine.edu/sustainability/files/2014/09/stars_2.0.2_credit_op_6.pdf

United States Department of Labor. (n.d.). Fair Labor Standards Act (FLSA). Retrieved from http://www.dol.gov/compliance/laws/comp-flsa.htm

USGS. (2001). Selected findings and current perspectives on urban and agricultural water quality by the National Water-Quality Assessment Program, 2.

Van Den Bogaard, A. E., & Stobberingh, E. E. (2000). Epidemiology of resistance to antibiotics: Links between animals and humans. *International Journal of Antimicrobial Agents*, *14*(4), 327–335. doi:10.1016/S0924-8579(00)00145-X

Vendômois, J. S. De, Cellier, D., Vélot, C., Clair, E., & Mesnage, R. (2010). Debate on GMOs Health Risks after Statistical Findings in Regulatory Tests, *6*(6), 590–598.

Wartman, K. (2012). Food Fight: The Politics of the Food Industry. *New Labor Forum*, *21*(3), 74–79.

Weber, J. a., & Becker, N. (2006). Framing the Farm Bill. *Journal of the American Dietetic Association*, *106*(9), 1354–1357. doi:10.1016/j.jada.2006.07.028

Wiener, J. B., & Rogers, M. D. (2011). Comparing precaution in the United States and Europe Comparing precaution in the United States, *5*(August 2013), 37–41. doi:10.1080/1366987021015368

Wilson, C., & Tisdell, C. (2001). Why farmers continue to use pesticides despite environmental, health and sustainability costs. *Ecological Economics*, *39*(3), 449–462. doi:10.1016/S0921-8009(01)00238-5

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