


Real Food Standards 2.0

real food challenge

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Welcome from the Real Food Standards Council

We are so excited to be sharing Real Food Standards 2.0! This release marks the culmination of more than a year of research, development, testing, and hard work. The Real Food Standards are the most comprehensive and up-to-date guide to socially and environmentally responsible food purchasing for universities, developed in deep collaboration with advisors and stakeholders including ***100+ farmers, ranchers, fishermen, industry experts, campus dining staff, and students.*** *We are proud to be releasing this newest version of our standards, which is uniquely defined by student leadership, democratic process, and deep consultation with stakeholders across the food system. In the package you will find the Real Food Guide, which synthesizes our values into a clear set of criteria and certifications that students and campus dining staff can use as a tool to make tangible and lasting change in the food system. You will also find a series of position papers offering context for the standards presented in the Real Food Guide.*

The Real Food Standards build a bridge to the world that we want to see. We hope you are as excited about using the standards as we are!

The Real Food Standards Council

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Leadership

The Real Food Standards Council could not have revised the standards without the patience, wisdom, and candid pragmatism of our leadership team. Co-chairs Emma Brewster, Anna Hankins, Hannah Weinronk and Zach Fleig worked many early morning hours and often late into the night (accommodating student schedules) to help orient, support, challenge and guide the Standards Council in engaging with this revision and produce the powerful standards before you today.

Advisors

We also wish to thank our diverse, skilled and generous team of advisors. These people shared key insights throughout the process, often around tough questions, that shaped the Real Food Standards. In addition to the list of formal advisors listed below, we would like to thank the **100+ stakeholders** who offered input through informal interviews or the public comment forum. This included **farmers, ranchers, fishermen, industry experts, advocates, campus dining staff, students, and foodservice management companies** (Aramark, Chartwells, Sodexo and Bon Appétit Management Company).

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Real Food Challenge Staff and Steering Committee

The staff and student steering committee of the Real Food Challenge offered invaluable input, institutional memory and vision for the future. We would like to thank particular members for their active involvement with the standards revision, and to thank everyone for their insights throughout the process.

2016 Steering Committee:
Emily Evans, *Sawson Gholami*, *Sunny Kim*, *Abby McIntosh*, *Nina Mukherji*, *David Schwartz*, *Anim Steel*, *Tlaloc Vasquez*, *Elizabeth Wilkes*, *Stephanie Yee*

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Angela Babb, *Indiana University-Bloomington*
Teresita Liebel, *Lehigh University*
Sarah Manning, *Johns Hopkins University*
Haley Molnar, *Towson University*
Molly Ellen Schubert, *The New School*

Former advisors and Working Group Members

The Real Food Standards 2.0 was built upon many years of learning and vision on behalf of students and advisors who have been involved with developing, updating, and supporting the Real Food Calculator over the past eight years. We would like to thank all of them for the foundation they created for these new standards

About the Calculator

Mission

The Real Food Calculator is a tool for tracking institutional purchasing over time. College and university students use the Real Food Calculator as a platform for discussion and action with dining services and administrators. The Calculator plays a crucial role in helping schools increase their Real Food purchasing.

Success & Impact

To date, over 1000 student researchers have researched over 570,000 unique food products, amounting to over $330,000,000.00 in campus dining purchases. Over 200 institutions of higher education are currently signed up to participate.

Compatibility

Campus Sustainability Reporting

The Real Food Challenge has long partnered with the Association for the Advancement of Sustainability in Higher Education (AASHE) and its Sustainability Tracking, Assessment & Rating System (STARS). AASHE and RFC staff have reciprocally advised the development of the Real Food Calculator and STARS criteria. Colleges and universities that employ STARS 2.0 as a means to track their institution's progress in sustainability may use Real Food Calculator results to ascertain their STARS points in the food category.

Alignment

RFC's effort to leverage the buying power of universities is complemented by the excellent work of peer organizations in other sectors, in particular the Center for Good Food Purchasing (focused on municipalities), Health Care Without Harm (focused on hospitals), and School Food Focus (focused on K-12 schools). To the degree possible, our Real Food Standards are aligned with the standards of these peers. While there are differences derived from unique aspects of our respective sectors, the fundamental priorities and most of the criteria are shared, and food products qualified under our standards will more likely than not be qualified under the other standards. Please contact us if you would like to know more about about the commonalities and differences between these standards.

Corporate Transparency

Bon Appétit Management Company and Sodexo USA — which in total manage cafeterias at over 700 colleges and universities and hundreds of other sites, nation-wide — have emerged as leaders in their field, offering heightened corporate transparency in food purchasing. These corporate commitments markedly advance supply chain transparency and accountability on campus and beyond.


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Farmers Ranchers Fisherfolk
family, immigrant & minority farmers, farmers abroad
Food Chain Workers
processing plant, distribution, food service workers
Farmworkers
wages, health, living & working conditions
Climate
alternative energy, emissions, climate change
Animals
fisheries, animal welfare, habitat loss
Natural Resources
soil, water, seeds, biodiversity
Culture
relationships, traditions, public space, spirituality
Access
affordability, hunger relief
Education
youth development, leadership
Health
safety, nutrition
Control
self-sufficiency, food sovereignty & security, food justice
Economics
urban & rural economies, fair trade, food policy
Celebration
taste, awareness, connection to food
Producers . Earth . Consumers . Communities

Introduction to the Real Food Standards

Background

From farmers to fishermen, from cafeteria workers to students, the food system ties together producers, consumers, communities, and the earth. Food systems are defined as "systems comprised of all of the processes involved in getting food from farm to table to disposal, including production, processing, distributing, preparing, marketing, accessing, consuming, and disposing" (Neff, Palmer, McKenzie & Lawrence, 2009). Food systems nourish and sustain the people, livelihoods, and communities that make up our world. They also contribute to many of the challenges facing today's younger generations.

Young people in the United States (U.S.) today may become the first generation to have a shorter lifespan than their parents, thanks to the food they eat (Olshansky et al., 2005). The food system is also responsible for many of the lowest-paying and most dangerous jobs (Bureau of Labor Statistics, 2012). Food production contributes to climate change, pollution, and the loss of fertile soils, which threaten the future of the planet (Smith et al, 2007; Cerda, Flanagan, le Bissonnais, & Boardman, 2009). In the U.S., as around the world, the burden of these problems disproportionately affects low-income communities and communities of color (Neff, Palmer, McKenzie, & Lawrence, 2009).

Many environmental and health concerns associated with agriculture can be traced to developments in the second half of the 20th century, particularly the industrialization of agriculture and consolidation in agribusiness. Industrialization of the agricultural sector has involved intensification of land use and specialization of production, often using practices that rely on large amounts of chemical inputs (fertilizer and pesticides) rather than agroecological practices such as crop rotation and intercropping (Bowler, 2002; Altieri, 2005). The differences between industrial and agroecological approaches are discussed further in the Ecologically Sound position paper.

Consolidation a process that increases concentration of market power. Concentration refers to both horizontal concentration, often measured through the C4 metric which captures the percentage of the market controlled by the top four firms in an industry. It can also refer to vertical integration, which is about different parts of the supply chain controlled by a single company (Heffernan, Hendrickson & Gronski, 1999). Recent years have seen a marked rise in concentration across the U.S. food industry (Sexton, 2013). Much of this has taken place horizontally in the processing sector. For example, as of 2011, four companies controlled 82% of beef slaughter in the U.S. (James, Hendrickson & Howard, 2013; Hendrickson, 2015). There has also been an increase in vertical concentration through integration and contracts, making it more difficult for producers to enter into tightly coordinated supply chains (Hobbs & Young, 2000).

There are a number of problems with industrialization and concentration. Economic pressures constrain farmers' choices, which has been shown to increase consideration of unethical behavior (Hendrickson & James, 2005). These conditions lead to environmental and health risks for society as well as exploitation of workers and decreased animal welfare standards (Horrigan, Lawrence & Walker, 2002; MacDonald & MacBride, 2009).

Concentration also means that many agricultural markets are no longer competitive markets (Sexton, 2013). Instead, specific companies hold *market power*, or the "ability of a firm to raise and maintain price above the level that would prevail under competition," which can hurt consumers and producers alike (OECD, 1993). Hendrickson found that "the asymmetrical power relationships present between farmers, firms, consumers, and communities in the agrifood system can create social, economic, and ecological risks" (2015). Additionally, the increase of market power is often associated with an increase in political power – companies with disproportionate market power also tend to play a major role in shaping agricultural policy and access to information (Murphy, 2006).

Just as industrialization and consolidation are two of the most important forces shaping our food system, racialized oppression – from discrimination to disinvestment and displacement – is an underlying factor in the evolution and reality of our agriculture and food ways. The topic of racialized oppression is addressed in multiple places throughout these papers, but like many of the big issues we tackle here, there is much more that could be said about issues of racism in the food system than we can include within these papers.

Colleges, universities, and other institutions have an important role to play within their communities to challenge these issues in the food system. This can be done by changing their food purchasing behaviors to open the market for smaller scale producers and producers with high standards for labor, animal welfare and environmental stewardship. By setting the table with Real Food products, universities can act as a counterbalance to the status quo, shifting market norms and increasing the wellbeing of everyone involved in the food supply chain that feeds their campus food program.

The Real Food Standards: Purpose and Parts

Real Food is a holistic term to describe food that truly nourishes consumers, producers, communities and the earth – all aspects of the food system. In order to be able to advocate for colleges and universities to source Real Food on campus, students identified the need for a clear, quantifiable way to define and track the purchasing of Real Food.

In 2008, a group of students and advisors developed the **Real Food Standards**, a set of criteria and certifications that define Real Food. The term Real Food Standards refers to the entire framework that qualifies Real Food. The purpose of these standards is to incentivize purchasing from food producers who reflect the values of Real Food and who are most disadvantaged in the market. It is important to note that these standards are not offering a vision of an ideal food system; they are meant to encourage progress *towards* a vision. Just because some food products do not qualify as Real Food according to these standards does not mean that they are "bad" or that they cannot have positive qualities associated with them. Indeed, there are many food producers that do not qualify as Real Food producers who are worth supporting through institutional dollars, and there is no reason institutions should not do so. The standards are a tool to identify producers that clearly exceed industry norms, in ways that are impartially documented and accessible to the public, such as third party certifications and independently verifiable criteria. Additionally, wherever possible, the Real Food Standards are designed to lift up sustainable and fair producers that are more disadvantaged in the market, representing a still emerging or more challenged segment of the industry.

It's also important to note that the core of the standards are focused specifically on the level of production. This means that we are assessing conditions at the level of the farm, ranch, or fishing boat – not subsequent steps in the food chain (e.g., the slaughterhouse, distributor, or cafeteria). While assessing food through the whole supply chain would be a worthy undertaking, the size and complexity of that task would require tools and resources inaccessible to student researchers and could lead to uneven results, undermining the goal of having common standards. By evaluating the level of production, we are focusing on the foundational step in the food supply chain.

Our Standards

The Real Food Guide

The Real Food Standards are outlined in the **Real Food Guide,** a purchasing guide that delineates what qualifies a product as Real Food**.** The Real Food Guide outlines four categories in which a product can qualify as Real Food: 1) Local & Community Based, 2) Fair, 3) Ecologically Sound, and 4) Humane. It also outlines Disqualifiers, or characteristics that would preclude a product from consideration as Real Food. The Real Food Guide outlines third party certifications and characteristics of producers from which an institution could buy food. By checking a food item (also referred to in our materials as "food product") against the Real Food Guide, students can determine whether or not the item is considered Real Food for each of the four categories above.

Criteria and Certifications

The Fair, Ecologically Sound, and Humane categories are mostly built around existing third party certifications. Third party certifications are one way to identify products where practices meet higher standards than the industry norms. They are particularly useful when government regulations have been insufficient to prevent the kind of negative outcomes to farmers, workers, animals and the environment documented in the position papers that follow. Third party certification means that independent auditing occurs to ensure that the producer meets the characteristics outlined in the certification. There *are* limitations to the use of certifications. They are often expensive and are not always accessible to smaller producers. Additionally, no single certification will fully embody all of the values of Real Food. Despite these limitations, the certifications recognized in the Real Food Guide represent higher standards than the industry norms, and indicate production practices that reflect unique and important differences between conventional food production and Real Food. Ultimately, using a transparent, reliable auditor is most often the best way for student researchers to ascertain the practices of producers.

Unlike the other three categories, the Local & Community Based category is not built around third party certifications but rather around specific criteria. Because the criteria for Local & Community Based producers can be independently researched by students (e.g., distance from the institution), and because shorter supply chains allow for more direct relationships and greater transparency, the characteristics of Local & Community Based food can be assessed without the use of certifications. This also enables smaller producers, who may not be able to afford third party certifications to qualify as Real Food. The Disqualifiers similarly rely on criteria that can be independently researched by students.

To evaluate whether a product meets the standards for each category, the Real Food Guide is divided into three sections that mimic a stoplight.

Green Light: Food items meeting these criteria or bearing these certifications qualify as Real Food and best represent the standard.

Yellow Light: Food items meeting these criteria or bearing these certifications qualify as Real Food, but the certifications and criteria by which they are being evaluated do not represent the fullest expression of the standard.

Red Light: Disqualification. If a food item exhibits any disqualifying criteria, it cannot count as Real Food in any category even if it meets Real Food criteria..

Disqualification

There are several reasons that a product, by virtue of its ingredients or production process, would be disqualified. A product will be universally disqualified if:

A. It is strongly associated with serious **harms in all Real Food categories**, i.e., if it is strongly linked with harms to animals, the environment, workers, and farmers (or the broader community from which the product is derived).
B. It is strongly associated with **consolidation** in the food system (i.e, the concentration of market and political power), an issue we have identified as a key barrier to achieving a fair and sustainable food system.
C. It is strongly associated with **serious human rights violations**.
D. It poses a **safety concern** to the workers who help to produce, harvest, or process the food or a **health concern** to consumers who eat it.

Real Food A and Real Food B

A Real Food product is ranked based on how many of the four **Real Food Categories** it meets the criteria for. **Real Food A** is a food item that qualifies as real food in more than one category (e.g. meat that is Local & Community Based and Humane). **Real Food B** is a food item that qualifies as real food in only one category (e.g. produce that is only Ecologically Sound). This distinction is made in an effort to recognize various levels of success. Real Food A is advantageous for more stakeholders. While Real Food B has room for improvement, it is important to recognize that progress is being made. Real Food A and Real Food B count equally towards the overall Real Food percentage for the institution.

The Real Food Calculator

Hundreds of students across the country use the Real Food Guide to research the products that are purchased on their campuses, identifying which ones qualify as Real Food. The **Real Food Calculator** is a web-based tool that allows students to track their campus's food purchasing, collect their research and generate results on the percentage of Real Food being sourced on campus. This allows students to independently ascertain how much Real Food their college or university is purchasing, and enables campus stakeholders to set quantitative goals and track their progress toward more Real Food on campus. It is a requirement of the Real Food Campus Commitment, signed by dozens of universities to date, and can also be used for AASHE STARS tracking.

Using the Real Food Calculator to track and increase Real Food purchasing can be at the center of campus efforts to improve the food system. The Real Food Calculator can also be a component of broader purchasing and food systems planning efforts. Schools may choose to set goals that include but extend beyond increasing Real Food purchases such as increasing cooking from scratch, reducing meat consumption on campus, or shifting the balance toward healthier or more culturally appropriate menus. When purchasing Real Food, a campus may focus on Real Food producers they want to support, such as minority farmers who have been historically denied access to land, producers who use heirloom seeds, or cooperatives that export fair trade bananas, to name just a few examples. For ideas about building a sustainable and just campus food system, see the **Real Food Challenge** Best Practices for Campus Food Systems.

Revising the Standards

The food system is constantly evolving, and it is essential that the Real Food Standards reflect the current landscape of certifications and criteria. In July 2015, the Real Food Challenge began a 15-month process of updating of the Real Food Standards. This process was led by the Real Food Standards Council, a research team of 10 students from campuses across the country. The revision process was supported by a group of industry experts who served as advisors. Stakeholders from across the food system – including farmers, ranchers, fishermen, dining staff, students, and advocates – also offered insights into the revision of the standards through individual interviews and feedback in an open public comment forum.

The Real Food Standards Council conducted research on each category of the Real Food Guide: Local & Community Based, Fair, Ecologically Sound, and Humane. The researchers documented the problems that the standards were designed to address, and identified the principles for food production that mitigate or eliminate those problems. The principles were prioritized as *essential* or *optional*. The Real Food Standards Council then vetted certifications and criteria against these principles, determining whether they would qualify as Real Food in the Real Food Guide. The way in which each certification or criteria performed with regard to the principles determined whether it would count as Real Food, and if so, whether it would fall into the green section (highest standard) or yellow section (not as strict, but still reflecting most principles of Real Food).

The revision process was intended to be consistent, as much as possible, with the previous version of the Real Food Guide. There was also an effort to align the standards with peers that have developed similar tools to track purchasing of just and sustainable food. These include: the Association for the Advancement of Sustainability in Higher Education (AASHE) and its Sustainability Tracking, Assessment & Rating System (STARS) (focused on college and universities); The Center for Good Food Purchasing (focused on municipalities); Health Care Without Harm (focused on hospitals); and School Food Focus (focused on K-12 schools). Additionally, this process was conducted with attention to balancing ease of use for researchers with responsiveness to the complexity of the food system.

Position Papers

The purpose of these position papers is to offer background on the Real Food Standards and explain the choices that were made in defining Real Food. They also highlight the changes that were made in the revision of the standards. The issues discussed within these papers have been the subject of significant research over many years, and the position papers are not intended to be exhaustive. Instead, these papers present the primary issues and approaches that were taken in revising the standards. Each of the main sections below discusses (a) the key food systems problems we were attuned to; (b) the key principles behind an alternative; and (c) the key choices we made in finalizing the standards.

Each of the sections ends with a list of works cited. Wherever possible, we have relied on peer-reviewed academic papers or public sources like the U.S. Department of Agriculture's Economic Research Service. In a few cases, we have found that a news media article, a research report, or a nonprofit article were the best sources to document or clarify a particular phenomenon. In all cases, we were aware of our intent to construct a set of rigorous standards based on fact and scientific evidence. We were also aware of the secondary purpose of the Real Food Calculator: to promote thoughtful discussion on campuses and in the communities around them about the kind of food system that stakeholders on campus want to support.

Please note that while the position papers that follow make important, researched critiques of the food system, they are not implying that food products that do not qualify as Real Food are *unsafe* to eat for the typical consumer.

Also note that critiques made here of the food system are *not* critiques of food producers. We have clearly identified the *system*, not individuals, as our focus. Many farmers have understandably experienced criticisms of the food system or of specific agricultural practices as attacks on them personally. It is our researched and well-considered belief that farmers – and farmworkers – are the heroes in the narrative we are, in effect, telling through this research. Overwhelmingly, they have done what has been asked of them, working incredibly hard with great creativity to respond to a difficult set of conditions. And yet, many are losing ground, literally and figuratively. In many cases, the very people upon whom our lives depend are losing their livelihoods. The goal of the Real Food Challenge is to make it possible for *all* farmers and agricultural workers to thrive – and the Real Food Standards are an expression of that.

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Local & Community Based

These foods can be traced to nearby farms, ranches, boats and businesses that are locally-owned and operated. Supporting small and mid-size food businesses challenges trends towards concentration in the food industry and supports local economies.

The Problem

Trends

In 2012 there were less than one third as many farms in America as there were in 1935, with a loss of roughly 4.7 million farms. Farms are nearly three times as large, on average, as they were in 1935 (USDA, 2012). Cropland has been shifting to larger farms which are more likely to be specialized (MacDonald, 2013). This loss of diversified and independent farms has deeply impacted society at large, changing the way people eat, the way they connect to the land, and in many cases undermining the socioeconomic vitality and resilience of rural communities (PEW Commission on IFAP, 2006; Wittman, Desmarais & Wiebe, 2010).

It's important to note that the changes don't just apply to small farms. Indeed, mid-size farms face particular pressures and represent the most threatened category of farms. Mid-size farms, also known as "ag-in-the-middle," are disappearing at a faster rate than others (Lyson, Stevenson & Welsh, 2008).

These trends in the business of farming on land are mirrored by trends in production and harvesting on the oceans and waterways. Until the 1800s, fishing was entirely small-scale and community-based. In the 1800s, steam-powered fishing vessels were introduced, and trawling (dragging nets along the bottom of the sea) became common practice. This technology became more advanced after World War II, leading to an increase of scale and issues of overfishing and habitat destruction (Gartside & Kirkegaard, 2010). Industrial fleets have also displaced small-scale fisheries (Tolley, Gregory & Marten, 2015). As of 2006, about half of the world's fish were caught by large-scale fisheries (Pauly, 2006). Policies that have been introduced to address issues of overfishing have led to the privatization of the industry and the consolidation of wealth away from the communities where the fish came from (Copes & Charles, 2004). When developing fisheries policy, fishing communities are largely ignored in the process (Macinko, 2007).

These trends are the result of many factors, including changes in technology and policy (MacDonald, Korb and Hoppe, 2013). In agriculture, a key factor, especially in the last decades, is the concentration of market power in a relatively small set of companies that supply to and buy from farmers (Sexton, 2013; PEW Commission on IFAP, 2006).

For minority and women farmers, discrimination has been another factor affecting survival. For instance, for most of the last century, the USDA actively discriminated against African-American farmers in the approval and size of loans, a fact reflected in the class action lawsuit, Pigford vs USDA, which was settled in 1999 on behalf of 400. Since then, the number of African-American farmers has actually begun to rise again, but they still represent a miniscule fraction – just 2% – of the total, and much less than they did in 1920, when they represented 20% of the nation's farmers (Thomas, 2015; Harvey, 2016). Similar discrimination cases have been successfully brought against the USDA by Native, women and Hispanic farmers (Carpenter, 2012).

Economic Impact on Farmers

Increasing industrialization and concentration has put small and mid-sized farms at a significant economic disadvantage (Fairbairn, 2010). Costly seed, fertilizer, and pesticides as well as loan payments on equipment can cost as much as 60% of farmers' gross income (PEW Commission on IFAP, 2006), and with the market dominated by a few large agricultural firms, smaller farmers often find that they simply cannot make a living by selling their products. The disappearance of regional food infrastructure, such as meat processing facilities, further disadvantages smaller producers and local food distribution (PEW Commission on IFAP, 2006).

Economic and Social Impacts on Communities at Large

Since the early 1940s, researchers have reported lower quality of life for rural families surrounded by industrial agriculture. Areas transitioning from small farms to larger, industrial farms experience social disruption and loss of community capital. High average farm size within a given county and a high level of mechanization is correlated with fewer jobs, more low paying jobs, and widespread poverty (PEW Commission on IFAP, 2006; Neumark et al., 2008). Similar trends have been observed in fishing communities (Pauly, 2006).

Furthermore, profit generated by consolidated food production is generally not returned or routed back into local economies, which suffer as a result (Fleming and Goetz., 2011). These communities face the loss of the social capital—mutual trust, reciprocity, shared norms and identity— that they depend on for their sense of community and for a high quality of life. In many cases, rural communities are collapsing or have ceased to exist (PEW Commission on IFAP, 2006).

Impacts on Health and Security

In areas where farms have become consolidated and have transitioned to mostly industrial practices, producers have less agency to promote healthy and safe food production practices. The areas surrounding industrial farms are subject to groundwater contamination, chemical exposure, and contact with infectious agents. In some agricultural communities, volatile organic compounds, known to be toxic to the nervous system, have been linked to neuropsychiatric abnormalities and negative mood states such as depression, anxiety, hostility, and fatigue (PEW Commission on IFAP, 2008). Without sufficient control and monitoring mechanisms, farm animal waste runoff from factory farms has also been linked to disease, as was suspected in the 2006 Escherichia coli outbreak resulting in the sickening of hundreds and the death of three people (PEW Commission on IFAP, 2006; Gelting, n.d.). The harm done by these dangerous production practices further burdens the already strained socioeconomic structures of rural communities.

The Principles

In response to these problems, there has been a greater interest in supporting smaller farmers and community-based food systems, as evidenced by the rising – albeit still tiny – portion of agriculture sales that are classified as local (Martinez, 2010). The purpose of the Local & Community Based category is to accelerate that trend by by directing institutional dollars towards local and community-based food production.

Defining "local" and "community-based" food, however, is a challenging task. For one, every community is different. Since respect for diversity is a value embedded in this effort, there are strong arguments, which we considered, that creating a common standard around this category is impossible or improper – that it should be left up to each community or institution.

Furthermore, unlike the other categories, there are no nationally-relevant, third party certifications to rely on. As our advisors pointed out, the most popular way of defining "local" and "community-based" – by setting a geographic limit such as a mileage radius – is a fairly blunt instrument. Measuring food miles also turns out to be an imperfect means to understanding the relationship of food to carbon emissions, which has often been named as a motive for this metric. In the food system, on-farm production is responsible for 40% of the overall carbon dioxide emissions, while transportation only makes up 12% (Garnett, 2011). Moreover, to accurately calculate emissions of food transportation, a series of indicators, not just mileage, must be considered (for instance, the length of the trip and efficiency of the vehicle).

At the same time, there are strong arguments *for* having a common standard. First of all, in the experience of student researchers and of many of our advisors, the absence of any common standard often leads to weak definitions that do not end up opening opportunities for the farms and food businesses who are most disadvantaged in the marketplace. Common standards address a common dynamic: that the barriers for sourcing from smaller producers are so significant that there will often be a temptation to relax standards rather than address the barriers. It's helpful, therefore, to have a consistent, strong incentive for doing the harder and more impactful work.

Secondly, while there are no national certifications, there is a growing field of practice, represented by initiatives like the Center for Good Food Purchasing, AASHE, Health Care Without Harm, Bon Appétit Management Company's Farm to Fork program, School Food Focus, the Northwest Atlantic Marine Alliance, and the Business Alliance for Local Living Economies (BALLE). A direction is emerging from this field that a multi-faceted definition of "local and community-based" food can set appropriate parameters without suppressing local variability. That is the approach we are adopting. The following are some of the key qualities, or principles, we use to construct a definition.

1. Prioritizing small- and mid-sized farms and food businesses

Incentivizing purchases from small- and mid-sized producers corrects some of the disadvantages they face in the context of industry concentration that is often extreme. This prioritization not only benefits the producers, but has benefits for the broader community as well. Communities with a higher density of locally-owned small businesses, for instance, are associated with increased income growth (Fleming and Goetz, 2013). It has been documented that small and mid-sized farms, are more likely to spend money in their local communities. A study of livestock farms by the University of Minnesota Extension Service, for instance, found that "farms with a gross income of $100,000 made nearly 95% of their expenditures locally," far more than larger farms (Chism, 1994). Small-scale fisheries employ 25 times more people than the large-scale, industrial fishing sector to catch roughly the same amount of edible fish (Chuenpagdee et al, 2006; Pauly, 2006).

2. Diversified ownership and control

To address some of the other negative impacts of industrialization and concentration, we must also consider the ownership structure of farm and food enterprises. Smaller-scale, private business owners depend on community members for continued patronage and are therefore more easily held accountable to the needs and desires of their specific community. By contrast, publicly-traded companies answer to and distribute dividends to many, widely-dispersed shareholders. These shareholder are not typically members of the community in which the business is based. Cooperative structures can be particularly effective ways to distribute control and the benefits of ownership. Because co-operatives are member-owned, they are accountable to the needs and values of their worker or farmer owners, who -- depending on the co-op's size -- are often members of the community (RBCDS-CS, 1995).

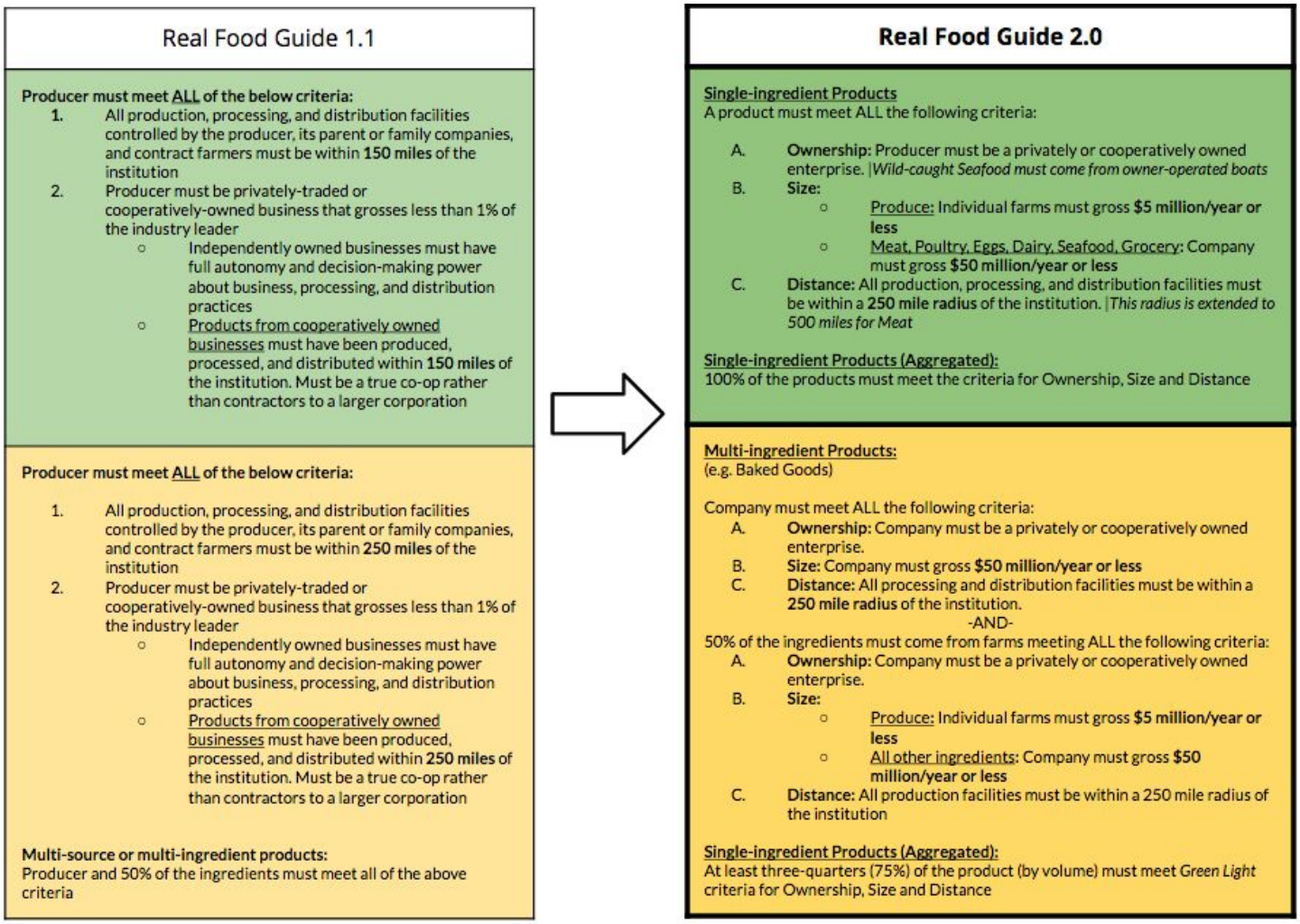
3. Reduced distance between producers and consumers

In defining Local and Community Based food, the idea of limiting the distance food travels between producers and consumers has several positive implications, despite its flaws. For one, decreasing both the literal distance (mileage) and number of intermediaries between food producers and consumers leads to increased transparency. Furthermore, having a geographic scope is one way of focusing attention on the need for more regional food infrastructure. Buying local also enables greater accountability between producers and consumers in ways that enrich the community and counter some of the problems described in the previous section. Finally, while food miles are a crude measurement of carbon footprint in transportation, high mileage is correlated with other environmental and social justice considerations related to the industrial food system (Daly, 1996). For instance, the use of crop varieties bred to be transported over long distances often leads to decreases in crop diversity and increases in preservatives, pesticides, and other petrochemicals used in agriculture (Garnett, 2011).

4. Traceability

In the food industry today, supply chains are often long and complex, necessitating new systems of communication between producers, consumers, and intermediaries (Trienekens et al., 2012). This is of particular concern in the seafood industry, among others, where mislabelling of products is common, and has been tied to the increasing complexity and obscurity of the global seafood supply chain (Jacquet, 2008; Warner et al., 2013). Without knowing where food is sourced from, it is difficult to ascertain the practices used in its production, the ownership structure of the originating farm, or the producer's impact on their community.

The Standards



Real Food Guide 1.1

Producer must meet ALL of the below criteria:

1. All production, processing, and distribution facilities controlled by the producer, its parent or family companies, and contract farmers must be within **150 miles** of the institution
2. Producer must be privately-traded or cooperatively-owned business that grosses less than 1% of the industry leader
   - Independently owned businesses must have full autonomy and decision-making power about business, processing, and distribution practices
   - Products from cooperatively owned businesses must have been produced, processed, and distributed within **150 miles** of the institution. Must be a true co-op rather than contractors to a larger corporation

Producer must meet ALL of the below criteria:

1. All production, processing, and distribution facilities controlled by the producer, its parent or family companies, and contract farmers must be within **250 miles** of the institution
2. Producer must be privately-traded or cooperatively-owned business that grosses less than 1% of the industry leader
   - Independently owned businesses must have full autonomy and decision-making power about business, processing, and distribution practices
   - Products from cooperatively owned businesses must have been produced, processed, and distributed within **250 miles** of the institution. Must be a true co-op rather than contractors to a larger corporation

Multi-source or multi-ingredient products:
Producer and 50% of the ingredients must meet all of the above criteria

Real Food Guide 2.0

Single-ingredient Products
A product must meet ALL the following criteria:

A. **Ownership:** Producer must be a privately or cooperatively owned enterprise. |*Wild-caught Seafood must come from owner-operated boats*
B. **Size:**
   - Produce: Individual farms must gross **$5 million/year or less**
   - Meat, Poultry, Eggs, Dairy, Seafood, Grocery: Company must gross **$50 million/year or less**
C. **Distance:** All production, processing, and distribution facilities must be within a **250 mile radius** of the institution. |*This radius is extended to 500 miles for Meat*

Single-ingredient Products (Aggregated):
100% of the products must meet the criteria for Ownership, Size and Distance

Multi-ingredient Products:
(e.g. Baked Goods)

Company must meet ALL the following criteria:

A. **Ownership:** Company must be a privately or cooperatively owned enterprise.
B. **Size:** Company must gross **$50 million/year or less**
C. **Distance:** All processing and distribution facilities must be within a **250 mile radius** of the institution.

-AND-

50% of the ingredients must come from farms meeting ALL the following criteria:

A. **Ownership:** Company must be a privately or cooperatively owned enterprise.
B. **Size:**
   - Produce: Individual farms must gross **$5 million/year or less**
   - All other ingredients: Company must gross **$50 million/year or less**
C. **Distance:** All production facilities must be within a 250 mile radius of the institution

Single-ingredient Products (Aggregated):
At least three-quarters (75%) of the product (by volume) must meet *Green Light* criteria for Ownership, Size and Distance

Figure 1. Changes between Real Food Guide 1.1 and 2.0 for the Local & Community Based category

Key Decisions

Regarding Size

Previously, business revenue was capped at "less than 1% of the industry leader." This standard aimed to reduce consolidation in the food industry by privileging producers that make two orders of magnitude less than the industry leader. Because the term "industry leader" was not defined, it was left up to Calculator users to research and created the potential for inconsistent interpretations. Our current caps have still taken this criteria into account. We have chosen to use tighter limits and to express them in absolute dollar figures to ensure consistency.

In choosing size limits for farms and food businesses, we chose revenue (gross annual sales) as the basis of evaluation (versus number of employees). This is the basis also used by our peer organizations, the USDA and the Small Business Administration in assessing the size of agricultural enterprises. In identifying an exact cap

under which a farm or food business will qualify as a small or medium-size enterprise, we attempted to balance the following factors: (a) it should be small relative to the largest company in its particular industry – no more than 1% of the industry leader; (b) it should account for the differences among the various industries (produce, egg, dairy, meat, etc.) without weighing the Calculator researchers down with too much complexity; and (c) it should maintain a strong incentive for institutions to purchase from smaller, less advantaged farms and businesses while also leaving room for those businesses to grow.

The choice of $5 million as a cap for produce and $50 million as a cap for all other industries reflects this balancing effort. We created a two-part classification of industries reflecting the main distinction we found in revenue potential (rather than creating a 10+ part classification system, which would reflect all the variations in food type, processing, and aggregating activities). The dollar figures are roughly halfway between the designation for truly small enterprises (in the $250,000 range) and the approximate average for enterprises that have revenues at about 1% of their industry leaders (around $100 million for companies in the protein sector). According to our advisors, these caps leave plenty of room for the qualifying businesses to grow while excluding companies that are at a size that can be considered very well established and not in need of the same kind of preference.

It should be noted that businesses that have revenue over the respective size caps can still qualify as Real Food if they carry third party certifications that qualify in at least one of the other Real Food categories. Indeed, we believe that it is appropriate to encourage businesses of this size, stability, and complexity to seek third party certifications. They are in a better position than their smaller peers to handle the fees and paperwork, and these certifications are some of the best ways currently available to assure responsible practices and accountability.

Regarding Ownership

Private ownership is a prerequisite for any food business' product to qualify as Real Food under this category, which excludes publicly traded companies. Under private ownership, we include cooperative models. For the purpose of this criteria, if a business is a subsidiary of a parent company, it must be evaluated on the basis of its parent company. Seafood, in particular, must come from owner-operated boats, meaning that the fishermen are the holders of fishing rights (through license or other legal means).

Regarding Distance

The choice of 250 miles as the distance radius to qualify a product as Local & Community Based reflects two considerations: (a) it is consistent with or close to the limits set by our peers mentioned previously in this paper; and (b) 250 miles has been determined to be roughly the maximum distance that someone can drive, conduct business (such as selling at a farmers' market or institution) and return in the same day. The extension of a 500 mile radius for meat reflects the lack of existing infrastructure for meat processing and the increased distance between ranches and potential markets in different parts of the country. It also allows for meat to travel 250 miles from a ranch to a processor, and then from a processor to an institution.

Regarding Traceability

For all of the criteria in the Local & Community Based categories, student researchers must be able to determine information about their *size*, *ownership*, and *distance*. If food is aggregated, then researchers must be able to determine the relevant information about the farms, ranches or boats whose products are being aggregated. If 100% of the source farms meet the criteria for *size*, *ownership*, and *distance*, then they qualify as Real Food in the green section, representing the highest standard. If the researcher can determine that most of

the product (75% by weight) comes from farms, ranches or boats that meet the criteria, then the product would qualify as Real Food in the yellow section. Additionally, by sourcing from producers located within a day's drive of the institution, students or dining staff can visit them directly and learn about their practices.

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Fair

Individuals involved in food production work in safe and fair conditions, receive fair compensation, are ensured the right to organize and the right to a grievance process, and have equal opportunity for employment.

The Problem

Coffee and bananas are two of the most popular food items in the U.S. and on college campuses. These and other goods grown in diverse climates are expected to be available year-round at standard high quality, meaning they must be sourced from many places and people all over the world.

This category is concerned with food products that are sourced both globally and domestically. It pays particular attention to how (a) farmers and (b) farmworkers abroad are treated in trade arrangements, as well as the treatment and condition of (c) farmworkers within the U.S.

While these are three different groups, what they have in common is that they are all subject to historical power relationships and policy structures – or the lack of them – that make them particularly vulnerable in the marketplace. The fact that an estimated 4.9 million Mexican farmers and agriculture workers were uprooted in the wake of the North American Free Trade Agreement and that many of them, with constrained choices, became migrant farmworkers in the U.S. underscores this common experience of vulnerability (Weisbrot, Lefembvre & Sammut, 2012; Mines, Nichols & Runsten, 2010).

The International Perspective

International trade arrangements and structures have a history of marginalizing or deprioritizing the needs of producers and farmworkers. For example, the deregulation of the global coffee industry has significantly expanded the coffee market and concentrated power in the hands of a few buyers (Ponte, 2002). As a result, coffee growers' share of revenue from retail coffee decreased from 20% in 1989 to roughly 7% in 2011 (Ponte, 2002; ITC, 2011).

When geographically isolated with limited technology, farmers often have difficulty accessing local markets and commodity market information such as prices, which leaves them vulnerable to volatile prices and with limited access to formal loans (Torrero, 2011). The situation is concealed in the anonymity of the massive and complex international commodities market, whose supply chains often include aggregators, processors, exporters, and brokers in addition to producers, consumers and distributors – all of which makes it nearly impossible for businesses and consumers to know who grew their food and how they were treated (Mendez et al., 2010).

The U.S. Perspective

In the U.S., most farmworkers are paid at or below the legally defined minimum wage. The minimum wage was designed to set an earnings threshold below which families may not be able to provide for their basic needs. Because employment in agriculture is exempt from many basic labor standards in the U.S., minimum wage and overtime pay does not apply to most farmers or farmworkers. Additionally, current minimum wage thresholds have not kept up with inflation or changes to cost of living. As a result, even in the rare instances where food

production workers receive the minimum wage, they are often still in a position where they are not able to pay for basic living expenses and must seek public assistance (Nardeau, 2015).

As in most other industries, wage gaps exist in the food production industry between people of different genders and races. Across industries, women of color earn only 61-69 cents to every dollar that white men earn for equivalent work. Women, especially women of color, experience additional forms of marginalization and discrimination when working in food production. In one study, around 80% of women farmworkers claimed to have experienced sexual violence in the workplace (Kominers, 2015). These workplace situations emerge from isolation in the field, manual labor requirements, and structural hierarchy that leaves women and other marginalized farmworker populations vulnerable to abuse.

Food production work, like many labor-intensive jobs, can be dangerous to workers if they are not properly protected. Pesticides, raw materials, solvents, and inert carriers used in food production can be toxic to workers, leading to potentially severe health problems. In particular, production workers, formulators, sprayers, mixers, loaders, and agricultural farmworkers are at high risk of toxic pesticide exposure (Aktar, 2009). The Environmental Protection Agency estimated that up to 10,000 to 20,000 agricultural workers are diagnosed with preventable pesticide poisoning annually (NIOSH, 2016). In lower and middle-income countries, where access to medical care and training may be limited, the percentage of food production workers diagnosed with pesticide poisoning is higher (Thundiyil et al., 2008).

These problems are compounded for people of color and immigrants working in U.S. food production, who tend to receive lower wages and fewer promotions. This includes the 60% of farmworkers who are undocumented immigrant workers (Liu, Yen & Apollon, 2011). They are in a particularly vulnerable position because employers can threaten to report them. Historically, racism was at the root of why farmworkers were excluded from formal labor protections. To secure the votes of Southern lawmakers for the New Deal, the Roosevelt administration excluded domestic work and farm labor – which at that time was mostly black – from several critical pieces of legislation offering protection for workers. Most notably, farmworkers were exempt from the Fair Labor Standards Act (1928), and the National Labor Relations Act (1935), which establish a minimum wage and offer protections for workers organizing for better conditions respectively (Perea, 2011).

The Principles

"Fair food" principles have been developed in response to the ways in which conventional labor and trade relationships prevent workers from sustaining a proper livelihood and wellbeing. Because of differences in production practices and business regulations, fair food is commonly distinguished as either "international" (sourced from outside the U.S.) or "domestic" (sourced from within the U.S.).

Adopted by the World Fair Trade Organization and Fairtrade International, the 2009 Charter of Fair Trade Principles provides the following framework for international fair trade:

> *"Fair trade is a trading partnership, based on dialogue, transparency and respect, that seeks greater equity in international trade. It contributes to sustainable development by offering better trading conditions to, and securing the rights of, marginalized producers and workers – especially in the [Global] South."*

Recent years have also marked a growing attention to labor issues within food production in the U.S. Domestic fair trade seeks to promote similar standards for fair, transparent and sustainable farm labor practices within the U.S.

Drawing from both international fair trade principles and principles of organic agriculture, the Domestic Fair Trade Association advocates for:

> *"Fair, equitable, and sustainable agriculture that supports family-scale farms, farmer-led initiatives such as farmer co-operatives (co-ops), just working conditions for farm workers, and organic agriculture." (DFTA, 2016).*

In order to aid in the identification of fair products internationally and domestically, Real Food Challenge looks to the following principles on key trade and labor issues.

1. Work with dignity

Employers should provide basic amenities like potable water, and clean sanitary facilities like restrooms or changing rooms. These provisions for basic human dignity represent a commitment to the safety and wellbeing of workers. Food that qualifies as Fair should be produced by companies that support a dignified, safe workplace.

2. Worker bargaining & advocacy

The ability to bargain collectively as a unified workforce is a crucial right that employers should respect and meaningfully support. Workers in fair workplaces are not prevented from collectively bargaining for better working conditions at their place of employment.

In order to develop community capacity, workers, employers, and community partners are encouraged to support and answer to one another. Fair workplaces must articulate a clear grievance process and provide "just cause" for disciplinary action or termination of employment.

3. Fair compensation

Workers should receive fair wages or benefit from projects funded by a price markup called a "premium."

Domestically, a living wage is defined as an hourly wage or yearly salary (usually above the minimum wage) that provides an acceptable or adequate standard of living through which workers are able to pay for their basic needs. This helps workers to achieve financial independence, food security, and safe housing while also freeing up resources to grow savings, make investments, and build wealth (Nardeau, 2016).

Domestically, worker-driven social responsibility programs call for a premium to be paid to farmworkers in addition to their piece-rate wages. This supports a similar goal of increasing financial resources for workers to meet their basic needs.

Internationally, "Fairtrade Premium" describes the increase in price paid for fair trade certified products. Via this price markup, a portion of profits are set aside in a communal fund for producers or workers. The co-operatively funded community-based projects that result from this communal fund improve the wellbeing of producers and workers by growing community capacity and infrastructure. Projects include building schools, health clinics, and crop storage facilities; offering trainings and educational scholarships; improving water treatment systems; and supporting the conversion to organic agriculture (Dragusanu, Giovannucci, &

Nunn, 8). The fair trade system also establishes a "price floor" to protect growers if the market price of coffee falls below a certain level.

4. Safe working environment

Fair food workplaces ensure that measures exist to support the health and well-being of workers. Limiting exposure to toxins and regulating work hours are two important components of a safe working environment.

Because farmworkers are often exposed to toxins, they should be provided with protective gear and proper training when handling or working around pesticides. This is particularly necessary on fields treated with pesticides or fields under restricted entry within the last thirty days (Farmworker Justice, 2016).

Regulation of working hours has historically been a major concern in labor legislation. Excessive working hours poses a threat to workers' health and compromises safety. In light of these concerns, many fair trade programs have criteria for reasonable working hours, generally in alignment with the International Labor Convention Standards of Working Time (United Nations International Labour Organization, n.d.). This framework requires daily and weekly rest periods, annual holidays, and regulated hours of work. Maximum hours of work and days without rest must be protected in order to be considered a fair working environment.

5. Non-discrimination, gender equity, and gender justice

In fair workplaces, all workers have an equal opportunity for employment, and no individual is discriminated based on ability, race, sex, gender, nationality, or age. Equal pay is provided for equivalent work. In response to documented problems with violence against women farmworkers, fair workplaces should have responsible policies to combat sexual harassment, assault, or other inappropriate behaviors that create a hostile working environment.

6. Job security

Other practices include those that value and compensate commitment and continuity in the workforce. Employers who recognize seniority and reward loyalty by providing advancement opportunities demonstrate that they value experienced workers. Respecting the right of workers to return to a seasonal position also supports an experienced workforce in a meaningful and tangible way.

The Standards

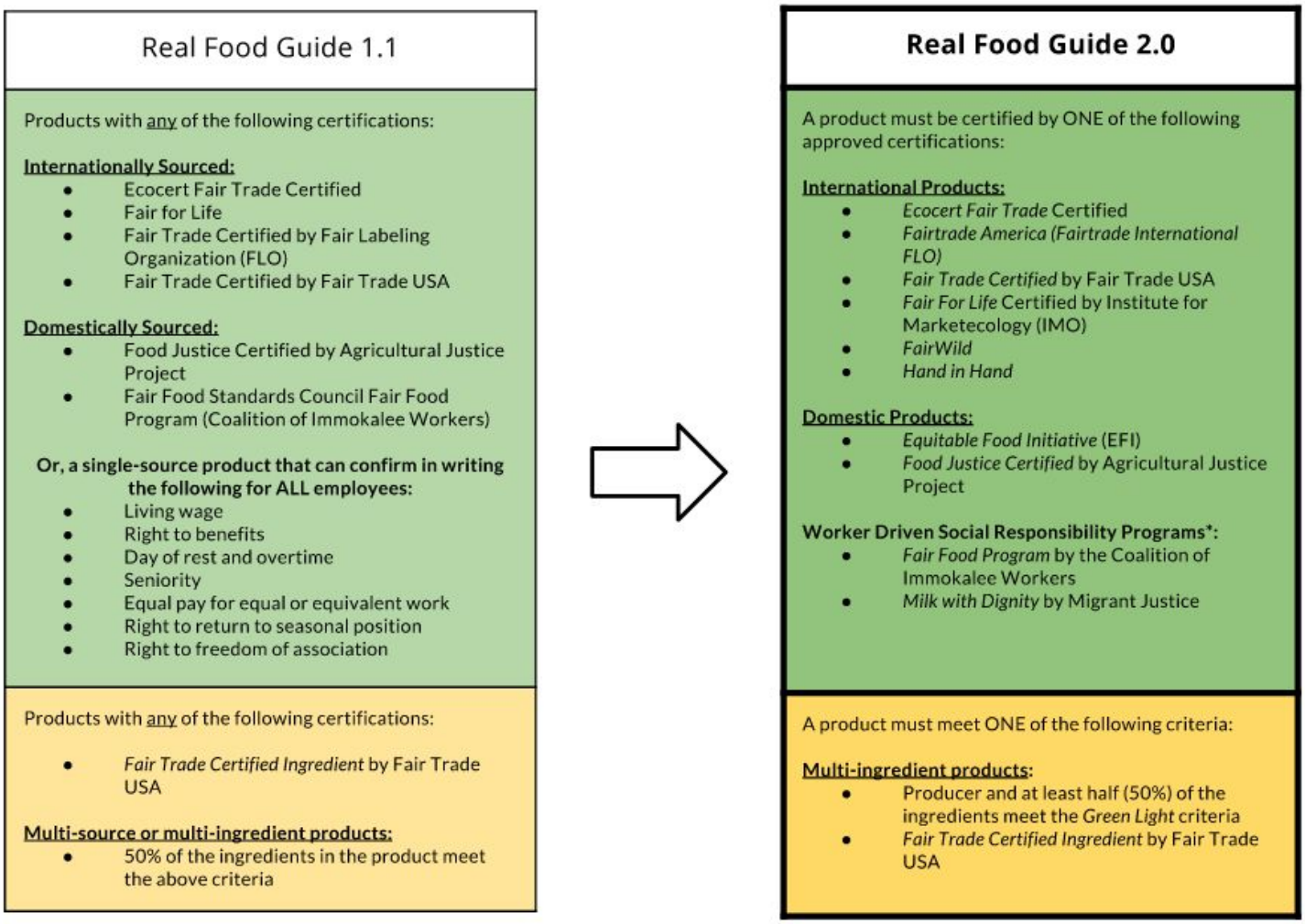

Figure 2. Changes between Real Food Guide 1.1 and 2.0. for the Fair category

Overview of Changes

Added:

- **Equitable Food Initiative (EFI)** — GREEN
- **FairWild** — GREEN
- **Hand in Hand** — GREEN
- **Milk with Dignity** — GREEN

Removed:

- **Single-source product, confirmed in writing**

Key Decisions

Below is a discussion of the key decisions that were made in revising the standards.

Worker-Driven Social Responsibility Programs

This version of the Real Food Guide explicitly highlights worker-driven social responsibility programs within the Fair category. These programs are designed and enforced by workers. They are won through campaigns, building the power of workers in the food system while securing and protecting fundamental human rights and improving working conditions. It is a new model that shares many principles with certifications but differs in approach. Worker-driven programs are led by workers, the people who are often most marginalized in the food system. They are supported by allies, often students and communities of faith, who actively engage with campaigns. They are won through legally binding agreements with major retail buyers, who then must ensure that all of the farms that supply to these buyers comply with the program. This means that change can happen quickly, on a larger scale, in an industry where wages and working conditions have long been stagnant

There is a new exemption in the Disqualifier section for worker-driven social responsibility programs. Products certified through these programs are not subject to the list of Disqualifiers. These programs address many of the reasons that a product would be disqualified. They challenge consolidated control in the food system, prevent human rights violations, and protect the health and safety of workers. Worker-driven programs are also winning concrete changes on the ground, moving the food system closer to the values of Real Food. This exemption for worker-driven social responsibility programs raises up and offers support to these promising campaigns led by those who are often the most disenfranchised in the food system: workers and people of color.

The two worker-driven social responsibility programs recognized in the Guide are the *Fair Food Program* and the *Milk with Dignity* program.

The *Fair Food Program* was created by the Coalition of Immokalee Workers (CIW), a worker-based human rights organization fighting to change conditions in the tomato fields of Florida. Since 1993, the CIW has been building power by bringing workers together to address abuses they face in the fields. In 2011, the CIW launched the *Fair Food Program*, creating a unique partnership between farmworkers, Florida tomato growers, and participating retail buyers. They organized campaigns with college students, communities of faith, and other allies across the country, building enough collective power to move many of the largest retail food companies to commit to the *Fair Food Program*. This includes a code of conduct for their supplying farms that establishes one penny more per pound of tomatoes (nearly doubling workers wages), worker-to-worker education, and systems for reporting abuse. Companies who have signed onto this agreement include Sodexo, Aramark, Compass Group, and Bon Appétit Management Company - the major companies that contract food service on college and university campuses. Under the Fair Food Program, more 35,000 workers have been reached in face-to-face educational session, and the program is expanding into other states and other industries (CIW, 2015).

The *Milk with Dignity* program is an emerging initiative from Migrant Justice, an organization of dairy farmworkers in Vermont. They have developed a program that includes a farmworker-authored code of conduct defining the human right to work with dignity and fair housing; farmworker education; third party monitoring; and economic relief for both farmers and farmworkers on dairy farms in the state of Vermont.

Workers are actively leading a campaign calling on companies who source their milk from Vermont, such as Ben and Jerry's, to take responsibility for farmworker rights in their supply chains (Migrant Justice, 2016).

Single-source products, confirmed in writing

The criteria for single-source products that could confirm a set of standards in writing for all employees has been removed from the Real Food Guide. In the past, this has been a difficult claim to verify, relying on self-reporting measures that could not be independently assessed by student researchers. Most producers who were being qualified as Fair under this criteria also qualified within the Local & Community Based category, and therefore, would still qualify as Real Food.

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Ecologically Sound

Farms, businesses, ranches, boats and other operations involved with food production practice environmental stewardship that conserves biodiversity and ecosystem resilience and preserves natural resources, including energy, wildlife, water, air, and soil. Production practices should minimize toxic substances, direct and indirect greenhouse gas emissions, natural resource depletion, and environmental degradation.

The Problem

The way food is grown, raised, foraged and processed has lasting consequences for human and ecosystem health. Many contemporary agricultural and fishing practices have severe ecological impacts, including wide-scale deforestation, significant droughts and water contamination, large-scale biodiversity loss, land degradation and soil loss, habitat destruction, and major alterations to the global climate.

Agroecology vs. Industrial Food Production[1]

We can compare contemporary industrial agriculture with agroecological production systems, which include many traditional agricultural practices and treat farms as ecosystems to be managed[2]. Crop yields in agroecosystems depend on built-in biological control mechanisms, organic matter recycling, and rainfall patterns. Production is safeguarded by growing a variety of crops in the same space, and by rotating major field crops over time. These techniques increase the availability of nitrogen and other important nutrients. Rotation also serves as insurance against severe weather events and pest outbreaks of insects, weeds, and diseases (Altieri, 2005).

By contrast, industrially produced foods use synthetic inputs to increase crop yields and livestock mass, control pests, enable out of season growth, and increase longevity. In order to better control chemical input levels, mechanization, and the amount of required labor, crops are often grown in a monoculture – a practice where only one type of crop or agricultural product is produced in the same place over time. While monoculture can drive down labor costs, the practice imposes additional costs on society via environmental damage and declines in crop yield and available soil nutrients over time (Bowler, 2002; Bennett, 2012).

Industrial livestock production follows similar patterns (see the discussion of Concentrated Animal Feeding Operations in the Disqualification section), as does industrial fishing, with a shift from small-scale boats that are responsive to local ecosystem to large-scale fleets and fishing methods such as trawling, or dragging nets along the ocean floor (Gartside & Kirkegaard, 2010). Aquaculture is another practice that requires seed, feed, and often relies heavily on the use of chemical inputs to raise fish, shrimp, and shellfish in a controlled environment (FAO, 1998; Haya, Burridge & Chang, 2001).

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[1] There is no standard way to describe differences in farming approaches which are, in fact, more complex and varied than just two words implies. Another common way that people attempt characterize the spectrum is to talk of "sustainable agriculture" (which typically uses agroecological principles) versus "conventional agriculture," which is currently the prevailing practice, using the industrial model, in the United States and many parts of the world (see the USDA brief, Sustainable Agriculture:Definition and Terms (2007)). We have chosen to use the terms "agroecological" and "industrial" because we believe those terms are most relatable to a set of agricultural practices and their underlying assumptions, but we acknowledge the diversity of ways in which people approach this topic.

[2] For a more comprehensive explanation of the ways that the term "agroecology" can be used, see the article, *Agroecology as a science, a movement and a practice. A review, by Wezel, Bellon, Doré, Francis, Vallod, & David (2009).*

Impacts of Industrial Food Production

Industrial food production contributes to habitat loss, pollution and the spread of invasive species – all of which negatively impact the diversity and variety of species that live in and around agroecosystems. Pesticides and herbicides kill off plants and insects beyond those they are targeting. As producers move toward monocultures using hybrid or genetically modified seeds, they tend to grow fewer varieties of the same crop, leading to a decrease in crop diversity and posing a threat to the resilience of the crop species. Inputs also have other off-farm environmental impacts. Animal manure and fertilizer runoff enters the water system, leading to algal blooms that disrupt freshwater and saltwater ecosystems (Altieri & Nicholls, 2005). Oceans also suffer from a move toward intensive food production. As of 2013, about 90% of wild fisheries were fully fished or overfished (FAO, 2016).

In addition, contemporary food production drives 80% of international deforestation – the clearing of forests on a massive scale (Wageningen University and Research Center, 2012). Every year, hundreds of thousands of square miles of forest are cut down to provide more room for crop production and livestock grazing, while mangrove forests in Asia are destroyed to make way for shrimp aquaculture ((Benhin, 2006; Hecht, 1993; Páez-Osuna, 2001). Deforestation is a driver of global warming and climate change (Lawrence & Vandecar, 2015).

The connections between climate change and food production go both ways, with food production also suffering the consequences of climate change. Globally, the area of land classified as "very dry" has more than doubled since the 1970s (Bates, 2008). There have been significant decreases in water storage in both glaciers and snow cover. Particularly exposed to climate change, semi-arid and arid places are projected to suffer a decrease in water resources. And as overfishing has reduced the age, size, and geographic diversity of fish populations and the biodiversity of marine ecosystems, it has made them more sensitive to additional stresses such as climate change (Brander, 2007).

The Principles

The Ecologically Sound category addresses food production practices that foster environmental stewardship, conserve biodiversity, and preserve natural resources including energy, wildlife, water, air and soil.

Purchasing ecologically sound products helps sustainability and environmental stewardship flourish as a community value. By opening new markets to ecologically sound producers, institutions may encourage more producers to maintain or adopt sustainable food production practices. Ecologically sound food production manages agroecosystems in order to improve and sustain productivity, increase profits, and bolster long term food security while preserving and enhancing the natural resource base and the environment (FAO, 2015).

1. Ecologically sound pest management

The term "pesticide" refers to "insecticides, fungicides, herbicides, rodenticides, molluscicides, nematicides, plant growth regulators and others". Intensive use of synthetic pesticides is a major contributor to biodiversity loss, as well as a danger to the health of farmers and farmworkers (Aktar et al., 2009).

Ecologically sound food producers use minimal to no pesticides and instead employ a number of alternative techniques to control pests and weeds such as cover crops and sophisticated crop rotations to manage the field ecology, effectively disrupting habitat for weeds, insects, and disease-bearing organisms (Organic Farming

Research Foundation, 2016). When pest populations get out of balance, producers implement a variety of strategies including mating disruption, traps, and barriers (like nets and fencing) (Chouinard, 2016).

Certain botanical or other non-synthetic pesticides may also be applied in an ecologically-sound fashion and Integrated Pest Management (IPM) can be used to decrease the amount of severe pesticides required to exclude costly pests. IPM encourages farmers and producers to tolerate harmless pests and use knowledge of habitat and habits to remove harmful pests' food, water and shelter from the production site. Biological control, habitat manipulation, modification of cultural practices, and use of resistant varieties are all IPM strategies that prevent the introduction and damage of harmful pests (University of California Agriculture and Natural Resources, 1996-2016).

Ecologically sound weed control includes crop rotation, mechanical tillage, and hand-weeding, as well as the use of cover crops, mulches, flame weeding, and other management methods.

2. Soil conservation

Ecologically-sound soil conservation practices significantly improve soil health and reduce land degradation. Minimal mechanical soil disturbance through limited tillage, permanent organic soil cover, and diversification of crop species grown in sequences or associations promote soil health, which is an important productive capacity and ecosystem service (FAO, 2015; Kassam, 2009). Producers can build soil organic matter via cover crops, compost, and biologically-based soil amendments. Crop rotation, avoidance of monoculture and natural soil-building methods improves soil health and quality and generally increases yields (Bennett, 2012).

3. Biodiversity and habitat protection

Biodiversity is the variety of organisms within a habitat or ecosystem and their interactions. Biodiversity is important for crucial ecosystem services including pollination, climate regulation, nutrient cycling and soil formation and retention (Diaz, 2005).

Biodiversity can be thought of on three levels: the variety of genetic information contained in individual plants, animals, and microorganisms; the variety of species; and the variety of habitats and ecological communities. Methods that enhance genetic diversity in crops and livestock diversity include natural cross-breeding, seed-saving, and production that does not impair natural reproductive cycles (FAO, 2003). Species and habitat diversity can be preserved by minimizing the ues of pesticides, herbicides and fertilizers, and discouraging deforestation (Altieri & Nicholls, 2005).

4. Water conservation

Water conservation as an ecologically-sound practice has been a growing concern as the current and anticipated effects of climate change continue to be understood. Efficient irrigation systems and improved on-farm water management can help maintain and increase yields. Methods include drip irrigation, greywater, and rainwater harvesting. Reduction of surface water runoff also promotes soil health by reducing soil erosion (Tilman et al, 2002).

5. Sustainable waste management

Ecologically-sound food producers reduce overall waste via composting and reusing materials. When affordable, some producers may transform waste into renewable energy through biodigestion.

6. Energy conservation

Reducing energy consumption and reliance on fossil fuels for energy is an important component of mitigating global climate change. This can be at the level of production as well as in transportation. Some evidence suggests that local foods purchased in specific institutional volumes may have significantly lower "Food Miles"

than their non-local counterparts and may have a small, but meaningful, impact on environmental resiliency (Pirog and Andrew, 2003).

7. Stock sustainability (for seafood)

Stock size refers to the number of fish in a subpopulation of a certain fish species. According to a 2013 FAO study, 58.1% of fisheries are fully fished (fishery is operating at or close to an optimal yield level, with no expected room for further expansion), 31.4% are overexploited (above a level which is believed to be sustainable in the long term, with no potential room for further expansion and a higher risk of stock depletion/collapse) and only 10.5% were underexploited (undeveloped fishery with significant potential for expansion in total production). In order to preserve fish stocks in the long run, it is important that fish are not harvested at a faster rate than it takes for the stock to replenish itself (Hutchings, 2000).

Reducing fishing in fully fished and overexploited fisheries is the principle feasible means of sustaining stock sizes in these fisheries. However, the existing concepts of overfishing do not provide direct guidance on issues such as biodiversity, serial depletion, habitat degradation, and changes in the food web caused by fishing. These concerns point to a need for better management of fishing capacity supported by broader use of technical measures such as marine protected areas and gear restrictions (Murawaski, 2000). Because of the interconnectedness of different species within an ecosystem, the sustainability of one fishery can also impact populations of other species. Trophic level (place in the food chain) is another important consideration in maintaining healthy and abundant stocks (Pauly et al., 2002).

8. Reduce bycatch (for seafood)

Bycatch can either be defined as 'unselective fishing catches of non-target organisms' or 'catch that is either unused or unmanaged.' Regardless of which definition is used, bycatch is an important aspect of fishing that must be addressed to avoid collapse or trophic cascades (impacts across the food chain) (Davies, 2009). In 1994 an estimated 27 million tons of bycatch were discarded globally each year. One of the least selective fishing methods is prawn trawling. In most prawn trawl fisheries, the weight of bycatch is greater than the weight of the commercially important prawns (Stobutzki, 2001). This high volume of discards and the increasing awareness of the potential environmental impacts have resulted in bycatch becoming an issue of global importance. Consequently, there is increasing pressure to understand and manage the impacts of fishing on bycatch species (Stobutzki, 2001).

Modern fishing gear is a major impediment to reducing bycatch. The gear is typically not selective; it rarely catches only the target species (Collie, 2000).

9. Limit habitat destruction (for seafood)

Gear type also makes its way into sustainable fishing conversations due to its multiple impacts on aquatic habitats. The seabed and other organisms are often damaged by gear used to catch demersal fish and shellfish (Chuenpagdee et al., 2003). Ecosystem recovery from intensive fishing can take a long time. For example, studies have shown that Maerl bed had still not been recolonized by certain species 4 years after initial disturbance and rates for sponge and coral species may exceed 15 years (Collie, 2000). Interconnected effects of fishing, environmental variation, and climate change increasingly threaten marine ecosystems and complicate management (Crowder, 2008).

A transition away from a single-species approach to management and towards ecosystem-based management could benefit the entire ecosystem of the fishing site. Ecosystem based management requires consideration of both direct and indirect effects of commercial fisheries, including bycatch.

The Standards

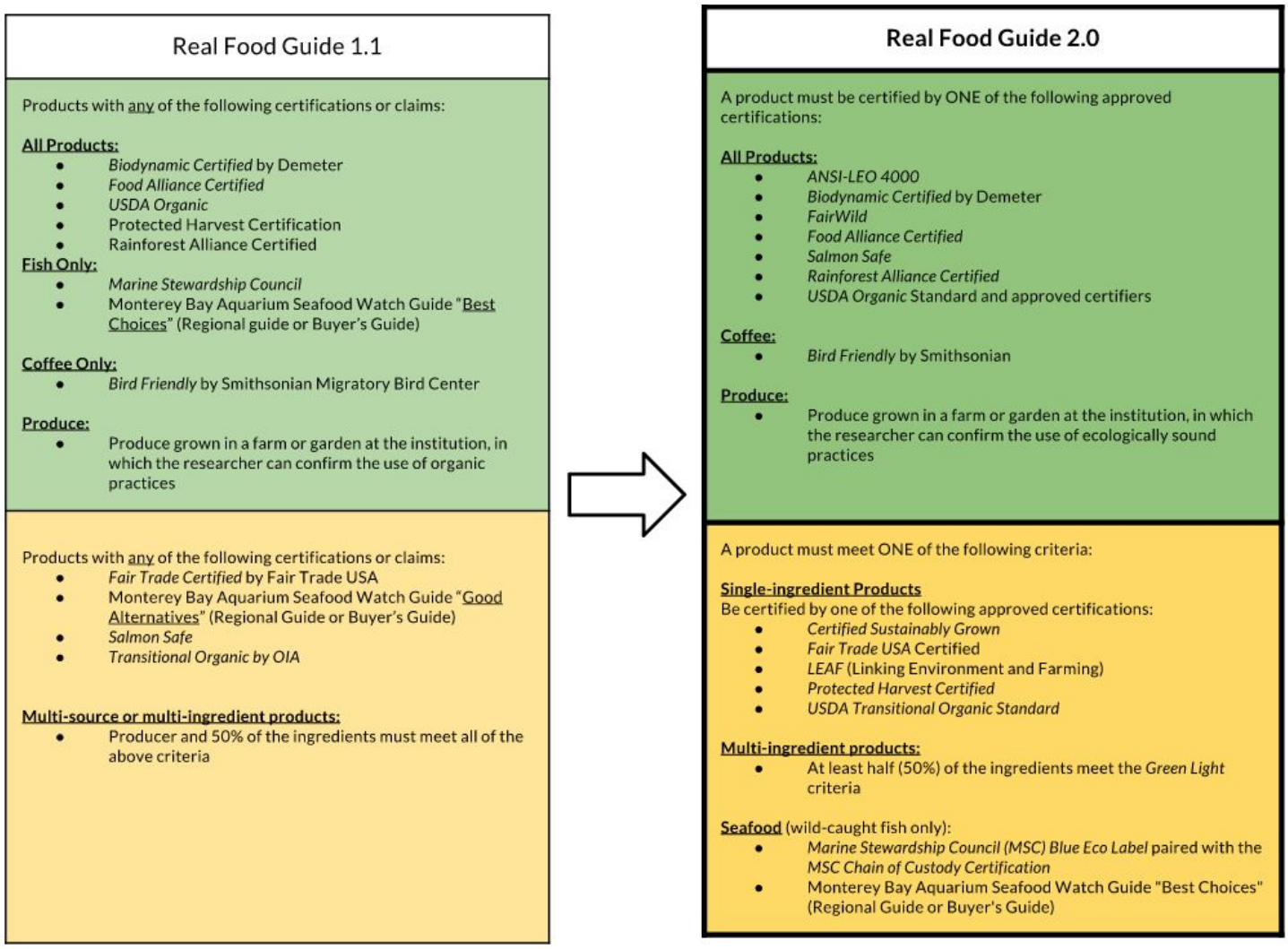

Figure 3. Changes between Real Food Guide 1.1 and 2.0 for the Ecologically Sound category

Overview of Changes

Added:

- **ANSI/LEO-4000** — GREEN
- **FairWild** — GREEN
- **Certified Sustainably Grown** — YELLOW
- **LEAF (Linking Environment and Farming)** — YELLOW

Moved

- **Salmon Safe** — YELLOW ⇒ GREEN
- **Marine Stewardship Council** — GREEN ⇒ YELLOW
- **Monterey Bay Aquarium Seafood Watch Guide "Best Choices"** — GREEN ⇒ YELLOW
- **Protected Harvest Certified** — GREEN ⇒ YELLOW

Removed

- **Monterey Bay Aquarium Seafood Watch Guide "Good Alternatives"**

Key Decisions

Seafood

There are many important factors in assessing the ecological impact of seafood production. Interviews with fishermen and industry experts revealed that one of the factor of greatest importance is the scale of the boat in relation to the scale of the ecosystem, sometimes referred to as "scale-appropriateness to the ecosystem." This is difficult to ascertain without tracing back to the boat, and even then, there is not one universal standard that can be applied because it differs based on the characteristic of the ecosystem, the gear, the type of boat, and the species being caught. Currently, there are no nationally relevant certifications that ensure scale-appropriateness to the ecosystem, and there are not sufficient systems of traceability or common definitions to allow researchers to independently research this criteria. We hope that this may be possible to include in the future.

For this version of the Real Food Guide, the Marine Stewardship Council certification and the Monterey Bay Aquarium Seafood Watch Guide "Best Choices" have both been moved from the green to the yellow section of the Real Food Guide. While they meet some of the principles for Ecologically Sound seafood, they do not meet the principle of scale-appropriateness to the ecosystem. The Monterey Bay Aquarium Seafood Watch Guide "Good Alternatives" will no longer qualify as Real Food, because seafood can qualify on the "Good Alternatives" list without meeting the essential criteria for Ecologically Sound seafood.

Additionally, the Real Food Guide now specifies that only wild-caught fish can qualify as Ecologically Sound. Aquaculture, or farmed fish, will not qualify as Real Food in the Ecologically Sound category, even if it is certified. Most aquaculture production occurs abroad, where significant concerns have been raised about ecosystem impact as well as labor violations. None of the certifications that we encountered were sufficient in meeting our principles to address the issues prevalent in the industry. Local shellfish aquaculture does have the potential to qualify as Real Food in the Local & Community Based category.

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Humane

Animals can express natural behavior in a low-stress environment and are raised with no added hormones or non-therapeutic antibiotics.

The Problem

Over the past three decades, as animal agriculture has shifted towards industrial-scale production, the welfare of farm animals on conventional, large-scale farms in particular has been in considerable decline (Fraser, 2008). In addition to the decline in animal welfare, industrial animal agriculture has had serious implications for the health of humans and the environment (Fraser, 2008).

Beef Production

The consolidation of the beef industry has resulted in 80-90% of beef production occurring on feedlots of 1,000 or more head of cattle (USDA-ERS, 2007). In order to operate at maximum efficiency, beef feedlots typically adhere to a high-carbohydrate diet of corn, barley, wheat, and sorghum, a diet that does not resemble the natural diet of cattle (Keele et al., 2016). As a result, beef cattle can experience adverse health outcomes including, but not limited to: bloating, ulcers, liver abscesses, and infections (Keele et al., 2016). The prevalence of these adverse health outcomes in beef cattle have lead to an accordingly steep increase in the use of non-therapeutic antibiotics and growth hormones, which further suppress the health of the cattle and increase the incidence of antibiotic-resistant bacteria, a public health concerns for humans (Union of Concerned Scientists, 2013).

Dairy Production

There are more than nine million dairy cattle currently producing in the U.S. today. While the number of individual dairies in the U.S. has decreased more than 69% since 1982, dairy production is at an all-time high (HSUS, n.d.). A result of this consolidation has been a rise in animal husbandry practices meant to maximize production and minimize cost. Dairy cattle in the U.S. live for an average of only 2.4 lactations (each of which last around 300 days) prior to being slaughtered, despite the fact that dairy cattle can live longer than 20 years (HSUS, n.d.). The rise of Concentrated Animal Feeding Operations (CAFOs) has also necessitated an increase in stocking densities and changes to animal social grouping, which causes unnecessary stress to the cattle and may result in weight loss (Grant & Albright, 2001).

Poultry and Egg Production

Like many other animal industries, the chicken industry has seen a significant increase in both consolidation across the industry and vertical integration in recent years. Traditionally, poultry production was a byproduct of egg production. As of 2005, the number of poultry producing firms in the United States shrunk from 250 to just 50 (Goodwin, 2005). Conventional, large-scale poultry production uses a high-output model that aims to maximize efficiency. Broilers (chickens raised specifically to be eaten) gain weight at an unnatural pace via forced feedings, non-therapeutic antibiotic use, and the use of growth hormones, leading to a daily growth rate 300% higher than growth rates from fifty years ago (Knowles et al., 2008). This forced weight gain creates additional health concerns for broilers, including joint problems, limited mobility, and premature death (Knowles et al., 2008).

Recent estimates indicate that more than 94% of commercially-produced eggs in the U.S. are derived from caged layers – hens confined in cages (United Egg Producers, 2016). Caged confinement prevents hens from engaging in social behaviors such as roosting, dust-bathing, and nesting, which causes egg-layers undue stress and can lead to health problems such as weight-loss for the hens (HSUS, 2008).

Pork Production

Since the late 20th century, pork production (swine) has shifted from extensive and diverse operations to highly concentrated commercial swine operations (HSI, 2011). As a result, commercial swine operations confine swine in such a way that the animals are prevented from engaging in social behaviors that are of critical importance to the mental health, physical health, and physical development of swine (HSI, 2011). Additionally, the confinement of swine has lead to adverse health outcomes for both animals and humans; concentrated swine operations have been directly tied to several public health crises in recent years, which is a possible result of the immunosuppressed state of swine living in CAFOs (Gray & Baker, 2011).

The Principles

The current state of animal welfare in food production is in dire need of change. Supporting producers that use humane practices will encourage the practices that are most conducive to the health and wellbeing of animals, humans, and the environment they share.

The Humane category of the Real Food Guide is designed to identify food produced in a manner that aligns with the following principles:

1. Nutritious feed free of non-therapeutic antibiotics and hormones

Animals need access to nutritious feed in order to maintain health and energy (Spakota, 2007). Humanely-treated animals should have consistent access to feed that is free of growth hormones, non-therapeutic antibiotics, and animal byproducts, all of which have been shown to have negative health outcomes for animals and humans (Spakota, 2007). Feed should also be nutritionally complete and appropriate for any given animal's current stage of life, as the dietary needs of animals change over the course of a lifetime (Spakota, 2007).

2. Low stress environment

Concentrated animal housing environments have been shown to cause higher stress levels in animals, which can lead to health problems and premature death (Paarlberg, 2008). Additionally, an animal's environment can dictate the mental and physical health of that animal over the course of its lifetime (Paarlberg, 2008). Animals in humane environments are allowed and encouraged to express their most natural behaviors such as nesting, bathing, and foraging.

3. Limited physical alterations

Many physical alterations – permanent changes made to animal's body by handlers to achieve a desired outcome or affect behavior – can cause animals undue stress and harm. Physical alterations are species-specific and include modifications like tail-docking, beak-clipping, teeth filing, and chemical castration. Sometimes physical alterations are made for the health and safety of other animals. In recognition of this reality, certain physical alterations fall under the Humane principles because of urgent or extenuating circumstances (e.g. spur trimming for roosters that will live beyond one year).

4. Careful handling

Animals raised conventionally in large-scale operations are often handled – physically moved and treated – in a manner that is harmful to their physical and mental health (Paarlberg, 2008). In order to ensure animal safety, humane handling principles discourage the most egregious forms of animal cruelty while also ensuring care is being taken to treat each animal with compassion. Examples of humane handling practices include low-stress weaning, the use of clean and well-lit loading facilities, and the use of electric prods only in emergencies (Grandin, 2007).

5. Minimize transportation

Transportation between living spaces and slaughter can be highly stressful for animals. To be humanely raised and handled, animals must be transported with care and expediency (Grandin, 2007). Humane transportation practices ensure that animals are transported in appropriate stocking numbers with adequate access to water and clean air, both of which are essential to health during transport. Transportation time is also kept at a minimum to keep the stress levels of animals as low as possible.

6. Humane slaughter

In order to prevent undue stress and pain, animal slaughter should occur as quickly and painlessly as possible. Humane food producers should audit the slaughter process of their animals to ensure that their animals are slaughtered using methods which are fast, painless, and species-appropriate.

7. Traceability

Traceability is an integral part of upholding transparency. Traceable animal production tracks animals from birth through slaughter. Traceability aids producers in humane animal husbandry and allows consumers to make more confident purchasing decisions (Greene, 2010). Additionally, traceability is the only comprehensive tool by which the spread of animal-borne diseases can be properly tracked and contained (Greene, 2010).

The Standards

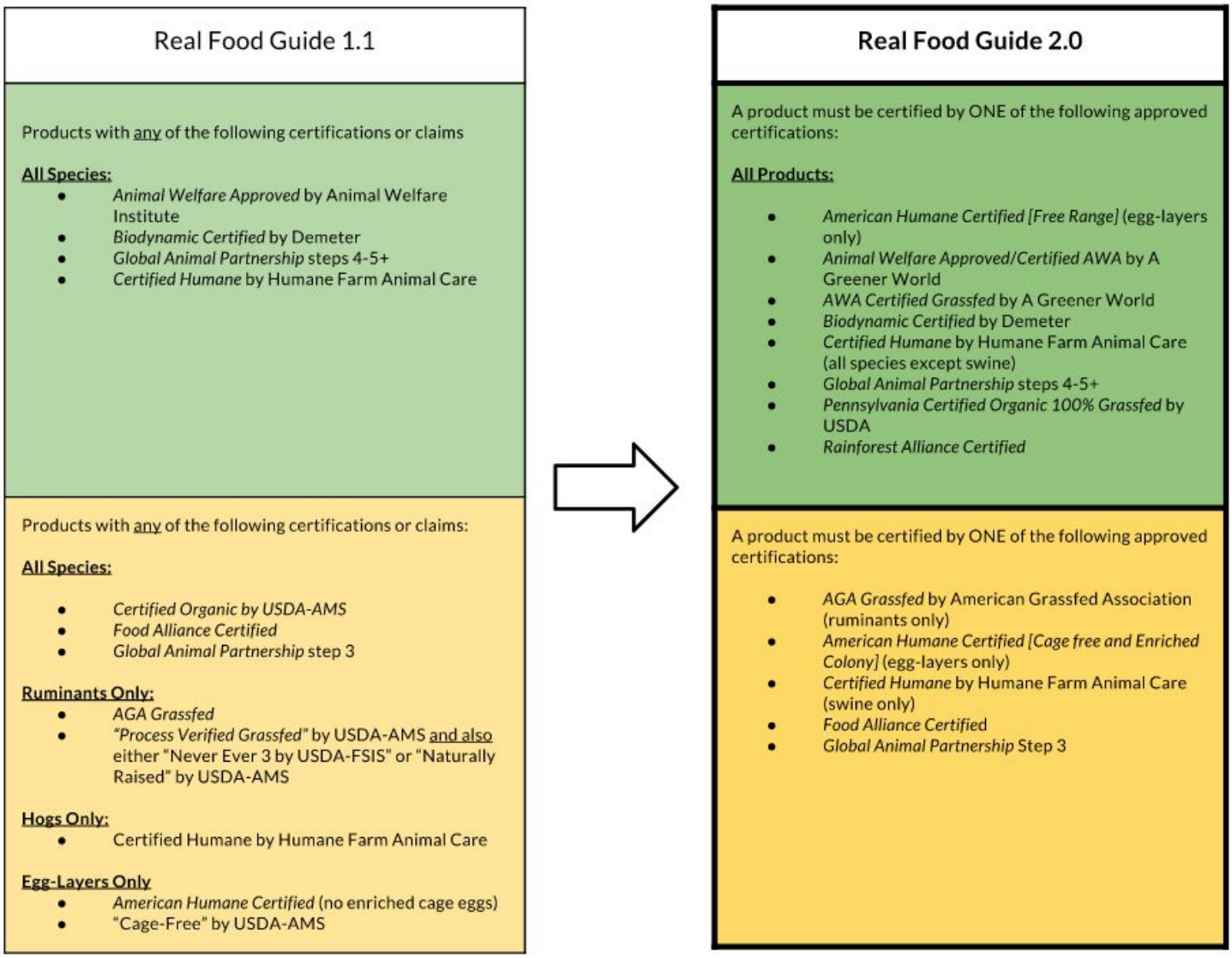

Figure 4. Changes between Real Food Guide 1.1 and 2.0 for the Humane category

Added:
- **AWA Certified Grassfed by A Greener World** — GREEN
- **Pennsylvania Certified Organic 100% Grassfed by USDA** — GREEN
- **Rainforest Alliance Certified** — GREEN

Moved:
- **American Humane Certified [Free Range] (Egg-layers only)** — YELLOW ⇒ GREEN

Removed:
- **"Process Verified Grassfed" by USDA-AMS and also either "Never Ever 3 by USDA-FSIS" or "Naturally Raised" by USDA-AMS**
- **"Cage-Free" by USDA-AMS**

Key Decisions

Below is a discussion of the key decisions that were made in revising the standards.

Certified Organic

Certified Organic by USDA-AMS no longer qualifies as Humane because it does not meet the essential principles. *Certified Organic* does, however, continue to qualify within the Ecologically Sound category. This means that as long as the farm is not disqualified as a CAFO, a product that is *Certified Organic* by USDA-AMS can still count as Real Food.

Process-Verified Grassfed

As of January 12, 2016, the Agricultural Marketing Service (AMS) withdrew the Grass (Forage) Fed Claim for Ruminant Livestock and the Meat Products Derived from Such Livestock (referred to in the previous version of the Real Food Guide as *"Process Verified Grassfed* by USDA-AMS). The AMS no longer verifies applicant's' programs to the Standard. Because the standard is being phased out, it is no longer included in the Real Food Guide.

"Cage-Free" by USDA-AMS

USDA Cage Free has been removed from the yellow section and no longer qualifies as Real Food**.** Extensive conversations with advisors revealed that certain principles were essential for humane treatment of egg layers including proper *Feed*, *Handling*, and *Environment.* "Cage-Free" by USDA-AMS does not meet these essential principles. There are other opportunities for qualifying eggs as Real Food including meeting the criteria for Local & Community Based or being *American Humane Certified.*

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Egregious Human Rights Violations

Background

Human Rights

This disqualifier has been developed out of concern for the degree to which consumers can be complicit in supporting human rights violations hidden behind some of our food. Serious human rights violation, also known as egregious human rights violations, are systematic and prolonged abuses of an individual including extrajudicial killing, slavery and enforced disappearances (Geneva Academy, 2014).

Forced labor is both an egregious human rights violation and one that is a widespread and well-documented problem in the modern food system. As we learn more, it is possible that more food chain-related violations will be added to the egregious human rights disqualifier.

Forced Labor in the Food System

Forced labor is "all compulsory labor where work or service is exacted from any person under the threat of a penalty and for which the person has not offered himself or herself voluntarily." The International Labor Organization (ILO) has created conventions and has called for the abolition of forced labor. It is estimated that approximately 21 million people across the world experience slavery conditions, lured into jobs by coercion or deception that they are then unable to leave (International Labor Convention, 2012).

The most commonly cited case of forced labor is slavery. This is the term that is most referred to when discussing forced labor. Slavery was prohibited by the 1948 Universal Declaration of Human Rights. However "modern slavery" practices still continue today around the world (The United Nations, 1948). There is no internationally agreed upon definition of modern slavery. Slavery can take the following forms, among others: bonded labor, descent-based slavery, trafficking, child slavery, and early or forced marriage (Zweynert, 2015). Modern slavery in different forms is a serious issue in food production and the agricultural industry. Internationally, with limited regulation by national bodies systems of forced labor are employed because crops cultivated using forced labor have become extremely valuable to nations' economies (Campbell, 2008).

For example, in Brazil, the number of people experiencing modern slavery through agricultural work is upwards of 100,000 (Campbell, 2008). Landowners perpetuate this large-scale exploitation of impoverished workers who are stuck in cycles of poverty and debt. Forced labor has become invaluable to producers as sugar is a highly profitable commodity (Campbell, 2008). Argentina also suffers from rising numbers of workers exploited through forced labor. A report from October 2011 discusses migrants working on cultivating potatoes seeds in the nation's capital of Buenos Aires. It was determined that the working conditions at this farm were equivalent to those of slave labor. The workers were paid only when the season ended and they had returned home. This made it possible for the employers to make sure the workers would not leave even if the conditions of the working environment were bad. It was only after this situation became public that Argentina created stricter laws on when workers must be paid (Sjödin, 2012). These situations highlight our concerns about the lack of regulation of working conditions.

Forced labor is also relevant to food production within the U.S. Even though legal slavery in the U.S. ended in 1865, forced labor is still present within the U.S agricultural system. Forced labor operations thrive in markets where there is a demand for cheap products. Many factors contribute to the structure that allows forms of forced labor. This includes the United State's limited standards on monitoring farmworker conditions as well as the increasing number of undocumented farmworkers who have little to no legal protection. Organizations in the U.S., such as the National Labor Relations Board (NLRB) and the Occupational Safety and Health Administration (OSHA), that have been established to ensure safe working environments, often lack the mechanisms to protect farmworkers (Perea, 2011). Undocumented farmworkers in the U.S often do not request help when forced to work in harsh conditions with limited pay. In many cases, this is due to a limited knowledge of rights, inability to speak English, and a fear of deportation. These factors contribute to poverty and a lack of power for many agricultural workers - a conditions conducive to forced labor (Buckley, n.d.).

For some documented examples, we can look to the citrus and tomato industries of Florida. The citrus industry is one of the main agricultural industries in Florida, totalling approximate sales of over $200 million in the late 1990s. A majority of the agricultural work is built upon immigrant work, including workers from Mexico and Central America. In the late 1990s farm labor contractors Ramiro, Jose, and Ramos hired workers and contracted them out to orange growers. The Ramos family forced around seven hundred workers to work without pay, under threats of violence and more (Free the Slaves and Human Rights Center, 2004). In 2004, the Ramos family was sentenced to twelve years and three months in prison (Department of Justice, 2002).

The tomato industry has had similar issues, and these cases have been prosecuted to the fullest extent of the law by the Coalition of Immokalee Workers (CIW). In December 2008, after workers contacted the police and CIW, Cesar and Geovanni Navarrete received twelve years each in a federal prison on charges related to involuntary servitude and peonage. They pled guilty to "beating, threatening, restraining, and locking workers in trucks to force them to work as agricultural laborers" They were also accused of paying workers low wages and running them into debt, while employing threats of violence if the workers left before their debts were settled (Coalition of Immokalee Workers, n.d.).

Discussion of Disqualification

Based on the fact that that forced labor is strongly associated with (and in fact constitutes) serious human rights violations, we have disqualified any food product from a producer who is known to be found guilty of criminal charges of forced labor within the previous 10 years.

Challenges remain in identifying those food products and food producers, particularly in international supply chains. The United Nations, as the primary body charged with safeguarding human rights globally, would typically be a resource. However, the U.N. can only do as much at their member states' will do in enforcing and regulating international conventions (Sison, 2016). Whether it is because of complicity with the perpetrating companies or reluctance to be embarrassed, member states have not proven to be reliable enforcers of human rights or reporters of violations, and so it is often difficult to trace accounts of forced labor in the food supply chain. According to Non-Governmental Organizations that represent civil society, incidents of forced labor in food production are widely undocumented or unreported through official government channels. If a producer that has been found guilty of forced labor can be identified, then that producers cannot qualify as Real Food. As new reporting mechanisms emerge, there may be additional ways to identify cases of forced labor in food production.

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Labor Violations

Background

Real Food should be produced in a way that values the people who produce it. Employers should provide their workers with a working environment which contains no serious hazards. When working conditions present a harm or serious risk of harm to workers, and when workers are prevented from organizing themselves to address those risks, the employer's products should not count as Real Food.

In the U.S., the Occupational Safety and Health Administration (OSHA) and the National Labor Relations Board (NLRB) were established to ensure that workers are working in environments that are not dangerous or hostile.

Discussion of Disqualification

Occupational Safety and Health Administration (OSHA)

In previous versions of the Real Food Guide, the only labor violation that would disqualify products as Real Food were those deemed as "serious" by the Occupational Safety and Health Act (OSHA). Serious violations exist when "the workplace hazard could cause an accident or illness that would most likely result in death or serious physical harm, unless the employer did not know or could not have known of the violation" (OSHA).

In the present Real Food Guide version, the labor violations criteria has been updated to disqualify producers that have knowingly violated labor standards. The labor concerns disqualification criteria have been specified to include the terms "willful" and "repeated." A willful violation is when an employer has "knowingly failed to comply with a legal requirement (purposeful disregard) or acted with plain indifference to employee safety" (OSHA, 1996). A repeated violation is when a producer has been "cited previously for the same or a substantially similar condition and, for a serious violation" (OSHA, 1996). This update communicates to researchers more specific criteria on which violations are disqualified in order to ensure that Real Food is produced in safe working environments. The current disqualification criteria also aligns with the standards of the Center for Good Food Purchasing, a peer food justice organization.

In some cases labor violations occur and employers have engaged with a process of remediation. Employers who have created a working environment where employees feel safe enough to report incidents should not be permanently penalized. Currently, OSHA requires the following actions in response to violations: posting the OSHA notice; correcting the violation in accordance with the notice; adequately protecting the employee; and making progress in correcting hazards. However, in order to be re-qualified to count as Real Food, employers must also pay workers in full, pay any outstanding fines, and submit any required paperwork.

Compliance with the above criteria can be found by searching the producer within the OSHA database and clicking any case in question. If the case reveals the initial problem was solved, the worker was made whole by paying any back wages, and the producer paid the proper fines, food from that producer may be evaluated to

count as Real Food. If the case was solved by an informal settlement or the information needed is not provided then the organization is still disqualified.

National Labor Relations Board (NLRB)

The NLRB was established in order to protect the rights given to workers under the National Labor Relations Act. As an organization, the NLRB is an independent federal agency that works to ensure that employees maintain their right to organize as well as determine their options for bargaining representation. The NLRB works to secure fair working conditions and labor practices. If a private sector employer or union has created unfair working conditions, the NLRB works with the employer to remedy the situation (NLRB, n.d.a; n.d.b).

If a company has had a National Labor Relations Board case or decision in the past three years they will be disqualified from counting as Real Food. Most cases filed by the NLRB are settled immediately; however, in rare cases the decision will be litigated and the case will go to an administrative judge (NLRB, n.d.c). However, similar to OSHA violations, producers do have the opportunity to count has real if the same requirements are fulfilled: employers must also pay workers in full, pay any outstanding fines, and submit any required paperwork.

Wage Theft and Worker Fatality

Both wage theft and worker fatalities are severe violations by an employer. If a company has been found guilty of or has been cited for a case of either or both of these violations in the past three years, then their products cannot be qualified as Real Food.

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Concentrated Animal Feeding Operations (CAFOs)

Background

The U.S. Environmental Protection Agency (EPA) defines animal feeding operations (AFOs) as "agricultural enterprises where animals are kept and raised in confined situations" (EPA NPDES, 2016). This means that "animals have been, are, or will be stabled or confined and fed or maintained for a total of 45 days or more in any 12-month period; and crops, vegetation, forage growth, or post-harvest residues are not sustained in the normal growing season over any portion of the lot or facility." (EPA NPDES, 2016).

The classification of Concentrated Animal Feeding Operations (CAFOs) covers AFOs that surpass a certain size threshold and/or are known to discharge waste in one of two ways: 1) "Into waters of the U.S. through a man-made ditch, flushing system, or other similar"; or 2) "Directly into waters of the U.S. that originate outside the facility and pass over, across, or through the facility or otherwise come into direct contact with the confined animals" (EPA NPDES, 2016). CAFOs are divided into three categories, which are listed and explained below:

- Large CAFOs: any AFO that meets the size threshold determined by the EPA (which varies from species to species) is considered a large CAFO regardless of whether or not the farm has waste discharges.
- Medium CAFOs: any AFO that meets the size threshold determined by the EPA **and** meets one of the methods of waste discharge mentioned above is considered a medium CAFO.
- Small CAFOs: any AFO that meets the size threshold determined by the EPA **and** meets one of the methods of waste discharge mentioned above is considered a small CAFO.

The number of CAFOs has increased exponentially in recent decades (Starmer, 2007), from about 3,000 large CAFOs in 1982 to more than 20,000 large CAFOs in 2012, according to USDA and EPA figures (Huber, 2013). These figures count operations that range from a minimum of 700 animals, in the case of dairy cows, to a minimum of 30,000 animals in the case of chickens.

Discussion of Disqualification

CAFOs associated with negative externalities that affect farmers, workers, animals, and the environment, and they are also closely associated with intense consolidation in the meat, poultry, egg, and dairy industries.

Association with Consolidation of the Industry

The increased production referenced above has not, primarily, been the result of increased demand on the part of consumers, but rather of pressure from major retailers and agribusiness corporations to consolidate and maximize price and production efficiency (Hendrickson et al., 2001). Demand for most animal-based proteins in the U.S. actually plateaued between 1970 and 2000 and even decreased for beef (Haley, 2001).

All of the livestock industries in which CAFO production is the overwhelmingly dominant mode of production are highly consolidated. As of 2008, for example, the four largest beef packing firms held 81 percent of the market share (Love et al., 2009). As of 2002, 50% of broiler chickens were processed by just four companies (Hendrickson & Hefernan, 2007). A 2014 report by the United States International Trade Commission found

that swine operations with 2,000 or more hogs accounted for nearly 87 percent of market inventory (Giamalva, 2014).

Multiple Harms Related to CAFOs

The changes in production practices and the associated consolidation of the industry have had negative impacts on producers. Increasingly, farmers are finding themselves subject to unfavorable contracts, uncompetitive markets and volatile pricing structures, often leaving producers in tough financial straits (Farm Aid, 2015).

CAFOs are frequently associated with poor conditions for workers and sometimes serious labor violations. There are many occupational health and safety concerns, with farmworkers suffering higher rates of injury related to accidents involving machinery and animals. These accidents can be fatal. Issues with respiratory health are also prevalent (Mitloehner & Calvo, 2008; Donham, Cumro, Reynolds & Merchant, 2000). The rights to freedom of association are not protected, and immigrant workers are particularly at risk of abuse (Compa, 2004).

In addition to their proliferation putting stress on producers and workers, CAFOs also create serious stresses on the environment. CAFOs have been directly linked to numerous environmental harms, including, but not limited to: excess soil accumulation; runoff; surface water contamination; increased methane production; and waste leakages (Gilchrist et al., 2007). The public, and particularly members of the communities surrounding CAFOs, pay the costs of these harms (Hendrickson et al., 2001). That impact often falls disproportionately on low income communities and communities of color (Wing et al., 2000).

Animals, too, are subject to serious stresses under current conditions in CAFOs. Animals living in CAFO environments are known to have shorter lifespans, and they have higher rates of illness and disease (D'Silva, 2006). In addition to causing physical distress, confinement often leads to signs of mental distress, including abnormal social behaviors and signs of depression, as well as other serious behavioral abnormalities (D'Silva, 2006).

By and large, the expansion of CAFOs has had negative impacts on producers, workers, communities, the environment, and animals and reinforced a trend towards consolidation. Thus, products sourced from CAFOs are precluded from qualifying as Real Food. It is the primary goal of this disqualifier to support production that does not use confinement, and to encourage major reforms throughout livestock related industries.

The Special Case of "Aggregated Dairy"

The dairy industry is different from other protein industries because of its structure. Because dairy is highly perishable, it needs to be processed quickly (Sel et al., 2015). In order to mitigate risk and get dairy to the market as quickly as possible, individual dairy farms will often aggregate their milk through a cooperative or other dairy, meaning that their milk is pooled with milk from other farmers in the area. Dairy can be produced from an aggregation of milk from farms that do not qualify as CAFOS and farms that do. In order to continue incentivizing support for aggregators and cooperatives that source primarily from small dairy farms that do not qualify as CAFOs, the Disqualifier has an exemption for aggregated dairy if the average farm size is less than 200 cows.

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Genetically Modified Organisms (GMOs)

Background

Definitions

Genetic modification generally refers to any process in which an organism's DNA changes - a process central to human food production. The domestication of plants and animals for use in agriculture represents one of the first instances when humans genetically modified their environment. Humans identified interesting or useful plants and animals and intentionally selected and re-planted these varieties. These organisms evolved into genetically distinct, domesticated species. However, identifying and incorporating a trait of interest into a variety using traditional breeding techniques takes years – a decade or more in some cases. More recently plant breeders have developed theoretical and technological innovations that allow for more rapid improvement. Chemical mutagenesis and hybridization are examples of relatively recent tools used by plant breeders that are not considered genetic engineering.

Genetic engineering refers to the modification of an organism's DNA using specific genetic technologies developed over the past 40 years which allow researchers to modify genes individually either by directly inserting a new gene or by changing an existing gene. Inserted genes may come from the same species (cisgenesis), a closely related species, or a completely different species (transgenesis). Crops developed with these tools of genetic engineering are commonly called genetically modified organisms (GMOs) and foods made with them are often said to contain genetically modified ingredients.

Risks and Benefits

Like all technologies, the tools of genetic engineering carry with them some risk. For example, a transgenic soybean, engineered to express a Brazil nut protein, unexpectedly prompted an allergenic response in experimental trials and was not brought to market (Nordlee et al., 1996). Cases like this are a reminder of the necessity of rigorous experimental trials and sensible regulatory processes for GMOs.

The direct environmental impacts of GMOs are mixed. On average, herbicide-tolerant GMOs do not lead to larger crop yields, but can require less hand-on management, potentially allowing farmers to manage more land. Planting insect resistant GMOs can also allow farmers to spray fewer insecticides. Yields of these crops can increase because of reduced insect damage (NAS, 2016).

While GMOs sometimes have benefits over other types of conventional production, GMO food production still relies on high-input, resource-intensive methods. Most GMOs are grown in monoculture, which limits biodiversity. Reliance on just a few varieties over a wide area renders crops vulnerable to new pests and disease (Agrios, 2005). Like other commercial varieties (but unlike traditional seed-saving practices), GMO seeds must be purchased every year and may require extensive inputs—pesticides, fertilizer, etc. – to perform as expected (Murphy et al. 2004).

Discussion of Disqualification

As the previous brief discussion about the risks and benefits of GMOs illustrates, there are multiple reasons that GMOs have become a hot topic of debate. The reason GMOs were considered for disqualification in our Real Food Standards, however, has to do with with their relationship to consolidation of control in the food system.

Commercially available GMO seeds have been developed by, and provide profit for, a handful of seed production companies. By and large, the companies that own the rights to sell the seeds of GMOs are large, multinational corporations. Control of the industry has been consolidated through acquisitions and mergers over the past forty years (Howard, 2009). By 2010, the top four seed-biotechnology firms held 54% off market sales, while the top eight firms held 63% (Heisey, 2015).

Due to current intellectual property rights legislation, these companies have exclusive ownership rights to the GMOs they develop. Farmers are prohibited from saving seeds from year to year and need to continuously buy new seeds (Luby et al. 2015). Larger producers are better able to adopt and profit from new technologies while smaller and under-resourced farmers with fewer resources often fall behind (Carolan, 2016).

In addition, some GMOs drive an increase in chemical inputs that are produced by the seed company, a prime example being Roundup Ready crops, produced by Monsanto. Roundup Ready seeds are resistant to the herbicide Roundup, enabling producers to control weeds through use of Roundup also made by Monsanto. This increases the power of the company in the agricultural sector and means that farmers are even more dependent on the company.

Because the current use of GMOs supports and maintains the consolidation of control in the food system, GMO ingredients are disqualified from consideration as Real Food. In the U.S., only a few GMOs are grown and sold (Fernandez-Cornejo et al., 2014). Of those, single-ingredient genetically modified products and products made with significant quantities of genetically modified ingredients are disqualified from counting as Real Food. Products made with trace amounts of GMO ingredients may still qualify as Real Food if they fulfill the standards in other categories.

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Ultra-Processed Foods

Background

Food and health are integrally tied. Food sustains us and can also be associated with any number of health issues. These include chronic disease such as cancer, diabetes, and coronary heart disease (Mente, A., de Koning, Shannon & Anand, 2009; Sofi, Cesari, Abbate, Gensin, & Casini, 2008).

There is a growing body of evidence linking the consumption of processed foods, particularly ultra-processed foods, to negative health outcomes (Moodie et al., 2013). One way to understand ultra-processed food is through a typology offered by Monteiro, Levy, Claro, Ribeiro de Castro & Cannon. Group 1 is *unprocessed* and *minimally processed* foods; Group 2 is *processed* ingredients, such as oils, sugar and flour. Group 3 is *ultra-processed* foods, "Designed to create durable, accessible, convenient, attractive ready-to-eat or ready-to-heat products. Most of them are often termed 'fast' foods or convenience foods. They are formulated to reduce microbial deterioration ('long shelf life'), to be transportable for long distances, and to be extremely palatable ('high organoleptic quality') and often to be habit-forming" (2010). They tend to contain a large quantity of group 2 ingredients, which means they are often high in calories, sugar, saturated fats, and sodium, and low in nutritional value (Monteiro, 2009). They also tend to include additives to increase palatability and shelf-life (Monteiro et al. 2010).

Discussion of Disqualification

As noted above, ultra-processed foods can be characterized by the use of food additives. The definition of food additive has changed during time, being today defined in the Codex Alimentarius. A food additive is "Any substance not normally consumed as a food by itself and not normally used as a typical ingredient of the food…" (FAO, 2013). The FAO definition of food additives does not include contaminants or ingredients, like vitamins, that are added to increase nutritional value.

In an effort to identify ultra-processed foods, we chose to focus on food additives that (a) are frequently used in ultra-processed foods in the U.S. and not in minimally processed foods, (b) have little to no nutritional value, and (c) are the subject of a substantial scientific literature[3]. Our list also includes rbGH/RBST, which is not an additive, but is a substance of concern that meets the last two criteria. Note: we are *not* saying that foods produced with these ingredients are *unsafe* to eat for the typical consumer; our focus here is on their connection to ultra-processed foods and the long term health problems that can be associated with them.

[3] For an overview of literature on food additives, see Carocho, Barreiro, Morales, & Ferreira (2014).

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Real Food Guide 2.0

The Real Food Guide

Local & Community Based	Fair	Ecologically Sound	Humane
These foods can be traced to nearby farms, ranches, boats and businesses that are locally owned and operated. Supporting small and mid-size food businesses challenges trends towards consolidation in the food industry and supports local economies.	*Individuals involved in food production work in safe and fair conditions, receive fair compensation, are ensured the right to organize and the right to a grievance process, and have equal opportunity for employment.*	*Farms, ranches, boats, and other operations involved with food production practice environmental stewardship that conserves biodiversity and ecosystem resilience and preserves natural resources, including energy, wildlife, water, air, and soil. Production practices should minimize toxic substances, direct and indirect greenhouse gas emissions, natural resource depletion, and environmental degradation.*	*Animals can express natural behavior in a low-stress environment and are raised with no added hormones or non-therapeutic antibiotics.*
Green Light: Products meeting these criteria or certifications qualify as Real Food and *best* represent the standard			
Single-ingredient Products: A product must meet ALL the following criteria: A. **Ownership:** Producer must be a privately or cooperatively owned enterprise. | *Wild-caught Seafood must come from owner-operated boats* B. **Size:** • Produce: Individual farms must gross **$5 million/year or less** • Meat, Poultry, Eggs, Dairy, Seafood, Grocery: Company must gross **$50 million/year or less** C. **Distance:** All production, processing, and distribution facilities must be within a **250 mile radius** of the institution. | *This radius is extended to 500 miles for Meat* **Single-ingredient Products (Aggregated):** 100% of the products must meet the criteria for Ownership, Size and Distance	A product must be certified by ONE of the following approved certifications: **International Products:** • *Ecocert Fair Trade Certified* • *Fairtrade America (Fairtrade International FLO)* • *Fair For Life Certified* by Institute for Marketecology (IMO) • *Fair Trade Certified* by Fair Trade USA • *FairWild* • *Hand in Hand* **Domestic Products:** • *Equitable Food Initiative (EFI)* • *Food Justice Certified* by Agricultural Justice Project **Worker Driven Social Responsibility Programs*:** • *Fair Food Program* by the Coalition of Immokalee Workers • *Milk with Dignity* by Migrant Justice	A product must be certified by ONE of the following approved certifications: **All Products:** • *ANSI/LEO-4000* the American National Standard for Sustainable Agriculture by Leonardo Academy • *Biodynamic Certified* by Demeter • *FairWild* • *Food Alliance Certified* • *Rainforest Alliance Certified* • *Salmon Safe* • *USDA Organic Standard and approved certifiers* **Coffee Only:** • *Bird Friendly* by Smithsonian **Produce Only:** Produce grown in a farm or garden at the institution, in which the researcher can confirm the use of organic practices	A product must be certified by ONE of the following approved certifications: **All Products:** • *American Humane Certified (Free Range)* (egg-layers only) • *Animal Welfare Approved/Certified AWA* by A Greener World • *AWA Grassfed* by A Greener World • *Biodynamic Certified* by Demeter • *Certified Humane* by Humane Farm Animal *Care (all species except swine)* • *Global Animal Partnership steps 4-5+* • *Pennsylvania Certified Organic 100% Grassfed* by USDA • *Rainforest Alliance Certified*

Yellow Light: Products meeting these criteria or certifications qualify as Real Food but do not represent the *fullest* expression of the standard

Multi-ingredient Products:
(e.g. Baked Goods)

Company must meet ALL the following criteria:

A. **Ownership:** Company must be a privately or cooperatively owned enterprise
B. **Size:** Company must gross **$50 million/ year or less**
C. **Distance:** All processing and distribution facilities must be within a **250 mile radius** of the institution.

-AND-

At least half (50%) of the ingredients must come from farms meeting ALL the following criteria:

A. **Ownership:** Company must be a privately or cooperatively owned enterprise
B. **Size:**
   - Produce: Individual farms must gross **$5 million/year or less**
   - All other ingredients: Company must gross **$50 million/year or less**
C. **Distance:** All production facilities must be within a 250 mile radius of the institution

Single-ingredient Products (Aggregated):
At least three-quarters (75%) of the product (by volume) must meet *Green Light* criteria for Ownership, Size and Distance

A product must meet ONE of the following criteria:

For multi-ingredient products:
- Producer and at least half (50%) of the ingredients meet the *Green Light* criteria
- *Fair Trade Certified Ingredient* by Fair Trade USA

A product must meet ONE of the following criteria:

Single-ingredient Products
Be certified by one of the following approved certifications:
- *Certified Sustainably Grown*
- *Fair Trade USA Certified*
- *LEAF (Linking Environment and Farming)*
- *Protected Harvest Certified*
- *USDA Transitional Organic Standard*

Multi-ingredient products:
- At least half (50%) of the ingredients meet the *Green Light* criteria

Seafood (wild-caught only):
- *Marine Stewardship Council (MSC) Blue Eco Label* paired with the *MSC Chain of Custody Certification*
- Monterey Bay Aquarium Seafood Watch Guide "Best Choices" (Regional Guide or Buyer's Guide)

A product must be certified by ONE of the following approved certifications:

- *AGA Grassfed* by American Grassfed Association (ruminants only)
- *American Humane Certified (Cage Free and Enriched Colony)* (egg-layers only)
- *Certified Humane* by Humane Farm Animal Care (swine only)
- *Food Alliance Certified*
- *Global Animal Partnership Step 3*

DISQUALIFICATIONS: Products containing disqualifying characteristics **cannot count as Real Food in any category**

- **Egregious Human Rights Violations:** Producers have been found guilty of criminal charges of forced labor within the previous 10 years.
- **Labor Violations:** Producer is known to have been found guilty of or has been cited for a case relating to a serious, repeat or willful Occupational Safety and Health Administration (OSHA), National Labor Relations Board (NLRB), or Fair Labor Standards Act (FLSA) violation within the last 3 years. They will be disqualified unless the producer has addressed these violations by: 1) Making the workers whole, 2) Paying any fines and 3) Developing written policy preventing future violations. In the case of wage theft and/or worker fatality, a producer is disqualified for 3 years regardless of any steps they have taken to address the violation.
- **Concentrated Animal Feeding Operations (CAFOs):** Producer is a Concentrated Animal Feeding Operation (CAFO)
  | Except *for dairy that has been aggregated from multiple farms IF the average farm size is less than 200 cows*
- **Genetically Modified Organisms (GMOs):** Products made with genetically engineered ingredients (including corn, soy, rapeseed, beet sugar, papayas and summer squash) and their derivatives
  | Unless these ingredients are used in trace amounts or the product carries a certification that precludes the presence of GMOs (Non-GMO Project Verified or any of the certifications that qualify as *Ecologically Sound*)
- **Ultra-Processed Foods:** Products made with the following ingredients: Aspartame; Butylated hydroxyanisole (BHA), Butylated hydroxytoluene (BHT); Caramel coloring; Partially hydrogenated oil (trans-fats); Potassium bromate; Propyl gallate; rBGH/rBST; Saccharine; Sodium nitrate added; Sodium nitrite added; Dyes: Red #3, Red #40, Yellow #5, Yellow #6

Worker-Driven Social Responsibility Programs are exempt from Disqualifiers, and can count as Real Food even if they have a disqualifying characteristic