



## **Sustainable Dining at Brewery Vivant and Broad Leaf Brewery & Spirits**

*Understanding our Climate Impact, Spring 2022*

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## Key Terms and Definitions

CO<sub>2</sub> = *Carbon Dioxide*: At its most basic form, CO<sub>2</sub> is a molecule that is made up of one carbon atom and two oxygen atoms. It is found in our planet's atmosphere and usually exists as a non-flammable, colorless gas.

CO<sub>2</sub>e = *Carbon Dioxide Equivalent*: This accounts for not only Carbon Dioxide emissions, but also other greenhouse gasses, such as methane and nitrous oxide

Carbon Footprint: A measurable amount of carbon dioxide (and other carbon pollutants) that are emitted by a person or organization due to the consumption of fossil fuels

Circular Economy: A system in which waste is reused or recycled, creating a 'closed loop' where very little energy or materials are wasted. This idea is usually based on three factors, according to the Ellen MacArthur Foundation: "Eliminate waste and pollution, Circulate products and materials (at their highest value), [and] Regenerate nature."

GHG = *Greenhouse Gas*: Gasses in our atmosphere that absorb infrared radiation. An excess of these gasses leads to climate change. Some of these gasses include carbon dioxide, nitrous oxide, methane, ozone, and water vapor.

kWh = *Kilowatt Hour*: This is a measurement that determines how many kilowatts of power are used over the span of one hour. This is a common standard used to measure an amount of electricity that is used by a person or organization.

Cu. ft. = *Cubic Feet*: This is a measurement of volume for a cube with one-foot side lengths. This is a standard measurement of volume in the United States.

CCFs = *Standard Cubic Foot*: A measurement equivalent to 100 cubic feet. This is a common measurement for natural gas usage.

LCA = *Life Cycle Assessment*: A process in which an individual or organization works to understand the entire "life" of a product and the impacts that are created by that product. This includes impacts created from producing a product such as processing all raw materials, transportation, and even the way the product is disposed of when it has been used.

kg CO<sub>2</sub>e = *Kilogram of Carbon Dioxide Equivalents*: Grams and kilograms are the universal standard for displaying carbon footprinting data.

## **Introduction**

When we order food from a favorite restaurant, climate change and the carbon footprint of that food are not usually the first ideas that come to mind. Our minds focus on what sounds most appetizing, what is in our budget, or possibly what is in season. At Brewery Vivant and Broad Leaf Brewery & Spirits, we strive to not only have great food & drinks and great service, but also to provide our guests with transparent information about our impacts on our earth and community.

Since we opened in 2010, we have reported annually on our operational carbon footprint. To do this we track and measure the greenhouse gas (GHG) emissions for our largest impact areas.

These include:

- Natural gas usage (CCFs)
- Company vehicle emissions
- Employee work-related car and air travel
- Electricity usage (kWh)
- CO2 created during beer fermentation
- Cattle emissions (we sell a lot of burgers!)

This information, along with many other key data points like our waste footprint and charitable giving efforts are published each year in our “Beer the Change” sustainability report. In sharing this information with the public, we have hoped to raise awareness of the impact that our business has on the planet and our community and how we are trying to reduce that impact. This transparency holds us accountable to our guests and community and can also serve as an information source for other similar businesses on their sustainability journey.

As the climate crisis accelerates with each passing year, we knew it was time to dig deeper into our climate impact. This paper and associated information is the result of that research. We investigated the carbon footprint of our most popular menu items at both pubs with the desire to use that information to build awareness both internally and externally. The more knowledge decision-makers have, the more they can adjust their purchasing decisions and supplier partnerships to address their impact.

## **Our Approach to Sustainable Dining**

Our company's goals are intended to reduce our negative impact and increase our positive impact on the environment and our community. Those goals have always included minimizing our utility usage and our waste as well as prioritizing our spending to be with locally-owned companies and farms. Our kitchens are "scratch" kitchens meaning that almost everything they produce comes to us as a raw ingredient. This allows them to maximize the whole ingredient, for example using vegetable scraps and/or bones to make stock and creating charcuterie out of lesser known animal parts. Our chefs prefer to work with farms that minimize their chemical use for produce and that use humane practices in raising their livestock. It is the combination of all of these efforts that makes our team proud of the quality and intentionality of the menu we serve.

### **Local Sourcing**

We strive to source at least 50% of our food inputs and 25% of our beer inputs from Michigan-based farms. Supporting our local economy keeps more dollars in our community, providing jobs to the very people that we hope to meet as customers. A 2008 study by Local First showed that for every \$100 spent at a locally-owned business, \$68 stayed in the local economy as opposed to \$43 when the business was non-local. That study can be found [here](#). We are also able to develop deeper relationships with our local partners since we can easily tour their facilities and see what their growing and processing methods are. And by sourcing locally, we can mitigate the GHG emissions associated with large truck transportation. The less miles it takes for our suppliers to reach our doorstep, the less gasoline is being used for transportation creating fewer CO<sub>2</sub>e emissions.

#### *Highlight on Wernette Beef*

One of our most invaluable local partners is [Wernette Beef](#), our exclusive source for beef at our Brewery Vivant pub. Located only 65 miles from the pub, this family-run cattle farm keeps sustainability at the forefront of their operations. On their webpage, they describe the practices that make them a unique and sustainable cattle farm:

We work with nature to maintain a clean and healthy environment for the cattle, as well as maintaining a sustainable world. We do this by keeping soil tillage to a minimum, providing nutrients to the crops that are needed without excess, rotationally grazing, and making the most out of the

pasture by keeping the cow herd grass fed until the snow flies. We also work closely with our local Soil Conservation Service team to ensure our practices are always beneficial to clean groundwater and the environment.

Wernette has been involved in a [research study](#) with Michigan State University for a number of years. The MSU research team is investigating the impacts of soil carbon sequestration on greenhouse gas emissions of different beef finishing systems. Because Wernette's cattle graze rotationally (on multiple paddocks), the research is showing that more carbon is sequestered in the soil than created through the process of finishing the cattle. It is widely accepted that cattle raised in feedlots have a similar or lower carbon footprint than grass-fed because they require much less land to graze upon so this research challenges that assumption by showing the benefits of multi-paddock grazing.

Beef is one of the most excessive producers of carbon emissions in terms of protein sources. By partnering with a local beef supplier who understands the importance of sustainable farming practices, we are able to serve beef that not only tastes better, but that has a lower carbon footprint.

#### *Highlight on West Michigan Farmlink*

Another organization that has proven to be extremely beneficial to our business and many other restaurants and farms across our region is West Michigan Farmlink. This company is an important resource in the food economy, connecting local businesses to local food suppliers across West Michigan. They make it easy for our chefs to purchase from local farmers and producers in order to supply our kitchens with amazing, local ingredients. The goal of this service is to empower local farmers, while simultaneously promoting local production and industry. This resource helps us to keep our supplier transportation emissions low by making it simple to buy products from merchants in our area.

The idea of local doesn't only apply to our inputs, but also our outputs. We made the choice to mainly distribute our beer within the state of Michigan. This increases the chances for us to know our customers, keeps our 'export' transportation emissions low and allows us tighter control on the quality of our product. We believe that the best way to drink our beer is at one of

our pubs so we can offer our customers the full experience of enjoying our beer with our amazing food and with the help and knowledge of our awesome service team. Keeping our beer within our state increases the chances that people will seek out that in-person experience and get to enjoy the cool pubs that we are so proud of.

## **The Carbon Footprint of Food**

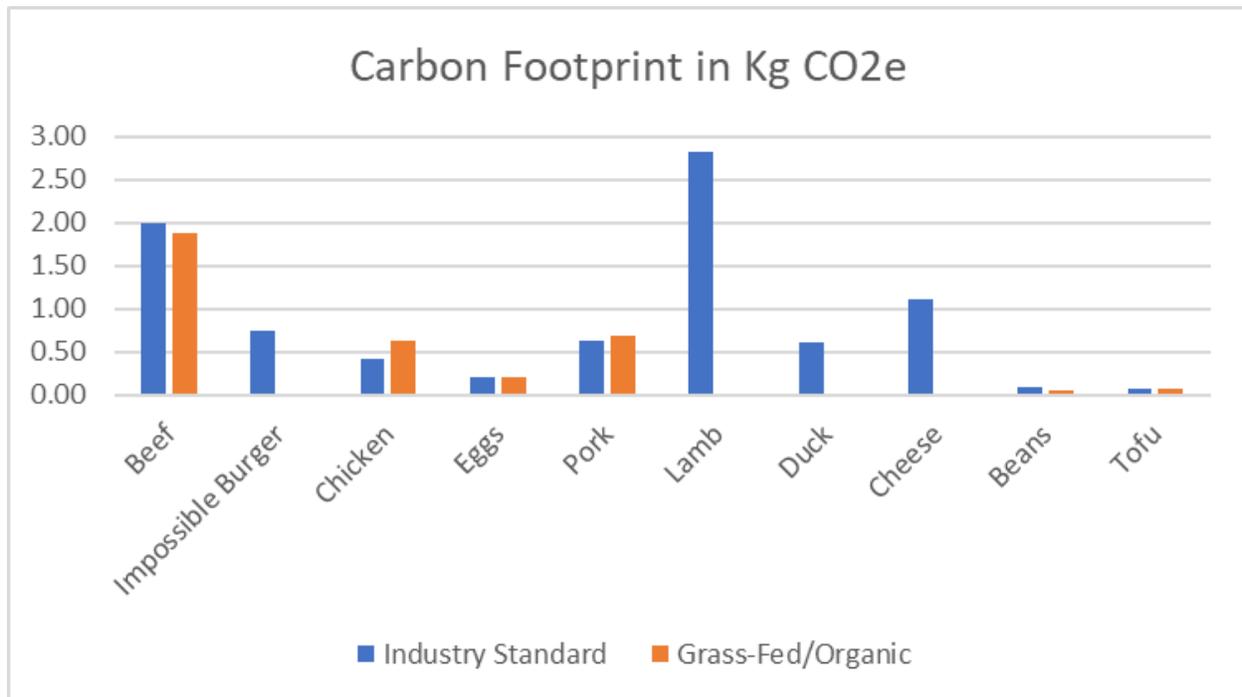
In 2021, we took a deeper dive into some of the specific impacts that are created during the average individual's dining experience. Our goal was to build an understanding of the exact carbon footprint for different food items on our menu. In doing so, we hoped to build consumer awareness for the impact that a meal from one of our kitchens has on the environment, as well as show carbon footprint comparisons between different items that are served in our kitchens.

Though our original intent was to calculate and communicate the carbon footprint of each menu item, after working on this project we determined that this isn't feasible for us nor would there be enough value added given what our research uncovered as outlined below. Our biggest internal constraint is that our menus at the pubs change frequently as the seasons change and ingredient availability fluctuates. That frequency of change would create a significant challenge in having accurate and up-to-date information on the carbon footprint of full menu items. Because of that, the focus of this project became proteins which tend to have a higher carbon footprint than most other ingredients.

The information we gathered from this study is used internally as our chefs are creating new dishes. Vivant has always taken inspiration for our menu primarily from the cuisine of the countryside of Belgium and France which is heavily focused on game and meat-based dishes. At Broad Leaf our menu parameters are looser with the focus being on street food. Regardless of the type of cuisine, having a full understanding of the climate impact of proteins encourages our chefs to creatively incorporate more vegetables and legumes than might normally be found in the traditional dishes they are taking inspiration from.

This graph shows the estimated carbon footprint for various protein sources. Each calculation is based on 4 ounces of protein. Most of this information is from the Food Carbon Emissions

Calculator which can be found [here](#). Duck wasn't on their list so that information came from HeaLabel's [website](#).



Here are the key points we discovered in our research:

- There are a number of online sources that provide this information and the results can be quite different depending on what is included in the carbon footprint (e.g. transportation, packaging, disposal, etc) and where their source data comes from. We chose the one with the largest number of items to compare with the idea that the methodology would be similar among them.
- Our study originally included the complete menu item with all ingredients, such as a burger with a bun and toppings. It became obvious that the protein source was the majority of the impact so this information is limited to the proteins or the featured ingredient as in the case of mushrooms.
- The impact of transportation was minimal on the overall carbon footprint of most protein sources unless the distance traveled was substantial. The impact of transportation would be greater if we were looking at produce and other lower carbon footprint ingredients.
- Free range chicken has about a 50% higher carbon footprint than large-scale confinement chicken. We believe that the surprisingly large difference can be attributed to the amount of land required to raise an equal number of chickens.

- The Impossible Burger® is available at Broad Leaf as a beef substitute. This vegan meat substitute uses approximately 98% less land, 87% less water, and has roughly 89% less Greenhouse Gas (GHG) emissions than conventional beef. For more information and some helpful impact tools, visit their [website](#).
- The amount of emissions created by growing and processing mushrooms is very small given the limited amount of energy, inputs and water required. Check out [this](#) page for more information on the impressive sustainability of mushrooms.

We hope that this information will help guests to make informed decisions when ordering from our menus and to keep CO<sub>2</sub>e emissions in mind when they dine out. We will continue to investigate ways that we can use this knowledge to lessen our climate impact over time.

### **Farm Hand Life Cycle Assessment (LCA)**

In this paper on the carbon footprint of food, we would be remiss to not mention the life cycle assessment we conducted of our flagship beer Farm Hand. That report includes information about the impact created during every step of this product's life cycle; from the production of aluminum for canning, to grain transportation, electricity produced for refrigeration, and even the agricultural processes of growing the necessary hops and barley. The main findings of this study showed that an average 16oz can of Farm Hand produced roughly 418.97 gCO<sub>2</sub>e. This comprehensive report can be found on the Brewery Vivant website.

### **Why Does This Matter?**

At Brewery Vivant and Broad Leaf Brewery & Spirits, we are passionate about our internal sustainability practices and strive to make ethical decisions that benefit our community and the environment. By committing to our goals and transparent reporting methods, we hope to inspire other local community members to take similar actions and keep sustainability in mind when choosing which businesses to spend their money with.

Change never comes easily, but it is imperative that we continuously educate ourselves of the impacts we create and work to build a future that focuses on mitigating our negative climate impacts. Many decisions are far more complex than it would initially seem and trade-offs are generally required when making them. A good example coming out of this research is choosing where to source our chicken from - do we pick the farm that follows free range methodology

which we think is better for the chickens and the quality of the meat, or do we pick a larger farm that confines their chickens but with the benefit of a much lower carbon footprint? Generally, our hierarchy is as follows, though we have to increasingly factor in the price of the input as well:

1. Local, organic/humane
2. Local
3. Organic/humane
4. Conventional

We don't believe there is an absolute right or wrong answer to this question. Rather, we believe what is most important is considering the impacts of our decisions not just on our company and its employees, but also on the environment and our community as a whole. We are committed to operating in this mindset and appreciate the support and encouragement that we receive from all of our customers and community members.