



Carbon Footprint of Food



4VI gratefully acknowledges that we live and do business on the territories of Coast Salish, Nuu-chah-nulth and Kwakwaka'wakw Nations. Our corporate office is located on the traditional and unceded territory of the Snuneymuxw First Nation in Nanaimo, BC.

4VI is committed to advancing reconciliation in our work and is committed to the calls to action identified by the Truth and Reconciliation Commission of Canada as well as the implementation of the Declaration of the Rights of Indigenous Peoples Act.

4VI is deeply committed to responsible purchasing as a core facet of our vision for the socio-economic and cultural well-being of Vancouver Island. With a firm belief in tourism's role as a collaborative partner in sustainable community development, we prioritize inclusive and equitable practices, ensuring that tourism contributes positively to the communities across the island. By encouraging residents to invest in and experience local tourism offerings, we aim to foster a robust socio-economic environment. We recognize tourism as a vital contributor to the preservation and celebration of Vancouver Island's diverse cultural heritage. By actively promoting Indigenous-owned tourism experiences and encouraging residents to partake in them, we aim to elevate and honor the rich tapestry of cultural voices that define our island's identity.

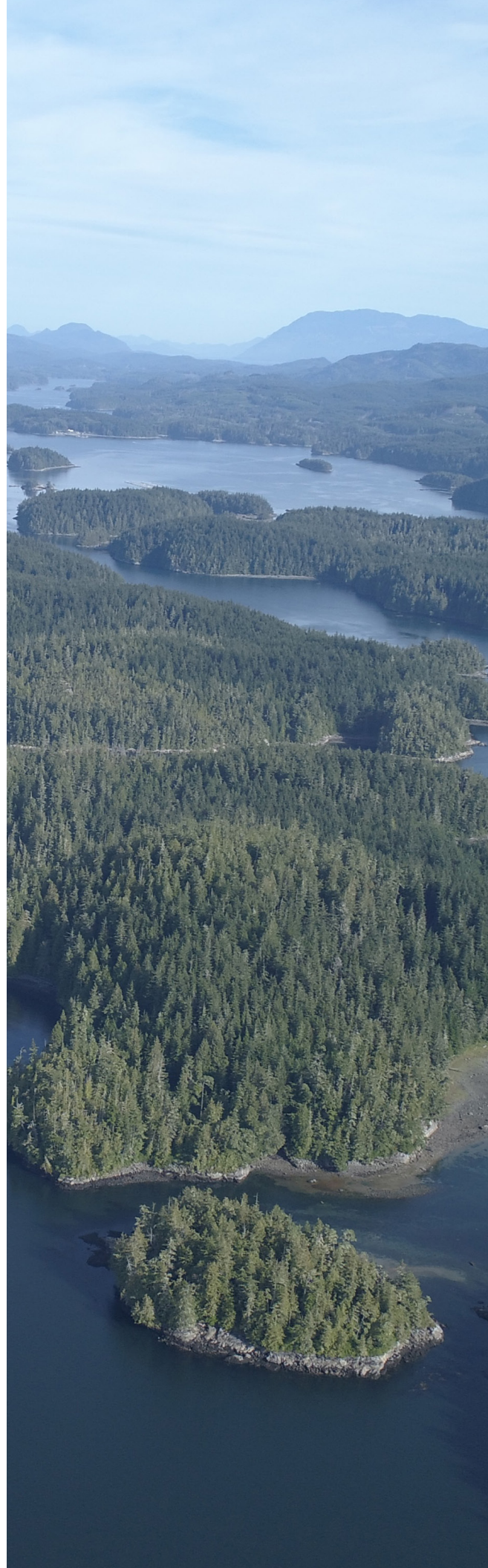


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Contributors to the Carbon Footprint of Food

Introduction

The emissions impact of food production accounts for roughly a third of total human caused greenhouse gas emissions (Crippa et al., 2021). Sources of greenhouse gas emissions can be broken down into 5 stages: production, processing, transportation, distribution, and consumption. The stage with the highest emissions impact is production. Components of the production stage such as land use change, fertilizer use, water consumption, and other impacts, make up on average 61% of food emissions (Poore & Nemecek, 2018). Since not all food is grown the same way, the greenhouse gas emissions from each food type varies. Making informed decisions to purchase and consume low emissions food is a key strategy required for reducing greenhouse gas emissions.



Low emissions food

There are a few key factors to consider when sourcing low emissions food. In order of most to least important, food type, production practices and packaging should be considered:

- **Food Type**
- **Production Practices**
- **Packaging**



Low Emissions Food

Food Type

Across the globe, emissions from animal products are higher than from plant-based protein farming. Animal products are the source of 56-58% of global food emissions, while only accounting for 37% of protein and 18% of caloric production (Poore & Nemecek, 2018). The impact of feed production, deforestation for feed, enteric fermentation, higher levels of wastage, and increased processing requirements are five emission intensive areas that cause animal products to have a much higher impact than plant-based protein. Choosing plant-based proteins over animal products is the most effective way to reduce emissions from food.

When trying to decarbonize a menu, swapping red meat to plant-based proteins should always be the first consideration because it has the largest emissions reduction potential. When that is not an option, red meat meals should be switched to other low-carbon proteins such as chicken, salmon, and pork.

The single most effective way to reduce emissions is to swap red meat for plant-based proteins.

Production Practices

Food production practices vary depending on the producer. The practice of diversified cropping over monoculture is proven to have a clear reduction in land use and emissions (Poore & Nemecek, 2018). Supporting producers that apply this practice is another way to reduce the emissions from food. To do this as a consumer, transparency from your producers is important. Purchasing from local producers that you can communicate with and are known to apply these practices is a great way to achieve that.

Vancouver Island is home to many great regenerative farms. Connect with producers in your area to see what options you have locally.

Packaging

For lower emission food types, packaging can make up a large portion of the emissions impact. When products are made with reusable or recycled packaging, it can reduce the packaging emissions by up to third compared to if it was made from virgin materials (Foodsteps). Implementing circular solutions for food packaging where possible will reduce emissions.

A returnable stainless-steel keg creates 96% less packaging emissions per liter of beer compared to a recycled glass bottle.

Example Meals

Emissions Impact of a Meal

There are so many different components that go into each meal, causing a high degree of variation in emissions impact per meal. To provide an idea of what the impact of each meal is, this page offers some examples. In addition to the examples, the emissions per kilogram of common protein types are shown in the chart. As you can see, red meat meals have a significantly higher emissions impact compared to any other protein type.

Steak and Potatoes



5.8
kg CO₂e

Lentil Dhal and Rice



0.8
kg CO₂e

Salmon and Rice

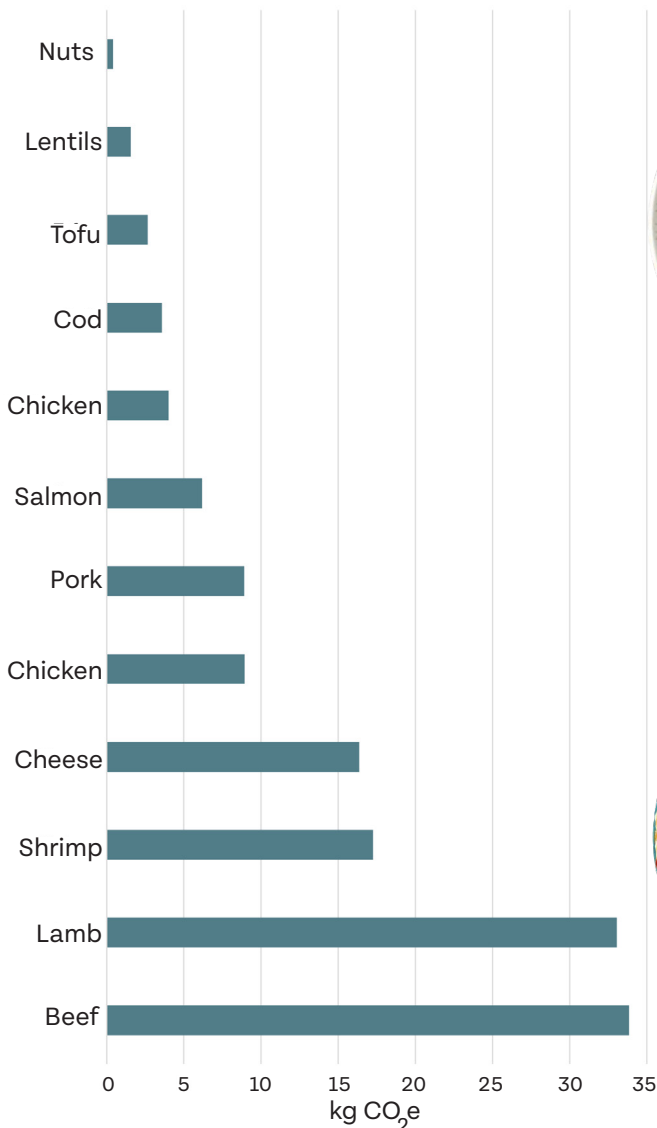


1.3
kg CO₂e

Plant-Based Burger



1.8
kg CO₂e



Did you know that buffet meals have on average 30% more waste than plated meals? Serving plated meals instead of a buffet can reduce waste and consequently reduce emissions from wasted food.

Diner Education

Carbon Labeling

Taking action requires a joint effort between restaurants and guests. As a food service provider, there are a number of ways that you can educate guests to encourage ordering a lower carbon meal.

A popular way to encourage diners to order lower emissions meals is to add **carbon labeling to a menu**. Carbon labeling can be as simple as creating low, medium, and high emissions symbols next to different menu items, or it can be taken a step further and the total emissions for each meal could be added. **Research** has even shown that including these labels can lead to diners viewing the restaurant more positively.



Showcase: MAX

Several restaurants have been carbon labelling their menus for years. MAX, a burger chain based in Sweden, was an early adopter who started adding carbon values to their menus in 2008.

Key strategies MAX implemented to promote low emissions options:

1. Carbon labeling menu items
2. Marketing campaigns featuring low carbon protein
3. Ensuring low emission options taste just as good, or better than the high emission options

Through their efforts to encourage guests to make climate-friendly choices, MAX has seen great success in shifting sales options with a 900% increase in low-emissions menu item sales between 2014 and 2021.

Other restaurants have had success in carbon labeling such as **Wahaca** in the UK, **Just Salad** in the US, and **Highlevel Diner** in Edmonton, AB.



MAX's advertising

CARBON IMPACT KEY

Wahaca's menu now includes carbon counts*

- ☉ = Low About a third of an average meal
- ☽ = Medium Equal to or below an average meal
- ☾ = High Above an average meal

*Average meal in the UK= 1.6kgs CO2e

Wahaca's carbon labeling legend

Training and Menu Layout

Training Staff

Directing staff to promote the delicious qualities and environmental benefits of low-emissions menu options will further encourage guests to choose low-emissions items over high-emissions items.

Provide staff with a few talking points:

1. Which menu items are low-carbon choices
2. How to promote them
3. Why the restaurant is encouraging these options



Menu Layout

Lastly, the layout of a menu can be optimized to promote certain menu items over others. In this shift towards encouraging everyone to eat plant-rich meals, **all meals should be integrated on a menu** instead of having separate sections for “vegetarian/vegan” meals.

Research has shown that guests who do not follow these diets will often skip over this section with the assumption that these items are not for them. Integrating vegetarian/vegan items throughout the menu will increase the likelihood of all guests considering low-carbon options.

"Vegetarian" Menu

Steak and Fries 7oz steak with vegetables and fries
Chicken Parmesan Parmesan crusted chicken with noodles
Sesame Salmon Ginger Rice Bowl Salmon & veggies over rice
— Vegetarian —
Lasagna House made sauce, zucchini, peppers and mushrooms
Linguine Alfredo Mushrooms, peas and cream sauce

Integrated Menu

Lasagna (v) House made sauce, zucchini, peppers and mushrooms
Chicken Parmesan Parmesan crusted chicken with noodles
Sesame Salmon Ginger Rice Bowl Salmon & veggies over rice
Linguine Alfredo (v) Mushrooms, peas and cream sauce
Steak and Fries 7oz steak with vegetables and fries
(v) - suitable for vegetarians

Leadership in Sustainability

Big Wheel Burger

Big Wheel Burger is a Vancouver Island fast-food restaurant that has integrated sustainability into every aspect of their operations, from what they serve on the menu, to how they manage waste and how they impact the local community.

Big Wheel Burger sources their ingredients locally from Island Farms, Berryman Farms, Hoyne Brewing, Phillips Brewing & Malting Co, Phillips Soda Works & Irene's Bakery.

Big Wheel Burger is proud to be Canada's first carbon neutral fast-food restaurant and has been since opening in 2011. Big Wheel also uses 100% compostable packaging and the used fryer oil from their restaurants is converted into biodiesel for their cargo van.



SUSTAINABILITY

Devoted to sustainable practices since our doors first opened in 2011, we're proud to be Canada's first carbon neutral fast food restaurant.

3,330,275.48

Kilograms CO₂e

LEARN MORE ABOUT OUR SUSTAINABILITY INITIATIVES. →

Communication

Big Wheel particularly excels at communicating their sustainability efforts. Their [website](#) includes details on their how they have strived to create a classic burger joint experience that enhances the environment, staff, customers, and communities. Front and centre are a carbon calculator and a running total of their donations to local non-profits addressing food security through the [Big Wheel Community Foundation](#).

Key Takeaways

Next Steps

1. Audit your menu to increase low emissions protein options and reduce high emission proteins

Reveiw your menu and integrate as many low emissions proteins as possible.

2. Communicate food impacts to consumers and staff

Carbon labeling on menus of food service establishments to indicate the impact of food choices. In addition, supporting the service staff to be educated on the emissions impacts of food so they can communicate it to guests.

3. Work with local regenerative farms

Reach out to farms in your area to find producers that apply diversified cropping practices.

4. Reduce food and packaging waste

Work with suppliers and kitchen staff to reduce the amount of food and packaging being thrown away.

Further Resources

Synergy Enterprises:

Work with **Synergy** to measure the greenhouse gas emissions of your restaurant or carbon label your menu.

Coolfood:

Commit to the **coolfood pledge** of reducing food related greenhouse gas emissions by 25% by 2030.

WRAP:

Attend webinars and review resources from this UK **waste and resources action programme**.

Our World in Data:

Read further from **Our World in Data** about the environmental impacts of food production.

Foodsteps:

Work with **Foodsteps** to carbon label your menu or food products.

BetterTable:

Work with **BetterTable** to reduce food waste.





4VI

This guide has been developed by Synergy Enterprises.

synergy 