



The winter season is celebrated in many cultures with holiday meals, passed down from generation to generation. Some of which may have a larger environmental footprint than you realize. I decided to dig into the data, and find out what the environmental effects would be when comparing just a few traditional ingredients to plant-based alternatives.

The following ingredients are simple nutritional representations of one omnivorous meal compared to one plant-based meal. The meals were designed to be nutritionally comparable, as well as portion size in order to accurately conclude the environmental impact. The basic ingredients and serving size comparisons can be seen in the tables and pie charts below.

Table 1: Meal and quantities of the omnivorous holiday meal

INGREDIENTS	QUANTITIES	PRACTICAL VALUES
Roasted light turkey	420 g	3 servings
Homemade mashed potatoes	446 g	1 serving
> Butter (per 3 servings)	28 g	2 tablespoons
> Whole milk (per 3 servings)	245 g	1 cup
> Baked potatoes (per 3 servings)	1000 g	3-4 potatoes
Butter	45 g	3 tablespoons
Carrots	100 g	2 carrots
Plain roll	172 g	2 rolls

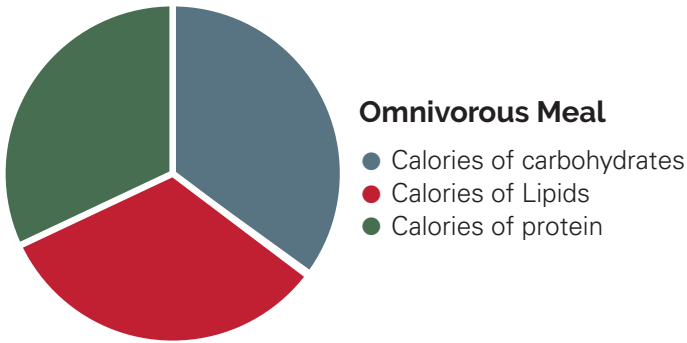
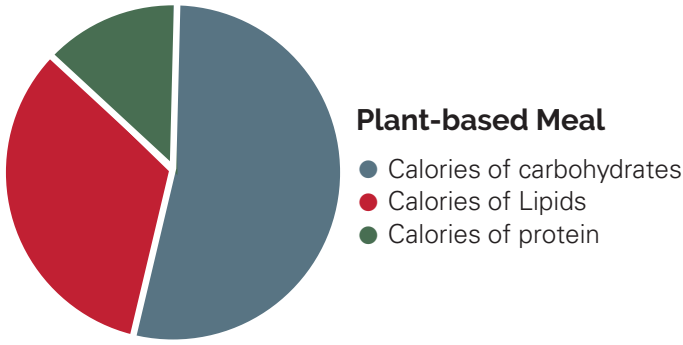


Table 2 : Meal and quantities of the plant-based holiday meal

INGREDIENTS	QUANTITIES	PRACTICAL VALUES
Lentil Loaf	409 g	1 ½ servings
> Cooked Lentils (per 2 servings)	120 g	1 ½ cups
> Rolled Oats (per 2 servings)	245 g	1 cup
> Walnuts (per 2 servings)	59 g	1/2 cup
Olive Oil	32 g	2 ½ tablespoons
Broccoli	560 g	2 large stalks
Baked potatoes	156 g	1/2 potato
Durum wheat (dry)	163 g	3/4 cups



The meals were each evaluated for environmental footprints. The footprints in greenhouse gas emissions, water-use, and land-use were calculated and then scaled to a year, which may approximate the consequences of dietary choices with respect to environmental footprint. Meals presented in Tables 1 and 2 on page 56 are compared together.

The diminished footprint of the plant-based meal relative to the omnivorous meal was quantified. The profound difference between the meat meal and the plant-based meal reflects the environmentally catastrophic influence of meat. The footprint values were distilled to tangible values to clarify the substantial differences.

The greenhouse gas emissions, water-use, and land-use were selected as three representations of sustainable concern and were calculated for each meal in Figures 1-3 respectively.

Figure 1 - Annualized Land Usage

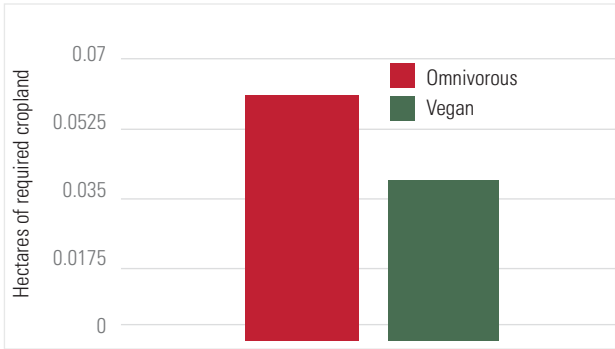


Figure 2- Annualized Water Usage

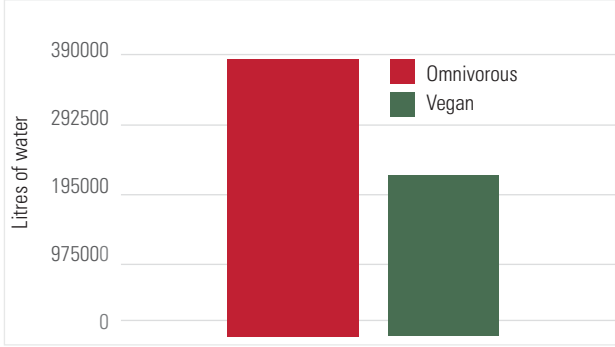
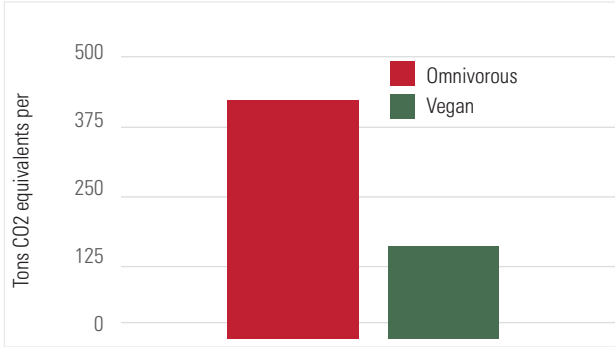


Figure 3 - Annualized Green House Gas Emissions



Conclusion

The results suggest that exchanging the omnivorous meal for the vegan meal as a daily regime for a year will save the quantity of:



CO2-equivalents that would be emitted from driving a *vehicle 1280.6 km



762 baths in a 111litre bathtub =84,582 Litres of water.



•0.03 city blocks of agricultural land.

*Single vehicle based on a 100 km per 9 litre of fuel efficiency" efficiency rating of a vehicle.

The full study will be posted to www.thesustainablevegan.org, in addition to his full “Vegan Leather” research paper referenced in the first issue of Canadian Vegan Magazine in the article The Future of Fashion is Vegan. ●



Andrew is an engineering graduate student at the University of Victoria. Andrew’s passion for developing a sustainable society has inspired his research projects in renewable resources and his vegan lifestyle. He previously studied Chemistry and Biology near his family in Grand Rapids, Michigan, USA and researched in Washington state and North Carolina before moving to BC.