A Vegan Diet Affects Environmental Sustainability
By Melanie Kirk, Katherine Cotten and Bre Pollard

Sustainability: The ability to meet the current needs of our population without compromising this ability for future generations. There are three factors that go into sustainability: environment, social impact and economy.

Environmental Sustainability: The ability for the natural environment to meet the needs of the human population without compromising this ability for future generations through degradation of the environment, etc.

- The GWP of the MD is double that of the VD. This is because livestock has a very large carbon footprint due to methane emissions. As seen in Figure 1, the GWP was 20 kg CO2eq per person per week for the MD and 13 kg CO2eq per person per week for the VD.

- The amount of livestock needed to supply a meat-based diet in the U.S is 5x the U.S. human population due to the decreased trophic level efficiency in animals. The livestock population consumes more than 7x as much grains as is directly consumed by the human population. The amount of grains needed to feed U.S livestock could feed over 840 million people on plant-based diets.

- As seen in Figure 2, VD reduces per capita food-borne greenhouse gas emissions by 67%, blue water use by 75%, and land occupation by 79% as compared to MUD. It also reduces greenhouse gas emissions, blue water use, and land occupation as compared to VEG.

Vegan Diet (VD or VGN): No animal products in diet.
Vegetarian Diet (VEG): No animal meat in diet (still consumes egg and dairy products).
Mediterranean Diet (MD): No restriction on diet; however, emphasis on vegetables, nuts and fish.
U.S. Diet (MUD): No restriction on diet; however, heavy emphasis on meat and animal products.

Global Warming Potential (GWP): The relative potential an activity has on the warming of the atmosphere due to greenhouse gas emissions.

Carbon Footprint: The amount of carbon compounds emitted by a specific activity. Correlates to GWP.

Therefore, when looking solely at the environmental impact of various diets, the VD proved to be the most sustainable compared to the MD, VEG and MUD diets.

References: