Adding veggies to your diet helps cut global warming

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If the carnivorous U.S. population – as a whole – ate a more-vegetarian diet that included egg and milk products, the environment would be greatly relieved, says a preliminary Cornell study.

Far fewer acres of land would be needed to support the diet, and much less nitrogen would pour into the environment, says life-cycle engineer Christine Costello, a postdoctoral researcher in the field of ecology and evolutionary biology. She will soon be a faculty member at the University of Missouri.

"Before, we knew that our diets were connected to the environment and our land use. Now, we have explicit links, as we can calculate and corroborate inputs like fertilizers, nitrous oxide and we can obtain more accurate numbers. It is important to demonstrate how consumption choices drive environmental impacts, and this project is explicitly defining those connections," says Costello.

"A decrease in the proportion of meat, dairy and eggs in the average American diet would be better for our health and better for our planet as a whole," says Costello. "Perhaps as scientists, we can find data that helps societal behavior influence environmental policy."

In a multidisciplinary project funded by Cornell's Atkinson Center for a Sustainable Future, Costello presented preliminary results from her study, "Does a Healthy Diet Help Lead to a Healthy Environment?," at a meeting of Atkinson Center scientists in April. Costello collaborated

with Robert Howarth, professor of ecology and evolutionary biology; Ian Merwin, professor of horticulture; Laurie Drinkwater, professor of horticulture; and Christina Stark and Jennifer Wilkins, both senior extension associates in nutrition.

Land use in an omnivore's diet dwarfs the ovo-lacto vegetarian's diet, she reported. A typical U.S. omnivore annually eats food that takes 3,370 square meters to produce against a vegetarian's mere 890 square meters of annual production. Of those 3,370 square meters, 2,950 square meters of agricultural land is needed annually to nourish and house such farm animals as cows, pigs and sheep, while approximately 270 is needed to support ovo-lacto vegetarians.

For nitrogen inputs into agricultural soil, the omnivorous diet annually results in almost double (22 kilograms of reactive nitrogen) the input of a vegetarian diet (12 kilograms), based on preliminary results. This reflects the large fertilizer and nitrogen inputs associated with producing grain and forage crops for livestock.

Furthermore, Costello is working to estimate the impact of food waste; the USDA reports that 51 percent of dairy products, 54 percent of fruits, 47 percent of vegetables, 35 percent of poultry and 20 percent of beef are wasted in the United States at the consumer level. And U.S. consumers eat far more protein – at an environmental global cost – than needed. Protein availability is approximately 110 grams per capita per day – more than twice the recommended level of consumption for optimal nutrition, with more than 60 percent of protein provided by animal products.

Says Costello: "This excess food consumption wastes energy, and spoiled food wastes energy. Changing our diets and changing our consumer habits could significantly reduce nutrient inputs, greenhouse gas emissions, agricultural land use and cause positive health impacts."

Provided by Cornell University