

A **foodprint** is a component of an individual's ecological footprint, including all of the resources required to support a healthy diet for one person over the course of a year. However, most of the modeling on this site considers land as the main resource for supplying food.

A **foodshed** is defined as the geographic area that supplies a population with food.<sup>1</sup> It answers the question: "Where does my food come from?"

One recent study developed a model to evaluate New York's ability to supply food within state boundaries by mapping potential local foodsheds within the state.<sup>2</sup> Another study looked at human food consumption patterns in New York state as a way to reduce the state's environmental footprint by comparing land resource requirements for 42 different dietary patterns.<sup>3</sup>

## METHODOLOGY

An initial study compared 42 diets, each based on 2,300 calories per day and consisting of products grown and sourced within the boundaries of New York state. The content of grains, fruits and vegetables generally complied with the recommendations of the U.S. Department of Agriculture's (USDA) Food Guide Pyramid, though small changes were made in some cases to keep total calories the same across all diets. The amount of dairy in each diet was constant. The amounts of meat, as well as the amount of energy supplied by fats, varied across diets.<sup>4</sup> Later, the Human Nutritional Equivalent (HNE) was introduced to the equation, which was used to measure food need and food production in New York state. An HNE is a theoretical basket of food that contains representatives from all food groups combined in the proper portions to constitute a complete diet for one person for a year and is based off dietary recommendation from the USDA.<sup>5</sup> For both studies, it was assumed that all food represented in the diets could be grown in the state.

## RESULTS

Outcomes from the research present varied findings of the potential for local food systems to supply a population with the food it needs to meet its nutritional requirements.

The study that compared 42 different diets confirmed the assertion that diet should be considered in its entirety when assessing environmental impact of food choices and agricultural production. The model used found that in New York state, a strictly vegetarian diet required less than half an acre to provide adequate nutritional needs for one person for a year, whereas a diet low in fat and high in meat required more than 2 acres. The data supports the claim that reducing meat in the diet reduces land requirements and increases the number of people that the land can support. Diets with 2 cooked ounces of meat daily could support as many people as some of the higher fat vegetarian diets, which suggests a trade-off between fat and meat could be possible.<sup>6</sup>

In New York state, the model estimated the capacity of land to produce HNEs by looking at the productive potential of soil and the most recent land cover data to determine the location of available agricultural land throughout the state. Perennial foods, such as alfalfa, grass and grass-legume mixtures grown for hay or silage, do not require the same amount of land for production as annual food, such as corn, wheat and lettuce. In order to supply a diet with annual crops, the study found that foodsheds need to extend farther for people living in some cities to access these foods. Nonetheless, the model suggests that New York state may be able to significantly reduce its footprint.

<sup>1</sup> Peters, C. J., Bills, N. L., Wilkins, J. L., & Fick, G. W. (2009). Foodshed analysis and its relevance to sustainability. *Renewable Agriculture and Food Systems*, 24(1), 1–7.

<sup>2</sup> Peters, C. J., Bills, N. L., Lembo, A. J., Wilkins, J. L., & Fick, G. W. (2009). Mapping potential foodsheds in New York state: A spatial model for evaluating the capacity to localize food production. *Renewable Agriculture and Food Systems*, 24(1), 72–84.

<sup>3</sup> Peters, C. J., Wilkins, J. L., & Fick, G. W. (2007). Testing a complete-diet model for estimating the land resource requirements of food consumption and agricultural carrying capacity: The New York state example. *Renewable Agriculture and Food Systems*, 22(2), 145–153.

<sup>4</sup> Ibid.

<sup>5</sup> Peters, C. J., Bills, N. L., Lembo, A. J., Wilkins, J. L., & Fick, G. W. (2009). Mapping potential foodsheds in New York state: A spatial model for evaluating the capacity to localize food production. *Renewable Agriculture and Food Systems*, 24(1), 72–84.

<sup>6</sup> Peters et al. (2007).