Sustainability Innovation in Campus Dining:
Reducing Red Meat Purchases to Promote Health and Sustainability

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Overview

Through a series of innovations, UNH Dining Services reduced beef purchases (20%) between 2015 and 2017 to improve the sustainability and health of campus cuisine. The scale of dining operations at UNH, which serves approximately 17,000 meals per day (3,400,000 annually), demonstrates both the difficulty in achieving such a reduction and the significance of UNH Dining's commitment to continuous improvement in sustainability.

Background and Approaches

As one of 37 university dining program participants nationwide in the Menus of Change Initiative, UNH is committed to advancing their 24 Principles of Healthy, Sustainable Menus. Recognizing the environmental and health impacts attributable to red meat, one of these principles is "serve less red meat, less often." This focus also aligns with Healthy UNH, a university-wide program that supports lifelong health and wellness on campus. For example, on Healthy UNH and Dining Services' collaboratively developed "Wildcat Plate," an adaptation of USDA's MyPlate graphic, the protein portion section suggests chicken, fish, or tofu as best choices.

UNH Dining began taking action to reduce red meat purchases in 2015, particularly focusing on beef due to its outsized environmental burden and health impacts among protein sources. Numerous innovative strategies have been employed to achieve this objective, a small set of which follow. One strategy was to increase seafood menu offerings. Dining developed new recipes focusing in part on regional seafood, such as "Skate Wing Tacos" and "Hake Oscar." Additionally, new blended burgers were created and regularly offered, including beef/mushroom and other blends with chicken and seafood. Dining also reconfigured burger stations in the dining halls to provide multiple burger choices (i.e., veggie, turkey, salmon). Another strategy focused on portion control. For example, small plate recipes were created that limited the red meat to vegetable and/or starch ratio on a given plate. Finally, Dining increased offerings of enticing plant-based proteins and produce. New recipes were created to incorporate grains in composed salads and entrees, and a "grain bowl bar" became a regular menu offering.

Impact

The impact of these innovations has been substantial, resulting in a 20% reduction in beef purchases from 2015 – 2017 (Table 1). Results were also calculated on a mass basis and show similar impacts (16% lower). Additionally, beef reductions per patron served mirror the aggregate results (19% and 16% reduction in dollars and mass, respectively). Purchase

quantities were calculated for these three fiscal years from July 1 – June 1. Purchases for the month of June are outside the academic year (much smaller number of meals served) and tend to be consistent across years. To explore the environmental impact of this innovation, we calculated the reduction in greenhouse gas emissions of beef purchases from 2015-2017. The carbon footprint of beef purchases was reduced by 310,719 kg CO_2-eq., equivalent to removing 66 passenger vehicles from the road for one year.[1]

Fiscal year	Quantity total beef purchased (kg)	Quantity total beef purchased ($)	Quantity beef purchased (kg/patron)	Quantity beef purchased ($/patron)	GHG impact of total beef purchases (kg CO_2-eq.)[2]
2015	60,745	452,635	0.020	0.15	1,952,938
2016	56,067	421,968	0.018	0.14	1,802,573
2017	51,080	362,483	0.017	0.12	1,642,219

Table 1: UNH Dining beef purchases and impacts by fiscal year

These results will be followed up with a full analysis of UNH Dining's 2015 – 2017 purchases to quantify the net impact of shifting procurement away from red meat (i.e., accounting for substitutions).

[1] Assumes 4,700 kg CO_2-eq./year emissions intensity of a typical passenger vehicle (US EPA).
[2] Assumes GHG intensity of beef of 32.15 kg CO_2-eq. (Eshel et al. 2014 *PNAS).*