

ENST 698 Capstone Carbon “Foodprint” of Carolina Dining Services



PRESENTED MAY 6, 2009

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Project Overview



- Goal: to quantify the CO₂e emissions associated with Top of Lenoir and Rams Head Dining Halls
- Purpose: to provide data useful for implementing changes that reduce CDS' carbon footprint

Methodology



- CDS Inventories
- Bon Appétit Database
- ProBas Database
- OWRR Data
- U.S. EPA's WARM Model

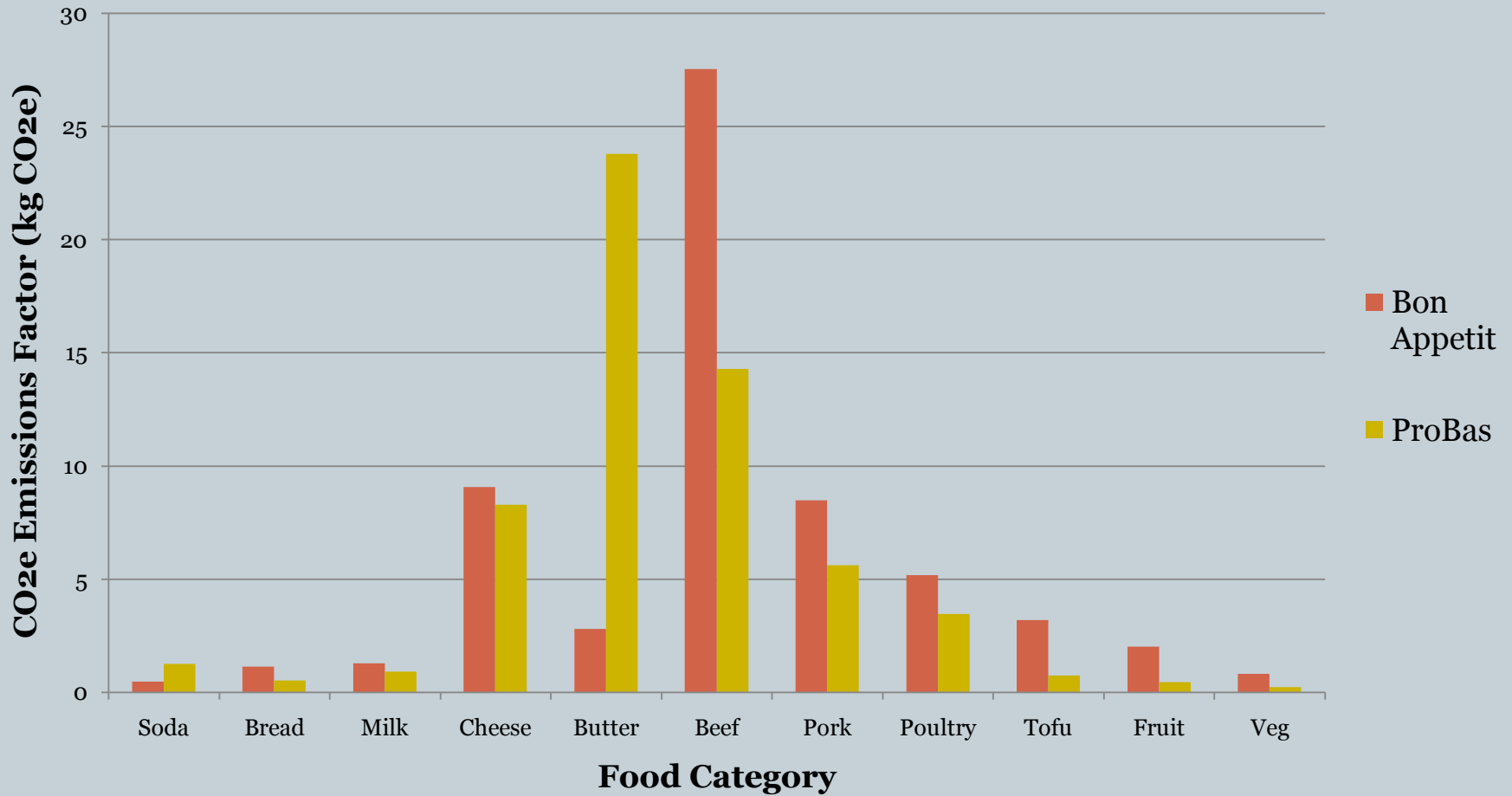


Sample Spreadsheet Calculation



Food Name	Quantity	Weight/Quantity (lb)	Quantity Ordered / Week	Quantity Ordered / Month	Total Weight (lb)	Total Weight (kg)	Bon Appetit Conversion Factor (kg CO ₂ e/kg food)	Probas Conversion Factor (kg CO ₂ e/kg food)	Probas Total CO ₂ Emissions (kg CO ₂ e)	Bon Appetit Total CO ₂ Emissions (kg CO ₂ e)
Pork					0.00	0.00			0	0.00
Bratwurst	1	10		7	70.00	31.75	3.14	7.91	251.1540953	99.70
Chili, frozen hotdog	6		5	3	90.00	40.82	3.14	7.91	322.9124082	128.19
Frankfurter	1	10		29	290	131.54	3.14	7.91	1040.495538	1040.495538
Ham, boneless pit smoked	2	15		7	210.00	95.25	9.87	4.74	451.5058451	940.16
Ham, buffet boneless	2	8		7	112.00	50.80	9.87	4.74	240.8031174	501.42
Ham, buffet boneless	2	13		11	286.00	129.73	9.87	4.74	614.9079605	1280.41
Ham, diced	2	5		6	60.00	27.22	9.87	4.74	129.00167	268.62
Pepperoni, sliced	1	25		8	200.00	90.72	3.1	4.74	430.0055668	281.23
Pork, boneless Boston butt	10	6		15	900.00	408.23	9.87	4.24	1730.908484	4029.26
Pork, boneless loin	5	8		14	560.00	254.01	9.87	4.24	1077.009723	2507.10
Pork, spare rib	1	30		9	270.00	122.47	13.1	4.24	519.2725452	1604.36
Sausage, kielbasa rope	1	10		2	20.00	9.07	3.14	4.24	38.46463298	28.49
Sausage, link	1	12		25	300.00	136.08	3.14	7.91	1076.374694	427.28
Sausage, pork patty cooked browned	160	0.0625		8	80.00	36.29	3.14	7.91	287.0332517	113.94
Sausage, pork patty precooked	107	0.094		2	20.12	9.12	3.14	7.91	72.17451115	28.65
Total						1541.36			7707.96	13051.41
Lamb					0.00	0.00			0	0.00
Lamb, chop loin	1	15		3	45.00	20.41	17.9	17.4	355.1628257	365.37
Lamb, boneless leg New Zealand	6	3.5		3	63.00	28.58	17.9	17.4	497.227956	511.52
Meat, gyro slices	4	4		1	16.00	7.26	17.9	5.73	41.58534848	129.91
Total						56.25			893.98	1006.79

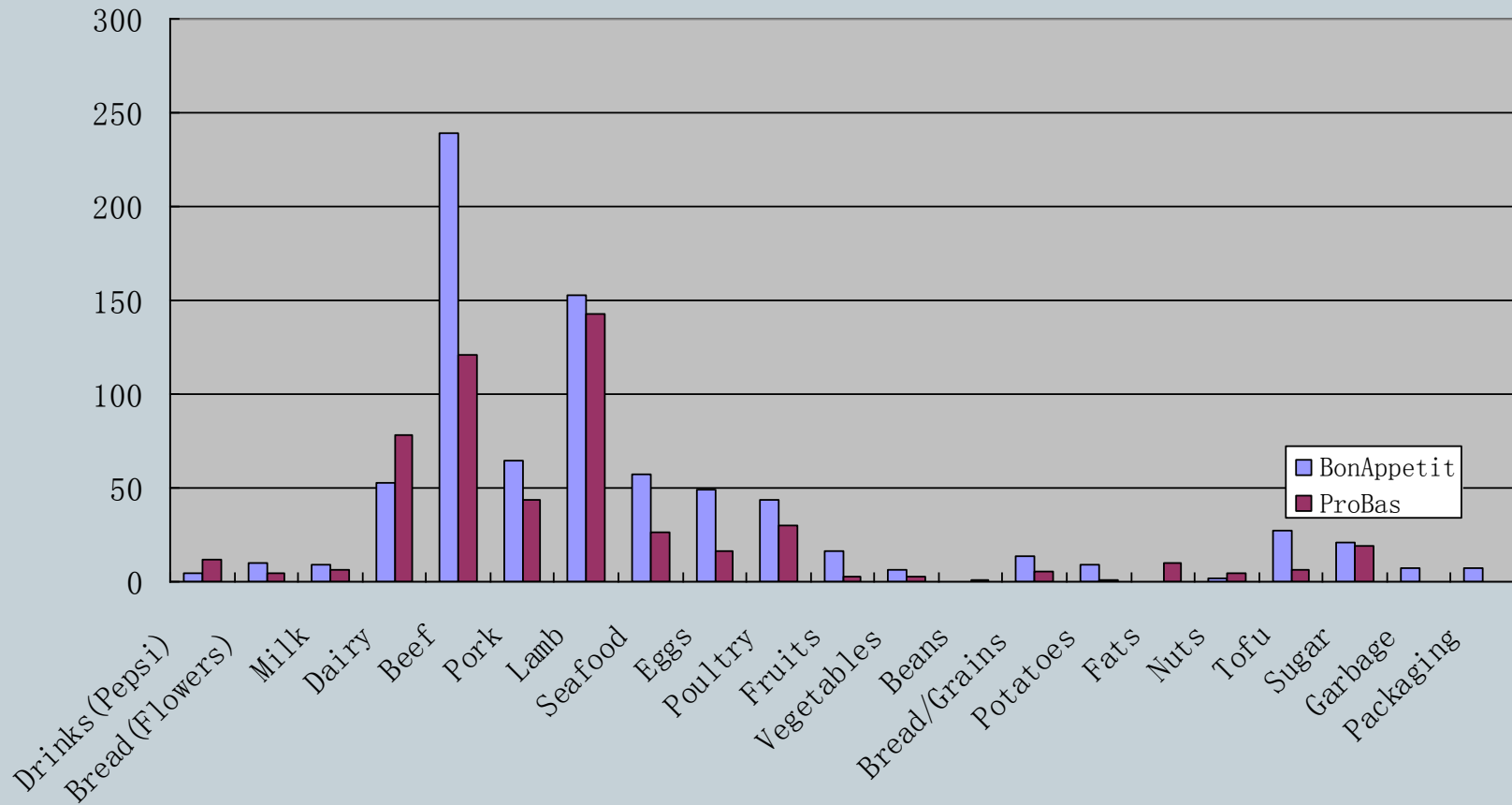
CO₂e Emission Factors Per Database



INTENSITY – Food, Waste and Packaging



tons CO₂e/ton Food
[Annual]



Recommendations - Targeted



- Address carbon hotspots – meat, dairy, soda
- Eliminate unnecessary packaging
- Limit portion sizes
 - Do away with self-serve stations



Recommendations - Holistic



- Expand the use of re-usable to-go containers
- Create a two-tiered meal plan
 - Offer financial incentives for a vegetarian diet



Recommendations – Large Scale



- On-campus composting
- Purchase more regional, native, and seasonal food



Acknowledgements



Thank you for your interest in and help with this project!

- Dr. Elizabeth Shay and Dr. Daniel Arneman
- Scott Meyers, Bruce Eckmeder, Ricardo Rascon, Zeb Knight - Carolina Dining Services
- Vice Chancellor's Sustainability Advisory Committee