

Food Waste Analysis report

By Sanabu Washizuka

v1.0

A report investigating what locations in the United States would benefit best from a food redistribution service.

Summary

- A report on finding cities in the U.S. with the most food waste to select a base of operations for a food redistribution service
- Data sources consists of two main tables:
 - Food waste by state and food sector
 - U.S. city populations
- Correlation found between state populations and amount of food wasted
- Recommendation to set up food redistribution service in the 3 most populated cities in the U.S.: Los Angeles(California), Houston(Texas), Miami-Dade County(Florida)
- Residencies were the largest producer of food waste

Data cleaning

Food Waste Data

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1 Calculated by ReFED based on data from various sources. See https://insights.refed.com/methodology for more information. Data last updated October 24 2024															
2															
3															
4 year															
5 2023	Alabama	Farm	Not Applicable	Not Applicable	Dry Goods	Nuts And Seeds	7922.7765	248977.7766	3987725.84	7922.7765	7922.7765	0	0	0	0
6 2023	Alabama	Farm	Not Applicable	Not Applicable	Produce	Blueberries	139.1874	106.46	124.1546009	138.0098433	138.0098433	1.077504712	0	0	13.93502464
7 2023	Alabama	Farm	Not Applicable	Not Applicable	Produce	Cucumbers	6945.144	37932.144	3449733.868	124.1546009	138.0098433	0	0	0	0
8 2023	Alabama	Farm	Not Applicable	Not Applicable	Produce	Peaches	778.3933475	2048.1	214036.706	613.0037313	766.42399009	11.86344664	0	0	153.4261697
9 2023	Alabama	Farm	Not Applicable	Not Applicable	Produce	Potatoes	7095.102539	32776.875	3036702.887	650.261939	693.360994	111.7415456	0	0	463.0905423
10 2023	Alabama	Farm	Not Applicable	Not Applicable	Produce	Sweet Corn	1162.566596	881.942536	216194.5766	1020.772376	1153.43334	9.32302617	0	0	123.4711584
11 2023	Alabama	Farm	Not Applicable	Not Applicable	Produce	Tomatoes	3371.749141	48753.65541	1465112.046	1192.585633	3359.170637	12.57850315	0	0	166.5850046
12 2023	Alabama	Farm	Not Applicable	Not Applicable	Produce	Watermelons	34840.4992	82864.09812	4244094.9	33414.15971	34563.23733	277.261869	0	0	114.07762
13 2023	Alabama	Foodservice	Bars And Taverns	Bars And Taverns	Breads & Bakery	Not Applicable	3.583715634	192.2939292	21795.82253	3.545514115	3.545872487	0.037844047	0	0	0.000394209
14 2023	Alabama	Foodservice	Bars And Taverns	Bars And Taverns	Dairy & Eggs	Not Applicable	1.704816321	914.7649423	1037.267096	1.686642979	1.686813461	0.01800286	0	0	0.00018753
15 2023	Alabama	Foodservice	Bars And Taverns	Bars And Taverns	Dry Goods	Not Applicable	3.047350215	163.5137527	12650.41508	3.014865462	3.015170197	0.032180018	0	0	0.000335209
16 2023	Alabama	Foodservice	Bars And Taverns	Bars And Taverns	Fresh Meat & Seafood	Not Applicable	7.262802224	389.7051416	43265.2444	7.185380753	7.186107033	0.076695191	0	0	0.000798908
17 2023	Alabama	Foodservice	Bars And Taverns	Bars And Taverns	Frozen	Not Applicable	0.016415675	0.880827116	49.90134701	0.016242326	0.016242326	0.0001735	0	0	1.81E-06
18 2023	Alabama	Foodservice	Bars And Taverns	Bars And Taverns	Prepared Foods	Not Applicable	167.5763814	0	208344.115	167.2571984	167.2601923	0.316189125	0	0	0.032293637
19 2023	Alabama	Foodservice	Bars And Taverns	Bars And Taverns	Product	Not Applicable	5.4810751	110.7463505	2564.83505	5.72862125	5.72862125	0.00025255	0	0	0
20 2023	Alabama	Foodservice	Bars And Taverns	Bars And Taverns	Ready-To-Drink Beverages	Not Applicable	2.480107515	133.4524272	24.3802451	0.050984845	0.050984845	0.076253855	0	0	0.000273582
21 2023	Alabama	Foodservice	Business & Industry	Business & Industry	Breads & Bakery	Not Applicable	17.80768776	1022.103576	82689.55861	17.70689841	17.70689841	0.188999583	0	0	0.001988746
22 2023	Alabama	Foodservice	Business & Industry	Business & Industry	Dairy & Eggs	Not Applicable	26.74123785	1527.142323	106040.665	26.45617626	26.45885038	0.283238747	0	0	0.002941536
23 2023	Alabama	Foodservice	Business & Industry	Business & Industry	Dry Goods	Not Applicable	58.80421449	3554.199043	211617.5156	58.57776156	58.582341919	0.620972505	0	0	0.006468482
24 2023	Alabama	Foodservice	Business & Industry	Business & Industry	Fresh Meat & Seafood	Not Applicable	45.7784796	261.472120	374442.3368	45.24108163	45.42865449	0.482893466	0	0	0.005030914
25 2023	Alabama	Foodservice	Business & Industry	Business & Industry	Frozen	Not Applicable	2.70178851	154.2992632	8213.32086	2.67334702	2.67334702	0.028531841	0	0	0.000297207
26 2023	Alabama	Foodservice	Business & Industry	Business & Industry	Prepared Foods	Not Applicable	1862.56080	0	151193705	1859.379922	1859.409765	3.151041292	0	0	0.032823347
27 2023	Alabama	Foodservice	Business & Industry	Business & Industry	Product	Not Applicable	37.18757992	2123.713349	133021.565	36.79116031	36.794897097	0.392700844	0	0	0.004009634
28 2023	Alabama	Foodservice	Business & Industry	Business & Industry	Ready-To-Drink Beverages	Not Applicable	24.29971657	1387.71504	24843.3394	24.04311156	24.0560507	0.02672969	0	0	0.0002672969
29 2023	Alabama	Foodservice	Caterers	Caterers	Breads & Bakery	Not Applicable	4.264882393	228.843708	19704.05241	4.219418747	4.219845235	0.045037158	0	0	0.000469137
30 2023	Alabama	Foodservice	Caterers	Caterers	Dairy & Eggs	Not Applicable	6.37232884	341.919254	25268.81181	6.30430488	6.304942105	0.067290779	0	0	0.000700946
31 2023	Alabama	Foodservice	Caterers	Caterers	Dry Goods	Not Applicable	14.0125959	751.8834117	50426.83881	13.86322121	13.86462249	0.147973009	0	0	0.015143186
32 2023	Alabama	Foodservice	Caterers	Caterers	Fresh Meat & Seafood	Not Applicable	108.0369007	584.6951095	8929.80625	108.0369007	108.0369007	0.147973007	0	0	0.0006444
33 2023	Alabama	Foodservice	Caterers	Caterers	Frozen	Not Applicable	0.643887102	34.54680767	1971.71435	0.63697805	0.637038189	0.00079889	0	0	7.68E-05
34 2023	Alabama	Foodservice	Caterers	Caterers	Prepared Foods	Not Applicable	1047.667079	0	13273748.01	1046.987542	1046.987542	0.673926208	0	0	0.007011072
35 2023	Alabama	Foodservice	Caterers	Caterers	Produce	Not Applicable	8.861516468	475.4884442	31608.03469	8.767052703	8.767052703	0.09377614	0	0	0.000974767
36 2023	Alabama	Foodservice	Caterers	Caterers	Ready-To-Drink Beverages	Not Applicable	5.709436997	310.720435	5019.971879	5.72871093	5.72871093	0.051147015	0	0	0.000636648
37 2023	Alabama	Foodservice	Colleges & Universities	Colleges & Universities	Breads & Bakery	Not Applicable	52.1551291	2656.934243	240962.0865	51.5953514	51.60475069	0.550762216	0	0	0.005371106
38 2023	Alabama	Foodservice	Colleges & Universities	Colleges & Universities	Dairy & Eggs	Not Applicable	77.92643355	3969.770369	309012.784	77.90573777	77.10353041	0.822901318	0	0	0.005819108
39 2023	Alabama	Foodservice	Colleges & Universities	Colleges & Universities	Dry Goods	Not Applicable	171.3609048	8729.559549	616672.9586	169.5341975	169.5513336	1.809571154	0	0	0.0188497
40 2023	Alabama	Foodservice	Colleges & Universities	Colleges & Universities	Fresh Meat & Seafood	Not Applicable	133.2572065	6788.460418	1091159.506	131.8366864	131.8500104	1.40719161	0	0	0.014658293
41 2023	Alabama	Foodservice	Colleges & Universities	Colleges & Universities	Frozen	Not Applicable	7.873524176	401.0973112	23934.4072	7.789592408	7.789592408	0.083144415	0	0	0.000866088
42 2023	Alabama	Foodservice	Colleges & Universities	Colleges & Universities	Prepared Foods	Not Applicable	3155.860233	0	2787100.36	3148.370178	3148.370178	7.482200087	0	0	0.077935984
43 2023	Alabama	Foodservice	Colleges & Universities	Colleges & Universities	Produce	Not Applicable	108.3680379	5520.542978	387637.109	107.2128345	107.2236713	1.144366479	0	0	0.011920484
44 2023	Alabama	Foodservice	Colleges & Universities	Colleges & Universities	Ready-To-Drink Beverages	Not Applicable	70.81161538	3607.323446	72395.7825	70.05676352	70.06384468	0.747770658	0	0	0.007789278
45 2023	Alabama	Foodservice	Corrections	Corrections	Breads & Bakery	Not Applicable	8.268721004	421.229641	38202.06445	8.180576439	8.181043311	0.087317694	0	0	0.00090559
46 2023	Alabama	Foodservice	Corrections	Corrections	Dairy & Eggs	Not Applicable	12.35443584	629.3663278	48990.72359	12.22273755	12.223973	0.130462842	0	0	0.001358988
47 2023	Alabama	Foodservice	Entertainers	Entertainers	Fruit Products	Not Applicable	77.1471112	1387.464714	0.07747	74.687700412	74.687700412	0.764089074	n	n	n.nnnnnnnnnnnnnnnn

- To reduce report size:

- Dropped columns
- Used only 2023 data

US Census Population Data

SUMLEV	STATE	COUNTY	PLACE	COUSUB	CONCIT	PRIMGEO_FUNCSTAT	NAME	STNAME	ESTIMATEPOPESTIM	POPESTIM	POPESTIM	POPESTIM	POPESTIM	POPESTIMATE2023
40	1	0	0	0	0	0	A	Alabama	5024294	5031864	5050380	5073903	5108468	
162	1	0	124	0	0	0	Abbeville city	Alabama	2350	2351	2357	2364	2377	
162	1	0	460	0	0	0	Adams town	Alabama	4372	4360	4292	4222	4172	
162	1	0	484	0	0	0	Addison town	Alabama	662	660	666	670	667	
162	1	0	676	0	0	0	Akron town	Alabama	229	229	228	223	224	
162	1	0	820	0	0	0	Alabaster city	Alabama	33334	33392	33748	33869	34107	
162	1	0	988	0	0	0	Albertville city	Alabama	22392	22409	22535	22726	23031	
162	1	0	1132	0	0	0	Alexander City city	Alabama	14852	14828	14697	14620	14470	
162	1	0	1228	0	0	0	Aliceville city	Alabama	2174	2166	2124	2082	2055	
162	1	0	1396	0	0	0	Allgood town	Alabama	540	539	542	551	556	
162	1	0	1660	0	0	0	Altoona town	Alabama	953	953	950	948	950	
162	1	0	1708	0	0	0	Andalusia city	Alabama	8842	8845	8831	8791	8840	
162	1	0	1756	0	0	0	Anderson town	Alabama	253	253	254	255	255	
162	1	0	1852	0	0	0	Aniston city	Alabama	21563	21515	21349	21181	21167	
162	1	0	2116	0	0	0	Arab city	Alabama	8445	8452	8500	8262	8830	
162	1	0	2260	0	0	0	Ardmore town	Alabama	1323	1336	1370			

Remove non-states

- Moore County metropolitan government, Tenn
- Nebraska
- Nevada
- New Hampshire
- New Jersey
- New Mexico
- New York
- North Carolina
- North Dakota
- Ohio
- Oklahoma
- Oregon
- P-7501659, and P-7527355. The U.S. Census Bu

Removing places not based on the unique identifier Geographic Leve = 157

Geographic Level	Valid	Error	Empty	Valid	Error	Empty									
1 distinct, 0 unique	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%	100%	0%	0%
157	1			3220			1			1			Autaugaville town		Alabama
157	1			3220			1			1			Autaugaville town		Alabama
157	1			3220			1			1			Autaugaville town		Alabama
157	1			3220			1			1			Autaugaville town		Alabama
157	1			6460			1			1			Billingsley town		Alabama
157	1			6460			1			1			Billingsley town		Alabama
157	1			6460			1			1			Billingsley town		Alabama
157	1			6460			1			1			Billingssley town		Alabama
157	1			48712			1			1			Millbrook city (pt.)		Alabama
157	1			48712			1			1			Millbrook city (pt.)		Alabama
157	1			48712			1			1			Millbrook city (pt.)		Alabama
157	1			48712			1			1			Millbrook city (pt.)		Alabama
157	1			62328			1			1			Prattville city (pt.)		Alabama

Separate city/pace names from state names, and remove place suffixes (e.g. "city", "town")

```
= Table.AddColumn(#"Filtered Rows1", "Place", each
    if Text.Contains([#"Place (uncleaned)"], " city and borough") then Text.BeforeDelimiter([#"Place (uncleaned)"], " city and borough") else
    if Text.Contains([#"Place (uncleaned)"], " borough") then Text.BeforeDelimiter([#"Place (uncleaned)"], " borough") else
    if Text.Contains([#"Place (uncleaned)"], " city") then Text.BeforeDelimiter([#"Place (uncleaned)"], " city") else
    if Text.Contains([#"Place (uncleaned)"], " charter") then Text.BeforeDelimiter([#"Place (uncleaned)"], " charter_township") else
```

	A ^B _C Place (uncleaned)	A ^B _C State	A ^B _C Year	1.2 Population	A ^B _C Place	
10%	● Valid 0% 0% 0% ● Empty	100%	● Valid 0% 0% 0% ● Empty	100%	● Valid 0% 0% 0% ● Empty	100%
0%	● Error	0%	● Error	0%	● Error	0%
0%	● Empty	0%	● Empty	0%	● Empty	0%
...	250 distinct, 0 unique	1 distinct, 0 unique	4 distinct, 0 unique	862 distinct, 762 unique	250 distinct, 0 unique	
3220	Autaugaville town	Alabama	2020	796	Autaugaville	
3220	Autaugaville town	Alabama	2021	792	Autaugaville	
3220	Autaugaville town	Alabama	2022	797	Autaugaville	
3220	Autaugaville town	Alabama	2023	804	Autaugaville	
6460	Billingsley town	Alabama	2020	124	Billingsley	
6460	Billingsley town	Alabama	2021	123	Billingsley	
6460	Billingsley town	Alabama	2022	124	Billingsley	
6460	Billingsley town	Alabama	2023	124	Billingsley	
8712	Millbrook city (pt.)	Alabama	2020	16592	Millbrook	
8712	Millbrook city (pt.)	Alabama	2021	16923	Millbrook	
8712	Millbrook city (pt.)	Alabama	2022	17104	Millbrook	
8712	Millbrook city (pt.)	Alabama	2023	17555	Millbrook	

Log normalization of population and food waste amounts for correlation

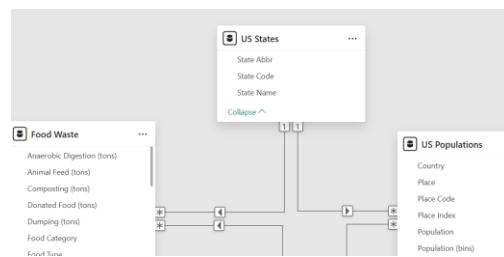
```
1 Waste Log-Normalized = LOG(MAX('Food Waste'[Waste (tons)]))  
1 Pop Log-Normalized = LOG(MAX('US Populations'[Population]))
```

Creation/Addition of state filter table to avoid many-many cardinality relationship

Need to filter both food waste amounts by state, and populations by state

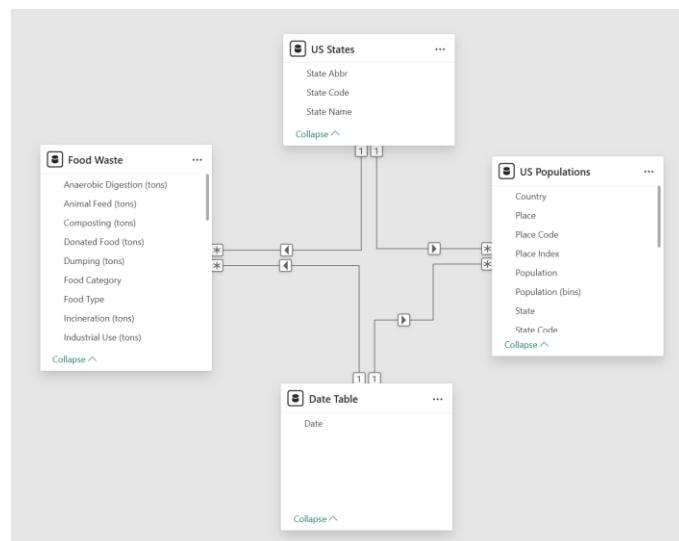
Population table has information both on states and populations, requiring a many to many relationship

Solution: create intermediate filter table that enables filtering to food and population tables, by state



Final format

Table relations



Food Waste

Year	A _C State	A _B Sector	A _B Sub-sector	A _B Sub-sector Category	A _B Food Type	A _B Food Category	1.2 Total Supply (tons)	1.2 Surplus (tons)	1.2
Valid	100%	Valid	100%	Valid	100%	Valid	100%	Valid	100%
Error	0%	Error	0%	Error	0%	Error	0%	Error	0%
Empty	0%	Empty	0%	Empty	0%	Empty	0%	Empty	0%
1 distinct, 0 unique	2 distinct, 0 unique	5 distinct, 0 unique	16 distinct, 0 unique	31 distinct, 0 unique	8 distinct, 0 unique	285 distinct, 0 unique	907 distinct, 06 unique	956 distinct, 955 unique	9!
1/1/2023 Alabama	Farm	Not Applicable	Not Applicable	Dry Goods	Nuts And Seeds	248977.7766	792.77655		
1/1/2023 Alabama	Farm	Not Applicable	Not Applicable	Produce	Blueberries	388.26	139.16745		
1/1/2023 Alabama	Farm	Not Applicable	Not Applicable	Produce	Cucumbers	37923.144	6948.144		
1/1/2023 Alabama	Farm	Not Applicable	Not Applicable	Produce	Peaches	2048.1	778.2933475		
1/1/2023 Alabama	Farm	Not Applicable	Not Applicable	Produce	Potatoes	33776.875	7095.102539		
1/1/2023 Alabama	Farm	Not Applicable	Not Applicable	Produce	Sweet Corn	881794.2536	1162.566596		
1/1/2023 Alabama	Farm	Not Applicable	Not Applicable	Produce	Tomatoes	48753.65541	3371.749141		
1/1/2023 Alabama	Farm	Not Applicable	Not Applicable	Produce	Watermelons	82804.09812	34840.4992		
1/1/2023 Alabama	Foodservice	Bars And Taverns	Bars And Taverns	Breads & Bakery	Not Applicable	192.293968	3.583716534		
1/1/2023 Alabama	Foodservice	Bars And Taverns	Bars And Taverns	Dairy & Eggs	Not Applicable	91.47649423	1.704816321		
1/1/2023 Alabama	Foodservice	Bars And Taverns	Bars And Taverns	Dry Goods	Not Applicable	163.5137527	3.047350215		
1/1/2023 Alabama	Foodservice	Bars And Taverns	Bars And Taverns	Fresh Meat & Seafood	Not Applicable	389.7051416	7.262802224		
1/1/2023 Alabama	Foodservice	Bars And Taverns	Bars And Taverns	Frozen	Not Applicable	0.880827116	0.016415675		
1/1/2023 Alabama	Foodservice	Bars And Taverns	Bars And Taverns	Prepared Foods	Not Applicable	0	167.5763814		
1/1/2023 Alabama	Foodservice	Bars And Taverns	Bars And Taverns	Produce	Not Applicable	310.2643965	5.78295068		
1/1/2023 Alabama	Foodservice	Bars And Taverns	Bars And Taverns	Ready-To-Drink Beverages	Not Applicable	133.4524274	2.487107515		
1/1/2023 Alabama	Foodservice	Business & Industry	Business & Industry	Breads & Bakery	Not Applicable	1022.103576	17.89768776		
1/1/2023 Alabama	Foodservice	Business & Industry	Business & Industry	Dairy & Eggs	Not Applicable	1527.142232	26.74123785		
1/1/2023 Alabama	Foodservice	Business & Industry	Business & Industry	Dry Goods	Not Applicable	3358.190043	58.80421449		
1/1/2023 Alabama	Foodservice	Business & Industry	Business & Industry	Fresh Meat & Seafood	Not Applicable	2611.472108	45.72854796		
1/1/2023 Alabama	Foodservice	Business & Industry	Business & Industry	Frozen	Not Applicable	154.2992632	2.701878851		
1/1/2023 Alabama	Foodservice	Business & Industry	Business & Industry	Prepared Foods	Not Applicable	0	1862.560806		
1/1/2023 Alabama	Foodservice	Business & Industry	Business & Industry	Produce	Not Applicable	2123.713349	37.18757992		
1/1/2023 Alabama	Foodservice	Business & Industry	Business & Industry	Ready-To-Drink Beverages	Not Applicable	1387.711504	24.29971657		
1/1/2023 Alabama	Caterers	Caterers	Caterers	Breads & Bakery	Not Applicable	228.8437088	4.264882393		
1/1/2023 Alabama	Foodservice	Caterers	Caterers	Dairy & Eggs	Not Applicable	341.919254	6.372232884		
1/1/2023 Alabama	Foodservice	Caterers	Caterers	Dry Goods	Not Applicable	751.8834117	14.0125955		
1/1/2023 Alabama	Foodservice	Caterers	Caterers	Fresh Meat & Seafood	Not Applicable	584.6951098	10.89676397		
1/1/2023 Alabama	Foodservice	Caterers	Caterers	Frozen	Not Applicable	34.54680767	0.643837109		
1/1/2023 Alabama	Environmental	Caterers	Caterers	Drained Fruits	Not Applicable	n	1n47.663170		

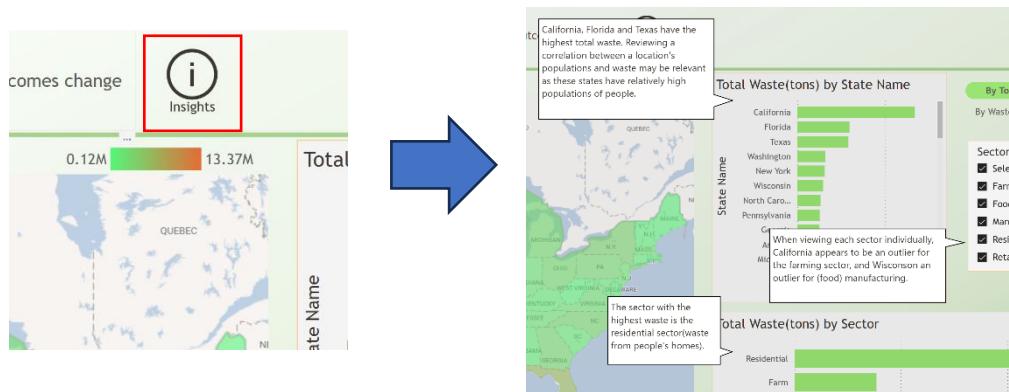
US Population

Place Index	1 ² State Code	1 ² Place Code	A _C Place	A _B State	Year	1.2 Population
Valid	100%	Valid	100%	Valid	100%	Valid
Error	0%	Error	0%	Error	0%	Error
Empty	0%	Empty	0%	Empty	0%	Empty
1000 distinct, 1000 unique	4 distinct, 0 unique	854 distinct, 835 unique	980 distinct, 961 unique	4 distinct, 0 unique	1 distinct, 0 unique	875 distinct, 775 unique
0	1	3220	Autaugaville	Alabama	1/1/2023	804
1	1	6460	Billingsley	Alabama	1/1/2023	124
2	1	48712	Millbrook	Alabama	1/1/2023	17367
3	1	62328	Prattville	Alabama	1/1/2023	39318
4	1	99990	Autauga County	Alabama	1/1/2023	21695
5	1	4660	Bay Minette	Alabama	1/1/2023	8371
6	1	19648	Daphne	Alabama	1/1/2023	30321
7	1	23320	Elberta	Alabama	1/1/2023	2109
8	1	25240	Fairhope	Alabama	1/1/2023	24974
9	1	26992	Foley	Alabama	1/1/2023	24873
10	1	32272	Gulf Shores	Alabama	1/1/2023	16850
11	1	44608	Loxley	Alabama	1/1/2023	4623
12	1	46072	Magnolia Springs	Alabama	1/1/2023	844
13	1	57144	Orange Beach	Alabama	1/1/2023	8534
14	1	59088	Perdido Beach	Alabama	1/1/2023	578
15	1	65208	Robertsdale	Alabama	1/1/2023	7421
16	1	70536	Silverhill	Alabama	1/1/2023	1923
17	1	71976	Spanish Fort	Alabama	1/1/2023	10923
18	1	73872	Summerdale	Alabama	1/1/2023	1576
19	1	99990	Baldwin County	Alabama	1/1/2023	109587
20	1	3724	Bakerhill	Alabama	1/1/2023	209
21	1	7672	Blue Springs	Alabama	1/1/2023	79
22	1	15376	Clayton	Alabama	1/1/2023	2212
23	1	15640	Clio	Alabama	1/1/2023	1200
24	1	24568	Eufaula	Alabama	1/1/2023	12451
25	1	44344	Louisville	Alabama	1/1/2023	390

Report Features

Suggested Insights

Insights button available when relevant insights are present on the report page.



Alternate chart buttons

Buttons to alternate between related charts on the same page.

e.g. Change the metric to review from Total Waste to Waste per Capita



Report Content

Scenario

Scenario



Summary

Find optimal locations and sources from which food waste can be collected for a food redistribution service.

Questions

In what locations should the service establish its sourcing operations? What food waste sources(sectors or facility types) should the service focus its outreach to?

Solution

- Identify key trends in food waste patterns that can help identify potential sources of reusable food
 - Review waste by industries, waste per capita, populations
 - Recommend 3 locations to set up operations
 - Offer recommendations on what organizations/facilities the service could contact to source food
 - Recommend any optional locations or strategies based on findings

Data sources

Data on food waste by business sectors:
ReFED
<https://insights-engine.refed.org/food-waste-monitor>

Data on US populations:

US Census
Incorporated Places and Minor Civil Divisions Datasets
<https://www.census.gov/data/tables/time-series/demo/popest/2020s-total-cities-and-towns.html>

Background

Hope not Hunger is a food redistribution service that sources foods that are fit for consumption or composting but are deemed unusable by the facilities they are produced in, and redirects them to people in need or composting facilities.

The service is about to begin operations and must set up branches to execute its mission. Leaders hope to establish operations in locations based on the best chances of getting the most food redirected.

- In what locations should the service establish its sourcing operations?
- What food waste sources(sectors or facility types) should the service focus its outreach to?



By Sanabu Washizuka

Waste by Location

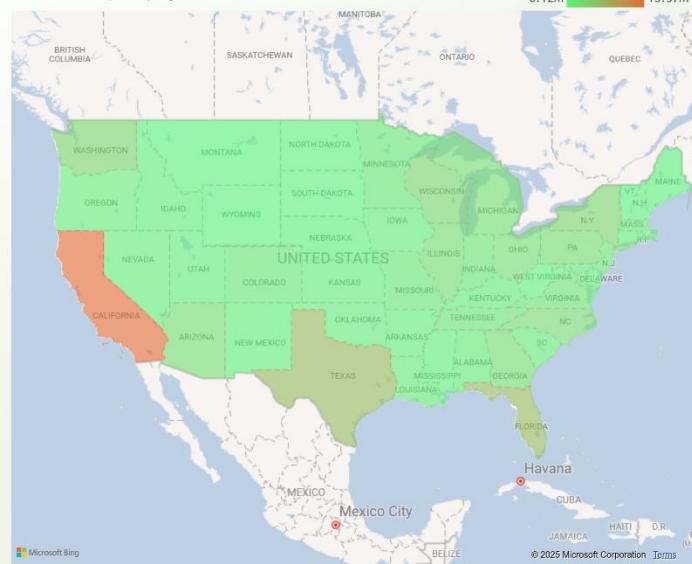
By Total Waste

Waste by Location

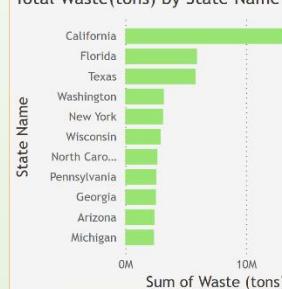
What states have the most food waste? What sectors? Do these outcomes change between total waste and waste per capita?



Total Waste(tons) by State



Total Waste(tons) by State Name

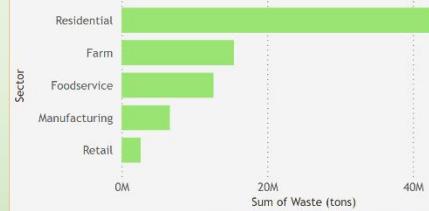


By Total Waste

By Waste per Capita

- Select all
- Farm
- Foodservice
- Manufacturing
- Residential
- Retail

Total Waste(tons) by Sector



0M 20M 40M Sum of Waste (tons)

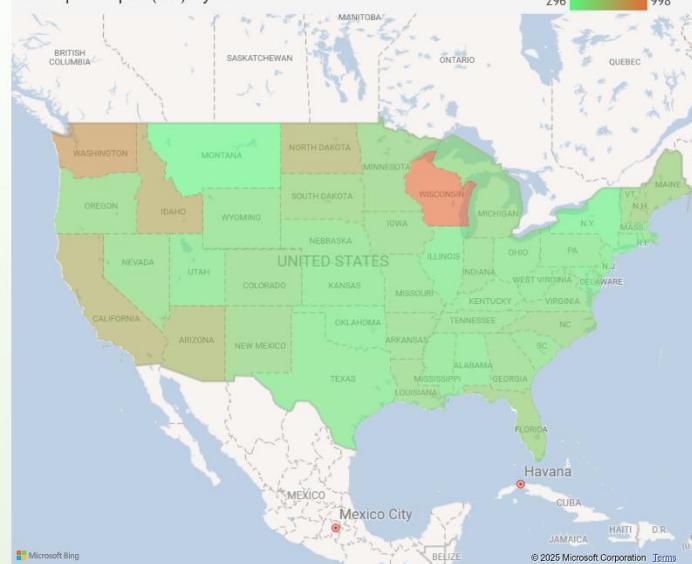
By Waste per Capita

Waste by Location

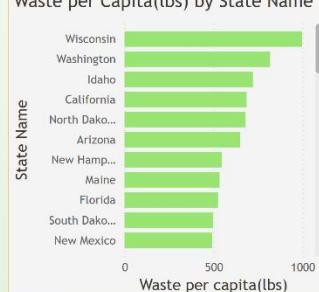
What states have the most food waste? What sectors? Do these outcomes change between total waste and waste per capita?



Waste per Capita(lbs) by State



Waste per Capita(lbs) by State Name

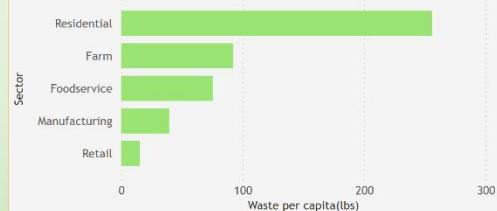


By Total Waste

By Waste per Capita

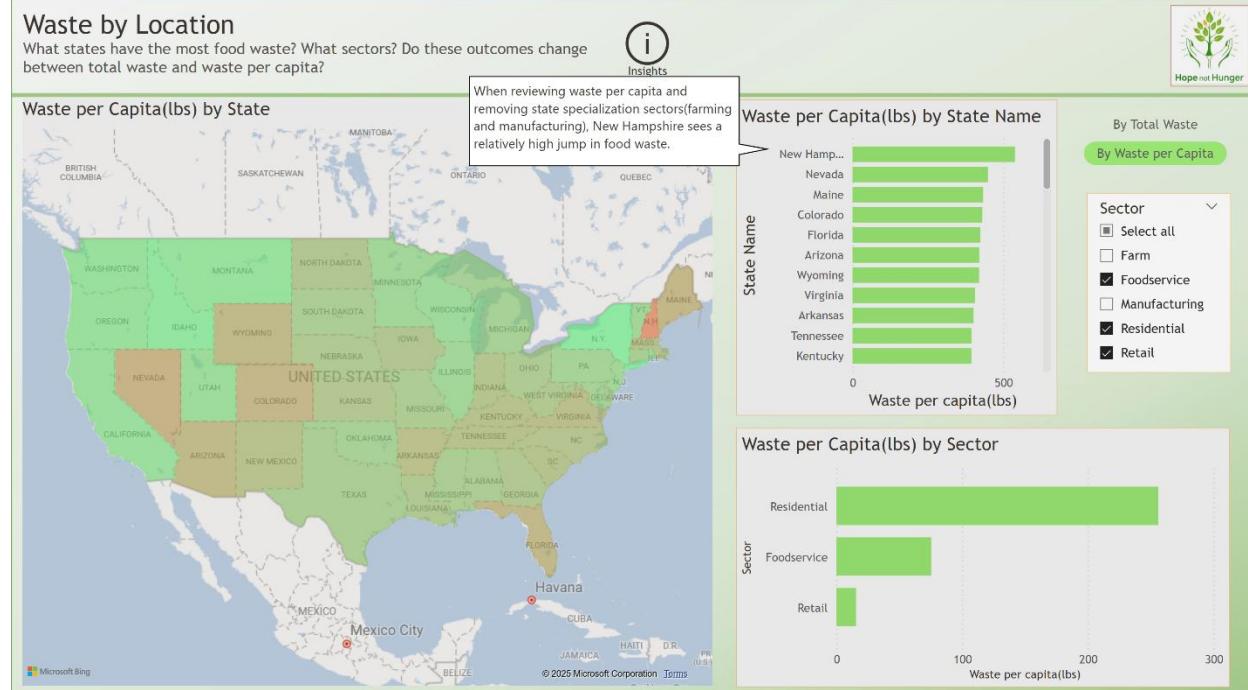
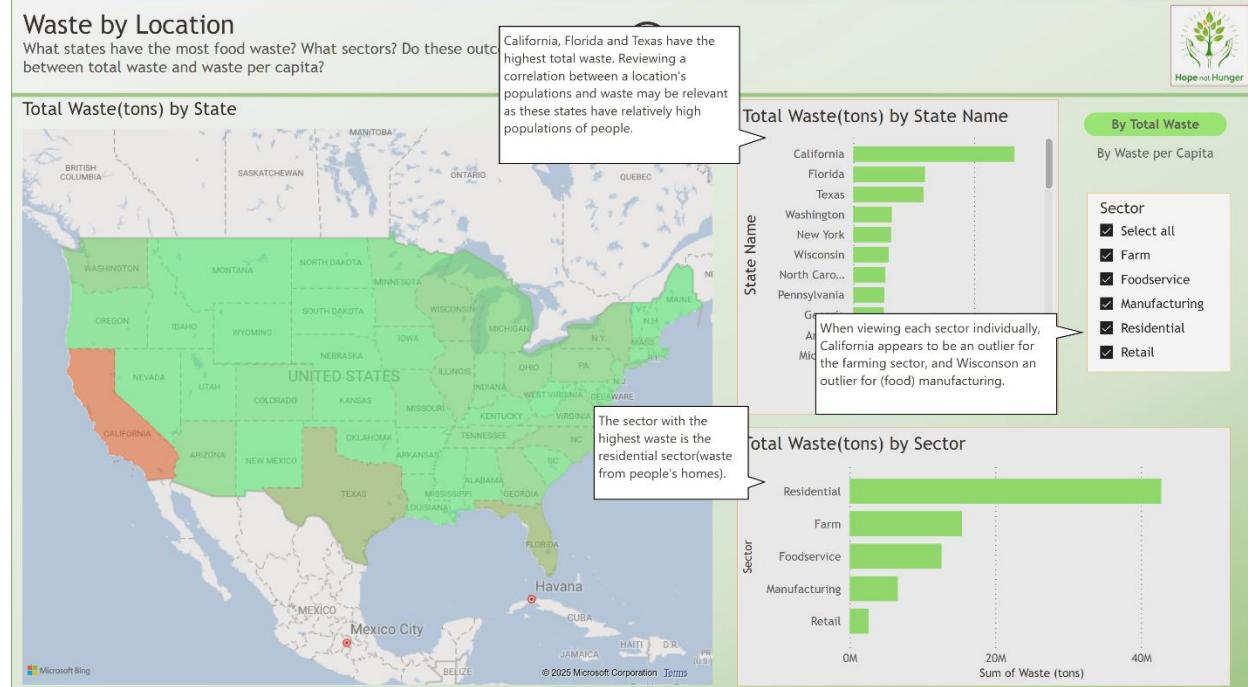
- Select all
- Farm
- Foodservice
- Manufacturing
- Residential
- Retail

Waste per Capita(lbs) by Sector



0 100 200 300 Waste per capita(lbs)

Insights



Waste Percentage by Sector per State

Waste Percentage by Sector per State

Do any states have a relatively high amount of waste for a particular sector?
What share of waste does a sector have across the country?

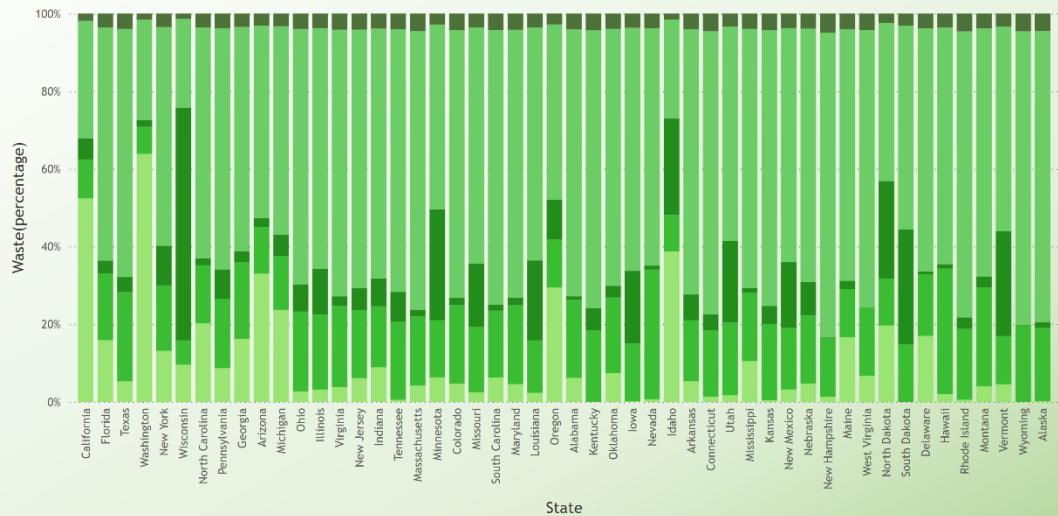


- Select all
- Farm
- Foodservice
- Manufacturing
- Residential
- Retail

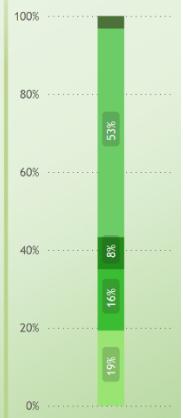


Waste(percentage) by Sector per State

Sector ● Farm ● Foodservice ● Manufacturing ● Residential ● Retail



National Ratios



Insights

Waste Percentage by Sector per State

Do any states have a relatively high amount of waste for a particular sector?
What share of waste does a sector have across the country?

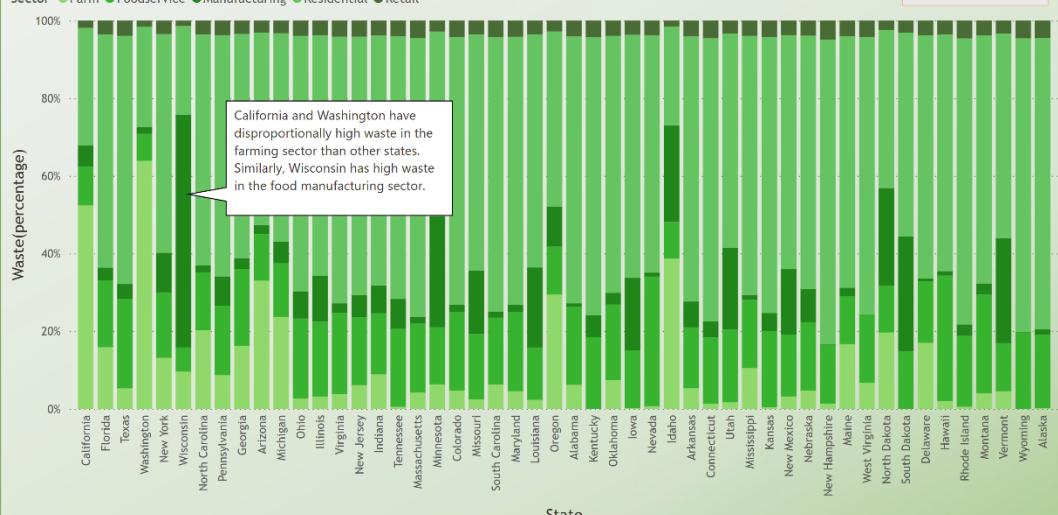


- Select all
- Farm
- Foodservice
- Manufacturing
- Residential
- Retail

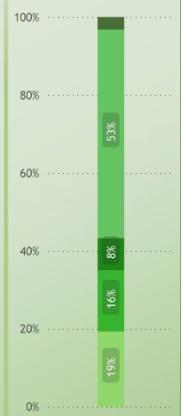


Waste(percentage) by Sector per State

Sector ● Farm ● Foodservice ● Manufacturing ● Residential ● Retail



National Ratios



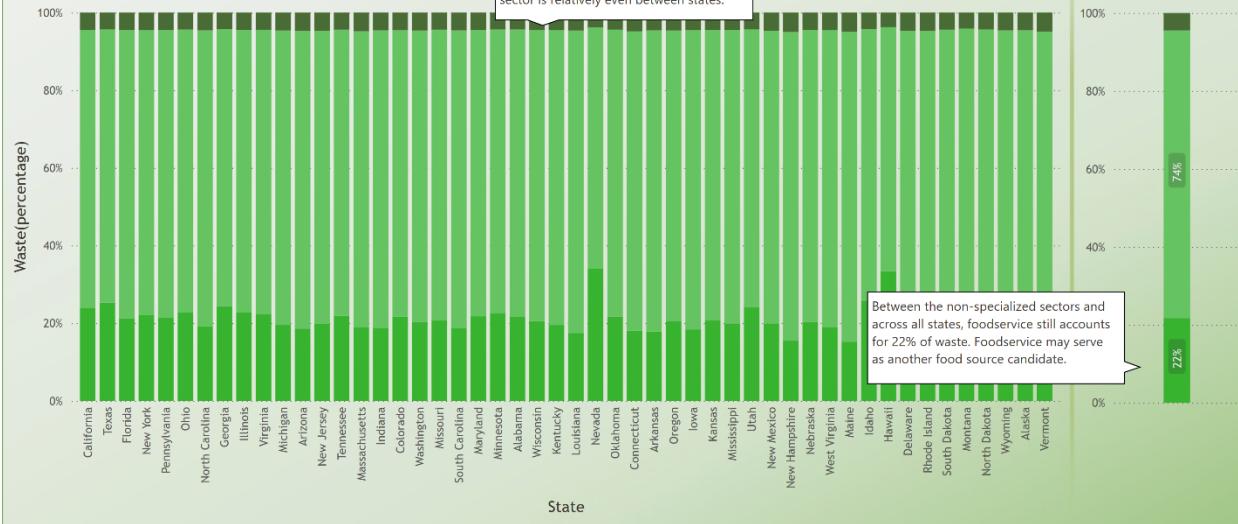
Waste Percentage by Sector per State

Do any states have a relatively high amount of waste for a particular sector?
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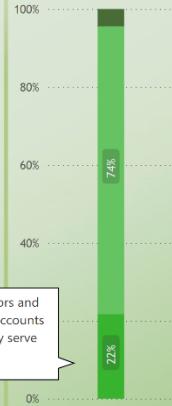


Waste(percentage) by Sector per State

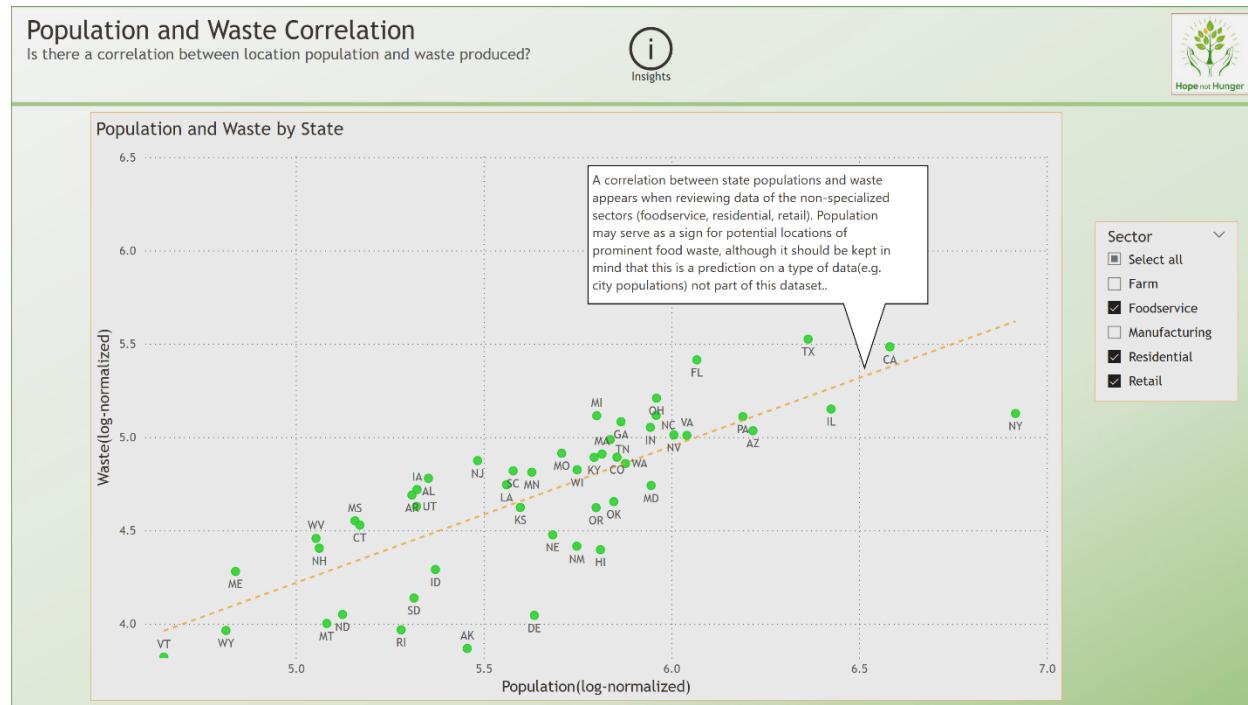
Sector ● Foodservice ● Residential ● Retail



National Ratios



Population and Waste Correlation



Population by City

Population by City

Map available to view what cities have the most population and possibly more waste available for recovery.



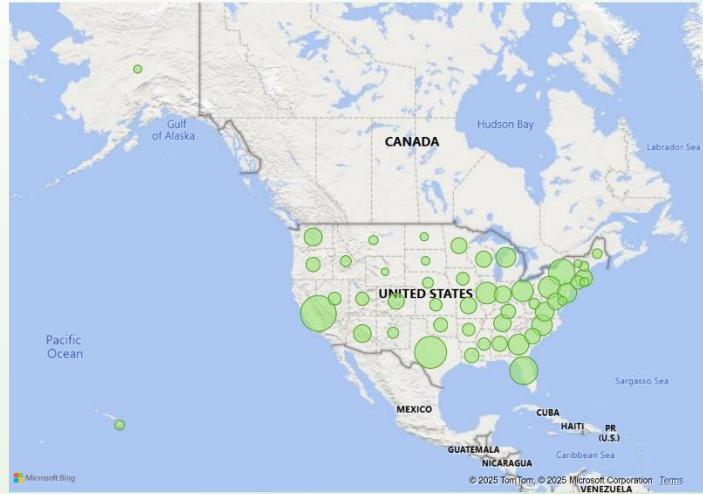
Instructions

1. Select a state within the map
2. Select a city from the table to the right to locate on the map

*Note: The map will not zoom in on any location names ending in "County".



Population by State



Reset Map

State/City	Population
California	38,965,193.00
Texas	30,503,301.00
Florida	22,610,726.00
New York	19,571,216.00
Pennsylvania	12,961,683.00
Illinois	12,549,689.00
Ohio	11,785,935.00
Georgia	11,029,227.00
North Carolina	10,835,491.00
Michigan	10,037,261.00
New Jersey	9,290,841.00
Virginia	8,715,698.00
Washington	7,812,880.00
Arizona	7,431,344.00
Tennessee	7,126,489.00
Massachusetts	7,001,399.00
Indiana	6,862,199.00
Missouri	6,196,156.00
Maryland	6,180,253.00
Wisconsin	5,910,955.00
Colorado	5,877,610.00
Minnesota	5,737,915.00
South Carolina	5,373,555.00
Alabama	5,108,468.00
Louisiana	4,573,749.00
Kentucky	4,526,154.00

Foodservice Sector Breakdown

Foodservice Sector Breakdown

What foodservice businesses or facility departments make up the most waste for a state? What food categories or facility subdivisions contribute the most waste?



Waste(tons) by Food Service Sub-Sector and Sub-Sector Category



Business Search

This page can open a website that directs a search on a business directory based on the foodservice sector category, state, and city selected in the visuals below.

- Steps:
1. Select a sub-sector category in the treemap(left of the page).
 2. Select a single state(list in the middle of the page).
 3. Hold Ctrl/Cmd and left click to select a place(list to the right of the page).
 4. Button at the bottom of this page will turn green. Click the button to open the webpage.



[Reset Selections](#)

Select State

<input type="checkbox"/> Select all	Place	Sum of Population
<input type="checkbox"/> Alabama	New York	8,258,292.00
<input type="checkbox"/> Alaska	Los Angeles	3,820,914.00
<input type="checkbox"/> Arizona	Chicago	2,664,489.00
<input type="checkbox"/> Arkansas	Houston	2,325,529.00
<input type="checkbox"/> California	Harris County	2,098,529.00
<input type="checkbox"/> Colorado	Phoenix	1,658,320.00
<input type="checkbox"/> Connecticut	Montgomery County	1,615,089.00
<input type="checkbox"/> Delaware	Philadelphia	1,560,264.00
<input type="checkbox"/> Florida	San Antonio	1,496,783.00
<input type="checkbox"/> Georgia	San Diego	1,391,925.00

Top 10 Places by Population

Place	Sum of Population
New York	8,258,292.00
Los Angeles	3,820,914.00
Chicago	2,664,489.00
Houston	2,325,529.00
Harris County	2,098,529.00
Phoenix	1,658,320.00
Montgomery County	1,615,089.00
Philadelphia	1,560,264.00
San Antonio	1,496,783.00
San Diego	1,391,925.00

[Sub-Sector Category not selected](#) [State not selected](#) [Place not selected](#)

Business Search Not Ready

The report can send the user to a business search website after selecting a foodservice sector, a state, and a place.

Foodservice Sector Breakdown

What foodservice businesses or facility departments make up the most waste for a state? What food categories or facility subdivisions contribute the most waste?



Waste(tons) by Food Service Sub-Sector and Sub-Sector Category



Business Search

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 4. Button at the bottom of this page will turn green. Click the button to open the webpage.



[Reset Selections](#)

Select State

<input checked="" type="checkbox"/> Select all	Place	Sum of Population
<input type="checkbox"/> Alabama	Los Angeles	3,820,914.00
<input type="checkbox"/> Alaska	San Diego	1,388,320.00
<input type="checkbox"/> Arizona	San Jose	969,655.00
<input type="checkbox"/> Arkansas	Los Angeles County	968,708.00
<input checked="" type="checkbox"/> California	San Francisco	808,988.00
<input type="checkbox"/> Colorado	Sacramento County	599,290.00
<input type="checkbox"/> Connecticut	Fresno	545,716.00
<input type="checkbox"/> Delaware	Sacramento	526,384.00
<input type="checkbox"/> Florida	San Diego County	508,011.00
<input type="checkbox"/> Georgia	Long Beach	449,468.00

Top 10 Places by Population

Place	Sum of Population
Los Angeles	3,820,914.00
San Diego	1,388,320.00
San Jose	969,655.00
Los Angeles County	968,708.00
San Francisco	808,988.00
Sacramento County	599,290.00
Fresno	545,716.00
Sacramento	526,384.00
San Diego County	508,011.00
Long Beach	449,468.00

[Varied Menu](#) [California](#) [Los Angeles](#)

Business Search Ready!

Insights

Foodservice Sector Breakdown

What foodservice businesses or facility departments make up the most waste for a state? What food categories or facility subdivisions contribute the most waste?



Foodservice Sector Breakdown

What foodservice businesses or facility departments make up the most waste for a state? What food categories or facility subdivisions contribute the most waste?



Conclusion

Conclusion



Analysis Conclusions

- Out of all sectors, residences produce the most food waste.
- Out of the non-specialization sectors(residential, foodservice, retail), the sector with the second highest waste, foodservice, still accounts for 22% of national waste.
- After removing state-specialized industries(farming, food manufacturing), a strong correlation appears between state populations and amount of food wasted. This correlation may exist at a more granular level(i.e. cities and towns), however please note that this is only a presumption and not a direct inference from the data.
- Across the country full service restaurants, limited service restaurants and lodging are the foodservice sub-sectors with the highest amount of waste, in order from most to least. However, this order may be disrupted depending on the state.
- California and Wisconsin have high waste in the farming and food manufacturing sectors, respectively.
- New Hampshire has relatively higher food waste per capita than other states.

Possible courses of action

Primary efforts:

Begin operations in the most populated cities in the three most populated states:

- Los Angeles, California
- Houston, Texas
- Miami-Dade County, Florida

Focus efforts mainly on recovery from residents(e.g. resident outreach to provide food to drop off centers). To source from foodservice sector, use business search for locate restaurant/lodging services.

Alternative options:

Waste per capita

- Establish operations in Manchester, New Hampshire to take advantage of high waste per capita

State specialization

- Locate manufacturing centers for Wisconsin
- Locate agricultural centers for California

Credits

Report made by Sanabu Washizuka

<https://www.linkedin.com/in/sanabuwashizuka/>

<https://github.com/SanabuW>

Images:

Designed by macrovector / Freepik

