

A Unique Way to Look at Food Efficiency and Environmental Impact

The Banana Index





Introduction

Food production and agriculture are pivotal in shaping our society, influencing both well-being and the environment. This project explores the balance between nutritional needs and the environmental impact of our choices. By tracking emissions to nutritional value, this project aims to provide a concise understanding of how our food decisions shape today's world.

01

The Banana Index

Data Description



The Banana Index

01

Created by the
The Economist

the creators of The Big Mac
Index

02

Indexed to the
banana.

Shows the environmental
impact of foods indexed to
the banana.

03

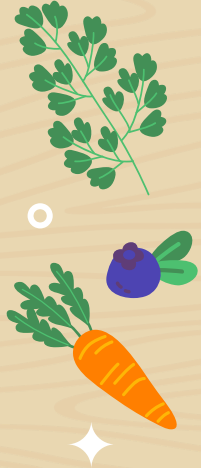
Observations
and Variables

160 observations (foods)
and 11 unique variables

04

Example:
(datainnovation.org)

"producing one kilogram of ground
beef generates as many carbon
emissions as 109 kilograms of
bananas..."



Banana Index: a Comparative

We will be comparing these variables to one another, not just to the banana.



(emissions_kg)	Emissions per kilogram
(emissions_1000kcal)	Emissions per 1000 kilocalories
(emissions_100g_protein)	Emissions per 100 grams of protein
(emissions_100g_fat)	Emissions per 100 grams of fat
Land Partners	(land_use_kg), (land_use_1000kcal), (land use per 100 grams of protein), (land use per 100 grams of fat).



Methodology



1	Remove Unnecessary Columns	(Chart?), (type), (Banana values), and (Unnamed: 16)
2	Looked For NAs	"Olive oil" and "Sunflower oil," (emissions_100g_protein) and (land use per 100 grams of protein)
3	Replaced NAs With 0	Given the nature of the analysis, it seemed reasonable to simply assigned those NAs a value of 0
4	Standardize All Variable	(emissions_kg), (emissions_1000kcal), (emissions_100g_protein), (emissions_100g_fat), (land_use_kg), (land_use_1000kcal), (land use per 100 grams of protein), (land use per 100 grams of fat)
5	Build Formula	review a correlation table and use those values as our weights



Correlation Table



emissions_kg	Correlation
emissions_1000kcal	0.88263892091608
emissions_100g_protein	0.224554871934291
emissions_100g_fat	0.29681932724674
land_use_kg	0.95374063696656
land_use_1000kcal	0.926725744832703
Land use per 100 grams of protein	0.719970991852648
Land use per 100 grams of fat	0.643778321988888



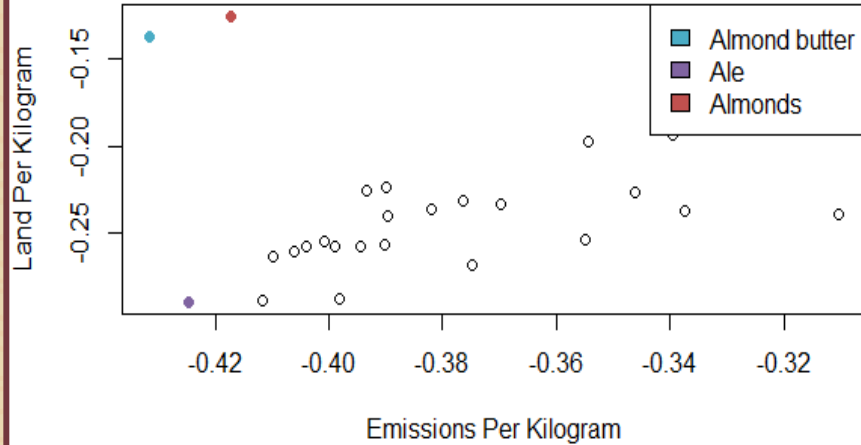
Formula



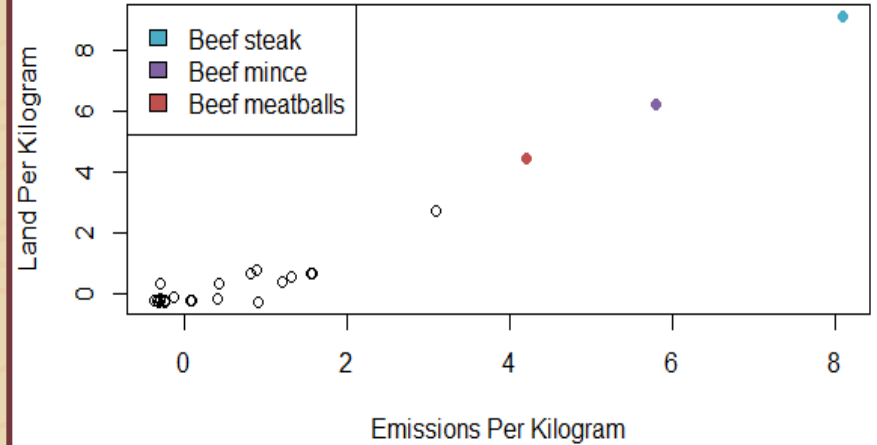
Step	Reasoning	Result
1: Use emissions_kg as independent variable	To generate our Correlation Table.	As seen in the previous table
2: divide each value by the table's sum.	To have our weights total 1.	$0.1770467 + 0.1562683 + 0.03975669 + 0.05255087 + 0.1688566 + 0.1640737 + 0.1274685 + 0.1139788 = 1$
3: use the resulting values at our weights	To give each variable a unique weight.	$0.1770467 * \text{emissions_kg} + 0.1562683 * \text{land_use_kg} + 0.03975669 * \text{land_use_1000kcal} + 0.05255087 * \text{emissions_1000kcal} + 0.1688566 * \text{Land use per 100 grams of protein} + 0.1640737 * \text{Land use per 100 grams of fat} + 0.1274685 * \text{emissions_100g_fat} + 0.1139788 * \text{emissions_100g_protein}.$

Emissions to Land

25 Lowest Emissions to Land



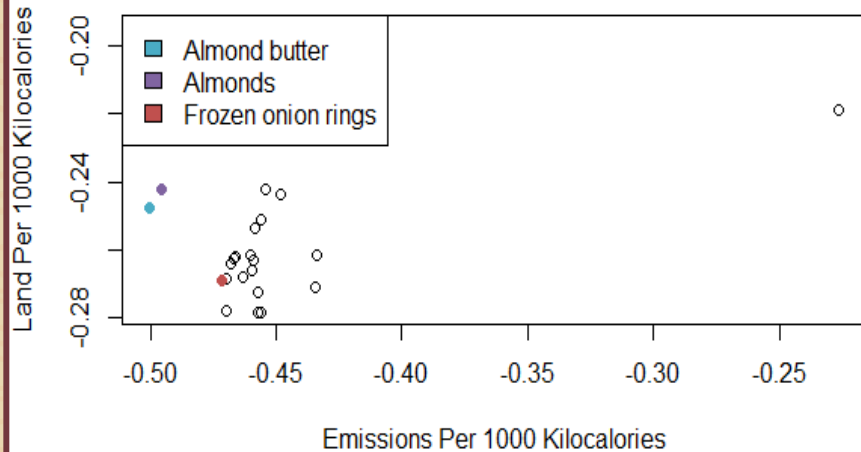
25 Highest Emissions to Land



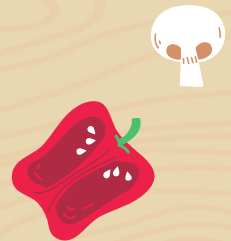
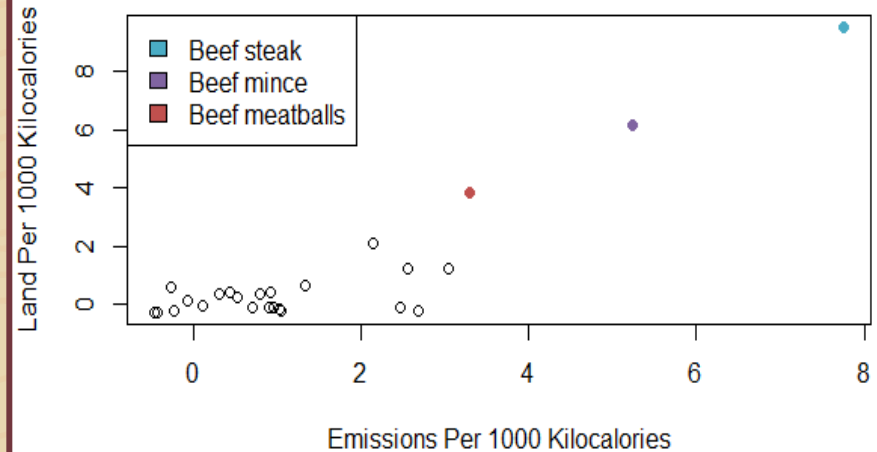
Emissions Per 1000 Kilocalories



25 Lowest Emissions Per 1000 Kilocalories

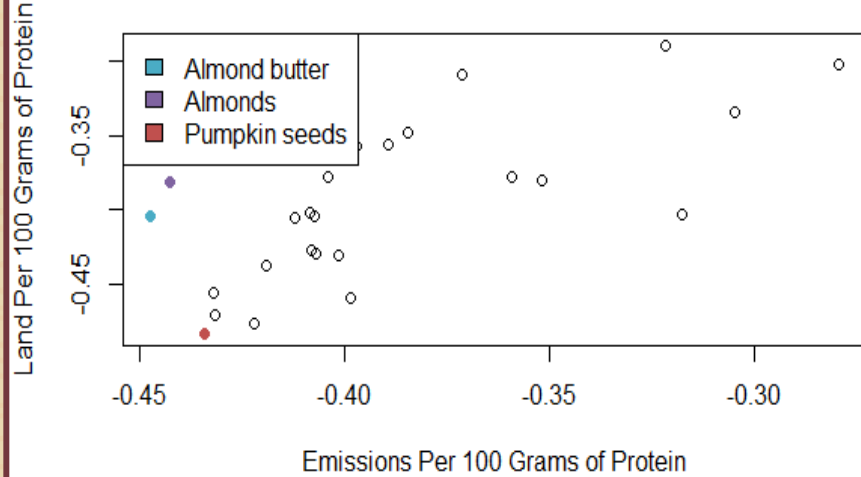


25 Highest Emissions per 1000 Kilocalories

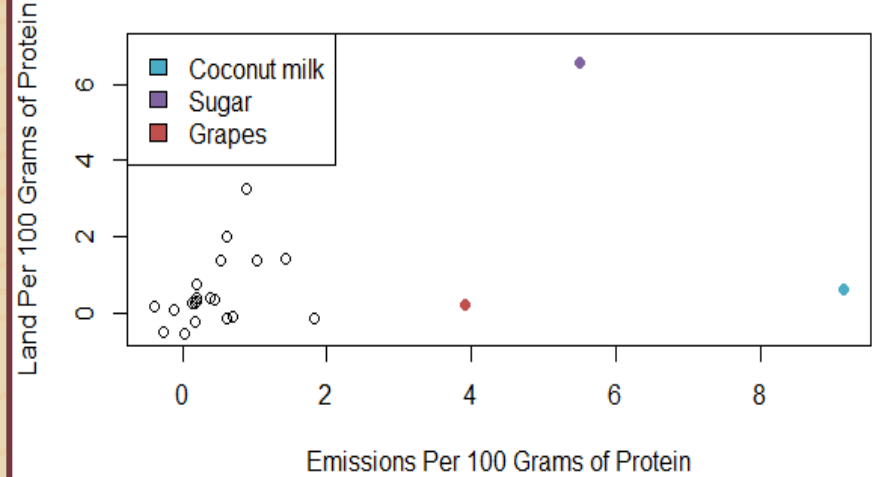


Emissions Per 100 Grams of Protein

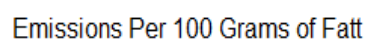
25 Lowest Emissions Per 100 Grams of Protein



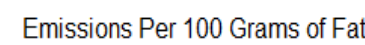
25 Highest Emissions Per 100 Grams of Protein



_____and Per 100 Grams of Fat



and Per 100 Grams of Fat



20 Least Efficient Foods

1

Beef steak

6

Beef burger

11

Raspberries

16

Lamb chops

2

Beef mince

7

Coconut milk

12

Marmalade

17

Beetroot

3

Sugar

8

Grapes

13

Lamb (leg)

18

Lamb burgers

4

Beef meatballs

9

Prawns

14

Lentils

19

Chilli con carne

5

Cottage cheese

10

Lettuce

15

Dark chocolate

20

Strawberries



20 Most Efficient Foods

1

Ale

6

Almond butter

11

Nut loaf

16

Pancakes

2

Pumpkin seeds

7

Naan

12

Bread

17

Quinoa

3

Chia seeds

8

Tortilla wraps

13

Bagels

18

Popcorn

4

Tofu

9

Frozen onion
rings

14

Meat-free
sausages

19

Granola

5

Beer

10

Almonds

15

Meat-free
burger

20

Shortbread
biscuits





In review

our exploration of "The Banana Index" has provided valuable insights into the ecological impact of various common foods. The dataset, curated by The Economist, sheds light on the environmental consequences of food production. By examining these crucial variables we aimed to understand the intricate relationship between food choices and their environmental footprint.



Conclusion



Thanks!

CREDITS: This presentation template was created by [Slidesgo](#), and includes icons by [Flaticon](#), and infographics & images by [Freepik](#)



Appendix

Cited Works

- A different way to measure the climate impact of food.
 - <https://www.economist.com/graphic-detail/2023/04/11/a-different-way-to-measure-the-climate-imp-act-of-food>
- “Visualizing the Carbon Impact of Foods Relative to Bananas”, Morgan Stevens, April 20, 2023,
 - <https://datainnovation.org/2023/04/visualizing-the-carbon-impact-of-foods-relative-to-bananas/>

DataSet

- Banana Index
 - <https://www.kaggle.com/datasets/joebeachcapital/banana-index>