

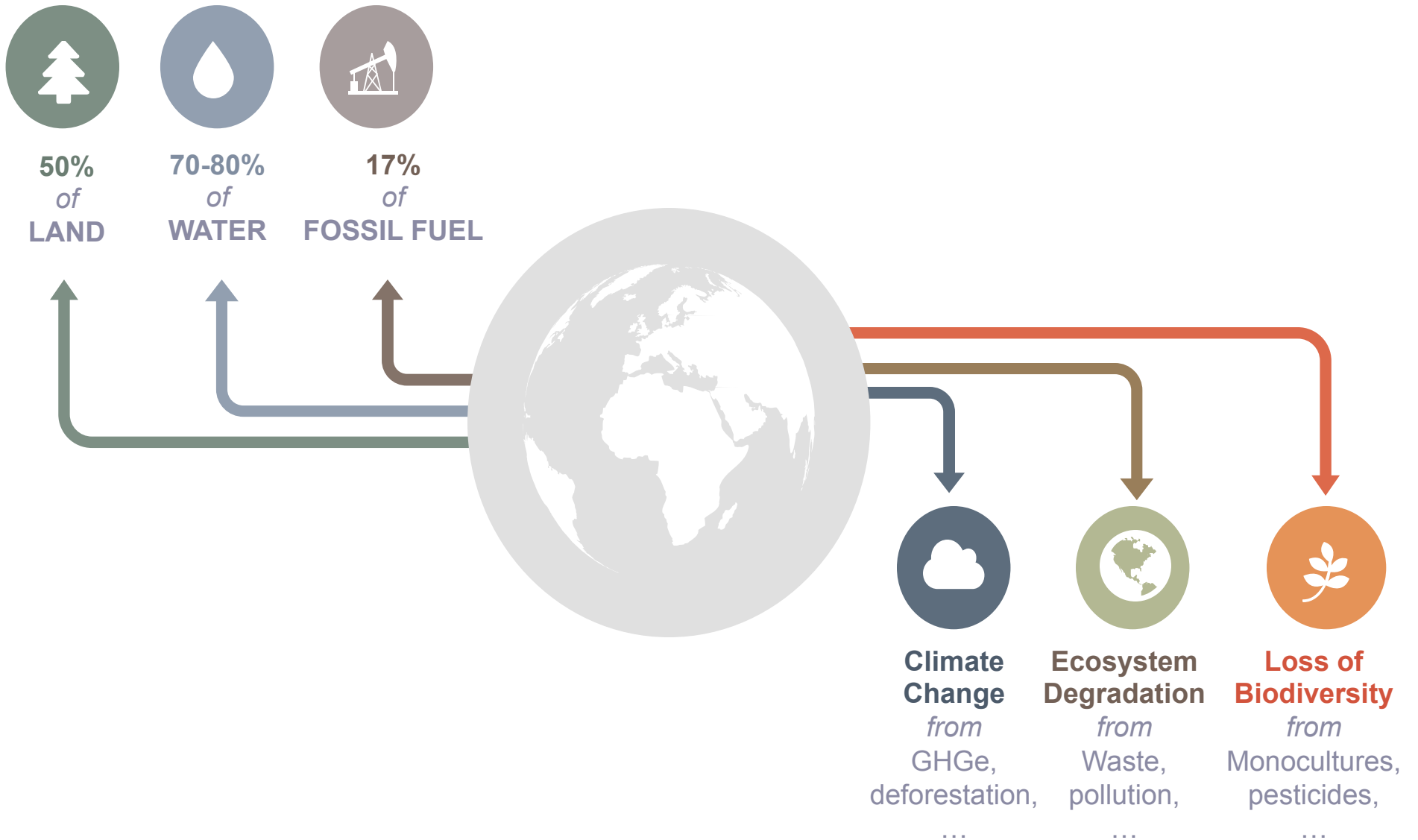
DEVELOPMENT OF A DIETARY ENVIRONMENTAL INDEX

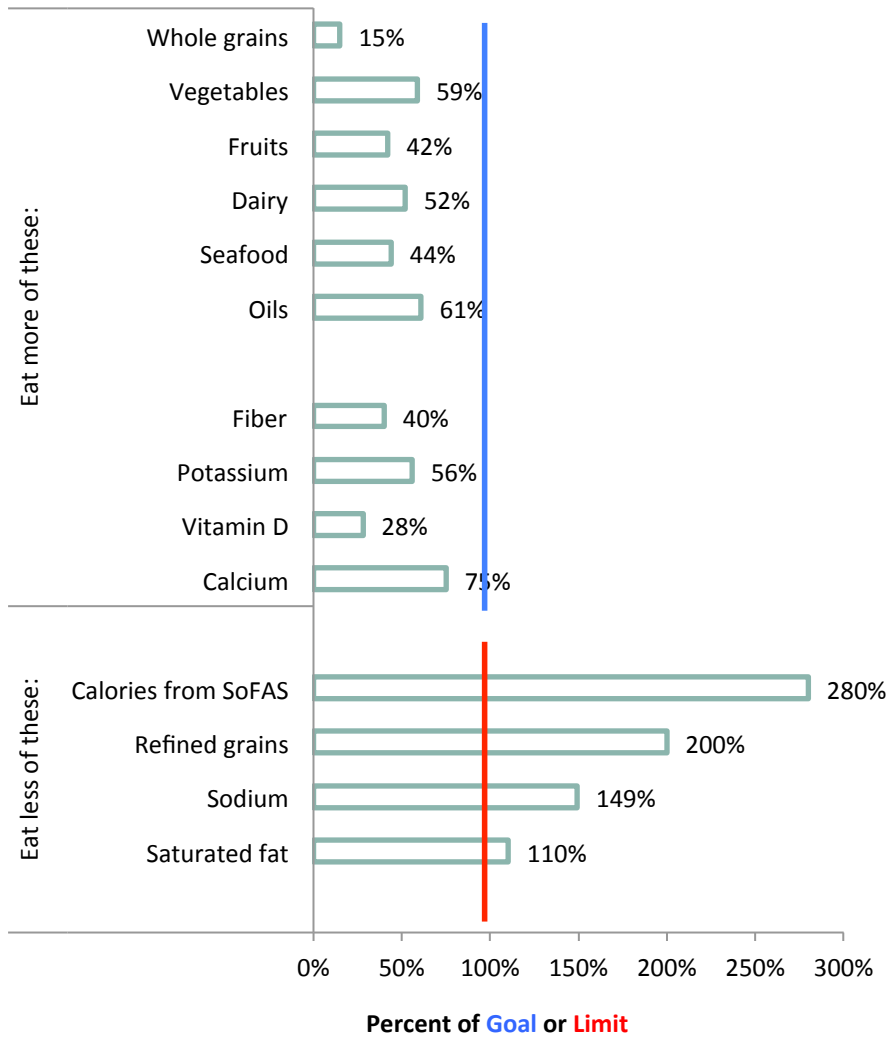
to assess nutritional quality versus environmental impact
for foods and dietary patterns

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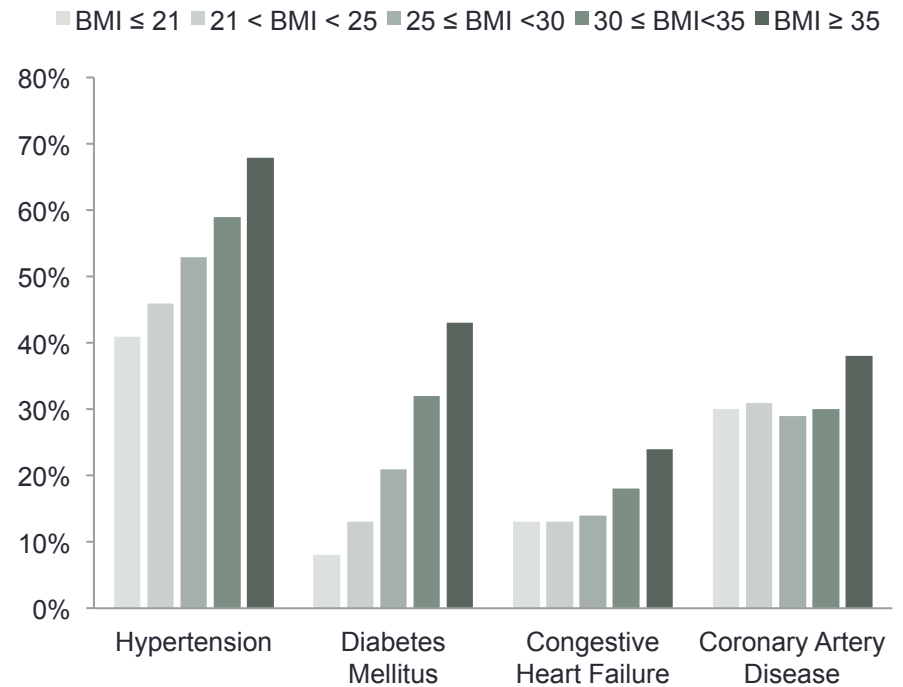
Burden of Modern Food Production



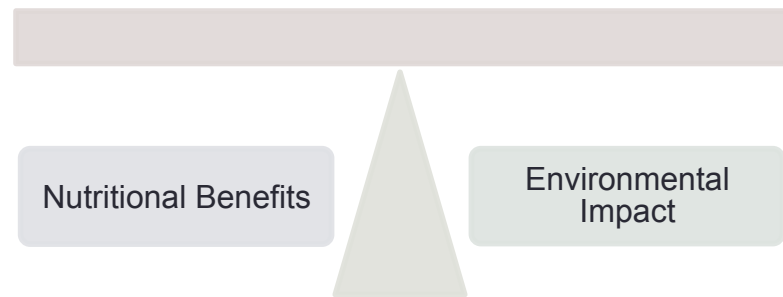


Dietary Intakes Compared to Recommendations

BMI proportions in USA



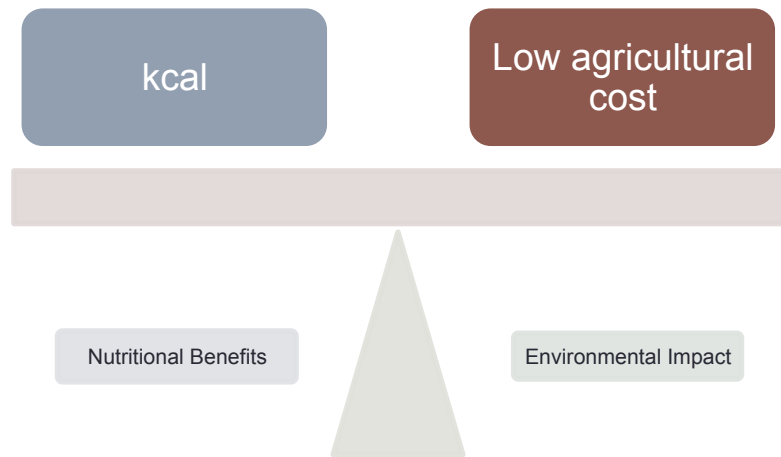
Prevalence of Comorbidities by BMI Category



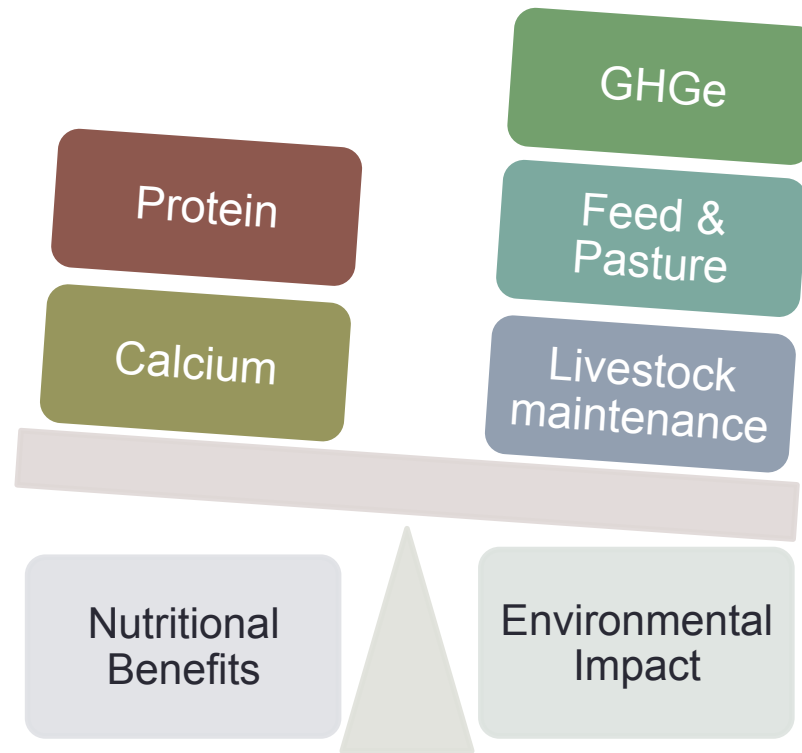
Challenge: balance optimal nutrition with sustainability

A nutritious diet does not guarantee low environmental impact

A sustainable diet is not necessarily healthy



Challenge:
balance optimal nutrition with sustainability
Sugar



Challenge:
balance optimal nutrition with sustainability

Dairy



Environmental
Impact



Nutrient Density



Calculate DEX

Development of the Dietary Environmental Index

Environmental Impact assessed through LCA data



Environmental
Impact



Nutrient Density



Calculate DEX

Life Cycle Assessment (LCA)

Measures the environmental inputs and outputs of a product or system over its lifecycle

4 primary environmental impact indicators:

- Land use
- Water resource depletion
- Marine eutrophication
- Greenhouse gas emissions

Standardized and aggregated into an Environmental Impact Score (EIS)

→ Applied to NHANES foods

Nutrient density assessed using the NRF9.3



Environmental
Impact



Nutrient Density



Calculate DEX

NRF9.3 =

$$\sum_{i=9} (\%DV/100g) - \sum_{i=3} (\%DV/100g)$$

9 nutrients to promote:

Protein
Fiber
Calcium
Iron
Magnesium
Potassium
Vitamins A, C, E

3 nutrients to reduce

Saturated fat
[Total] sugar
Sodium

Calculating the Dietary Environmental Index Score



Environmental
Impact



Nutrient Density

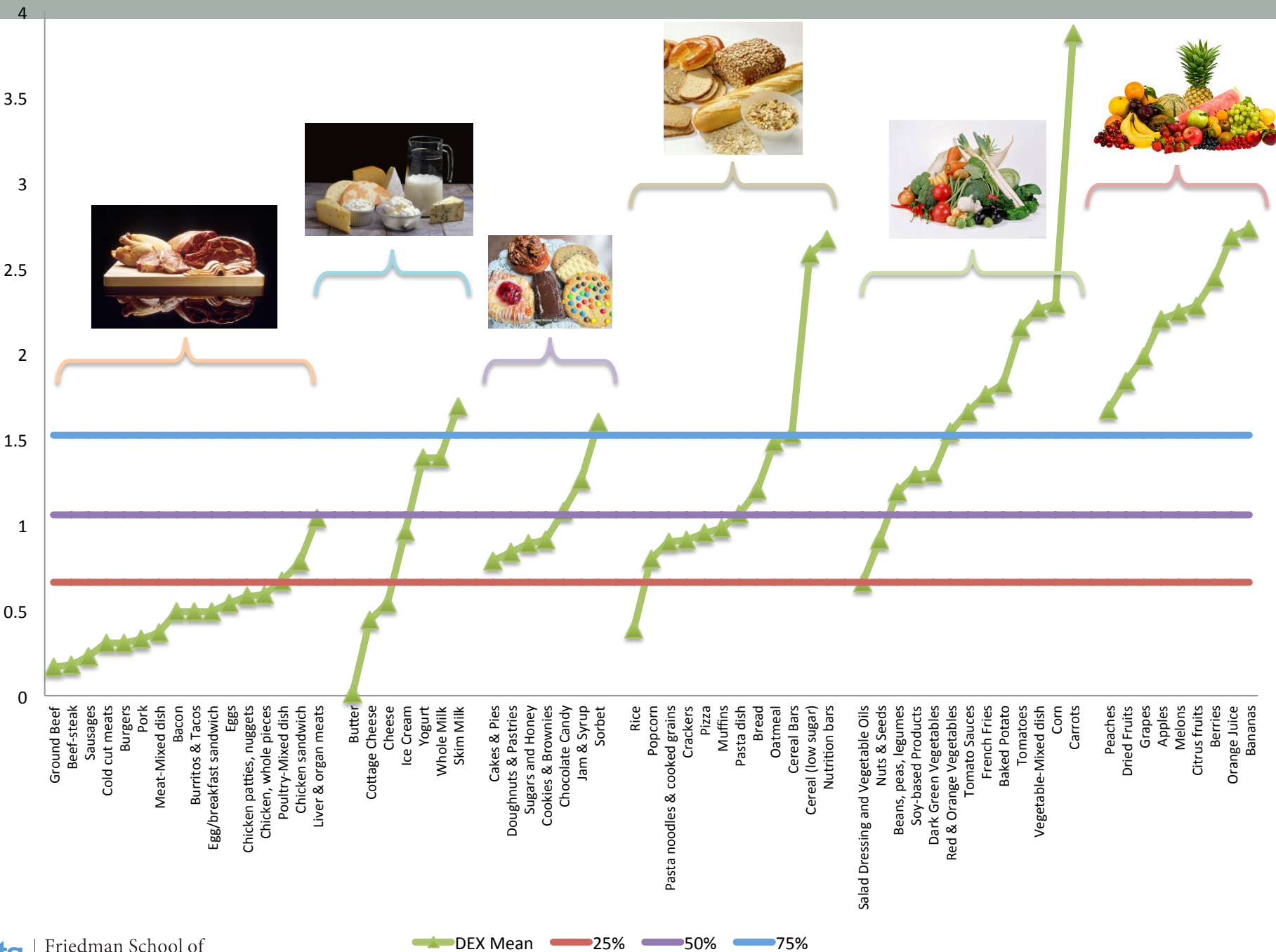


Calculate DEX

$$\text{DEX} = \frac{\text{NRF9.3 Score}}{\text{Environmental Impact Score}}$$

- Calculated for ~1200 NHANES foods

Dietary Environmental Index Value



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