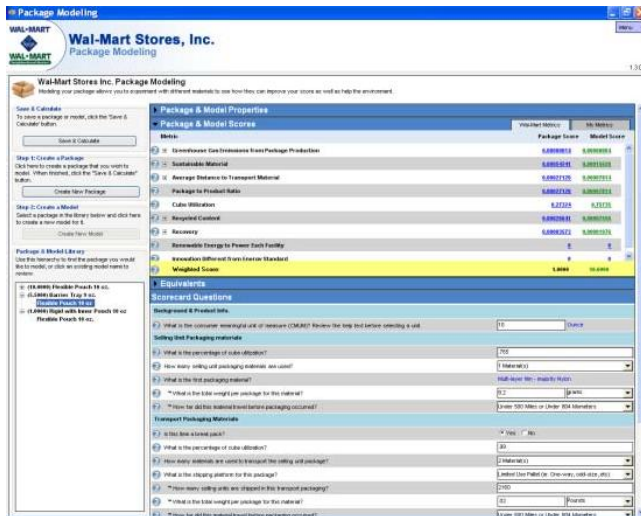


# Systems Studied



## Cereal Systems:

- Cereal Bag - 21 oz.
- Cereal Bag in Paperboard Box - 20 oz. OZ.



## LCI Results - Cereal Packaging

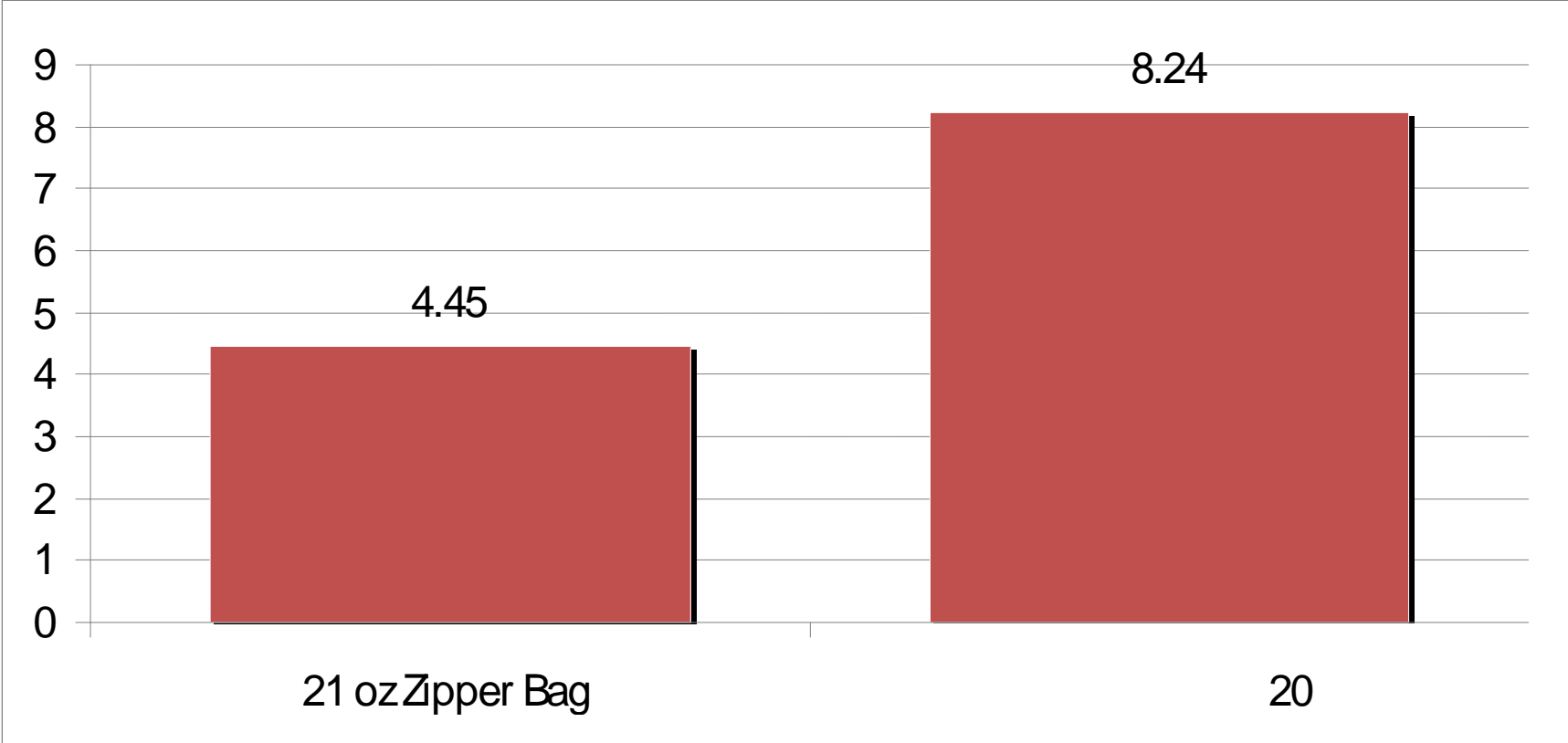
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- Energy
  - Cradle to Material
  - Container Fabrication
  - Transport to Filler
  - Distribution
  - Disposal
  - Total
- Solid Waste
  - Weight
  - Volume
  - Total
- Greenhouse Gas



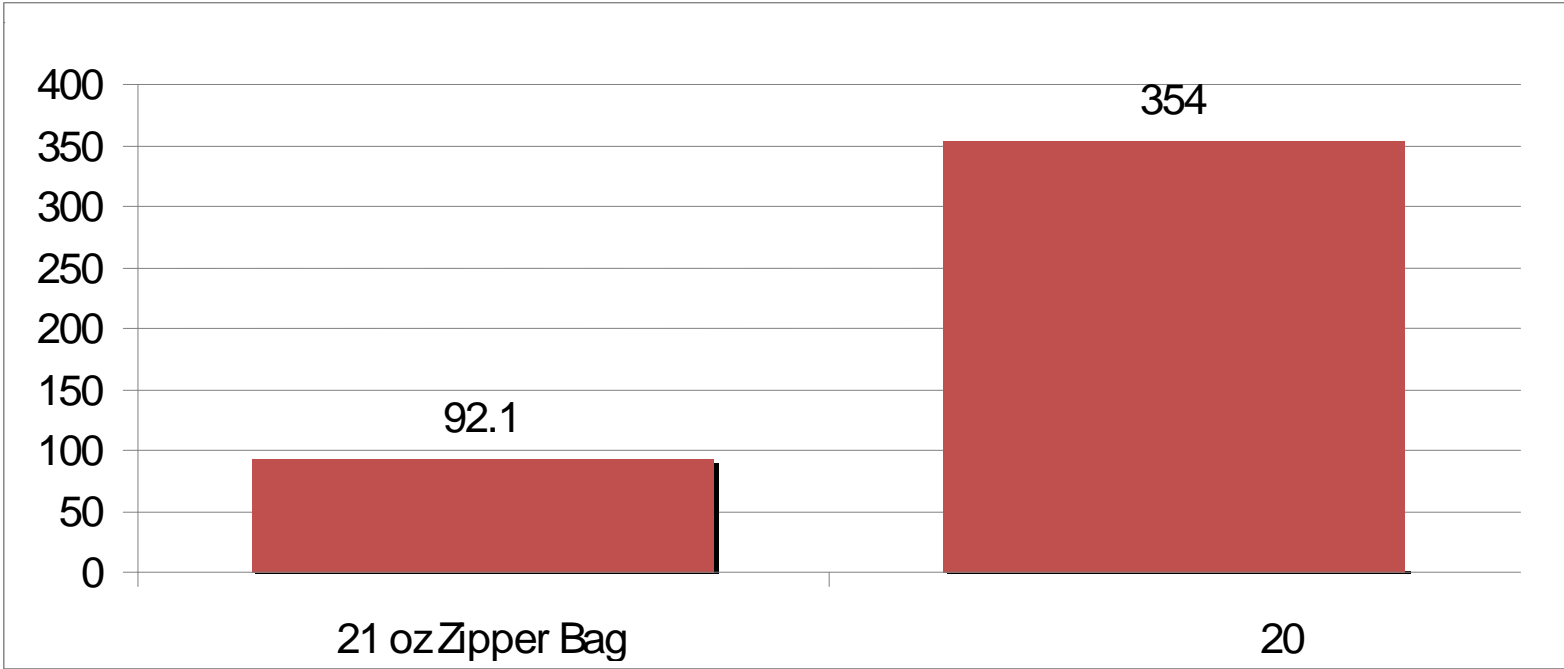
# Energy– Total Impact

(Million BTU per 1000 lbs of food)



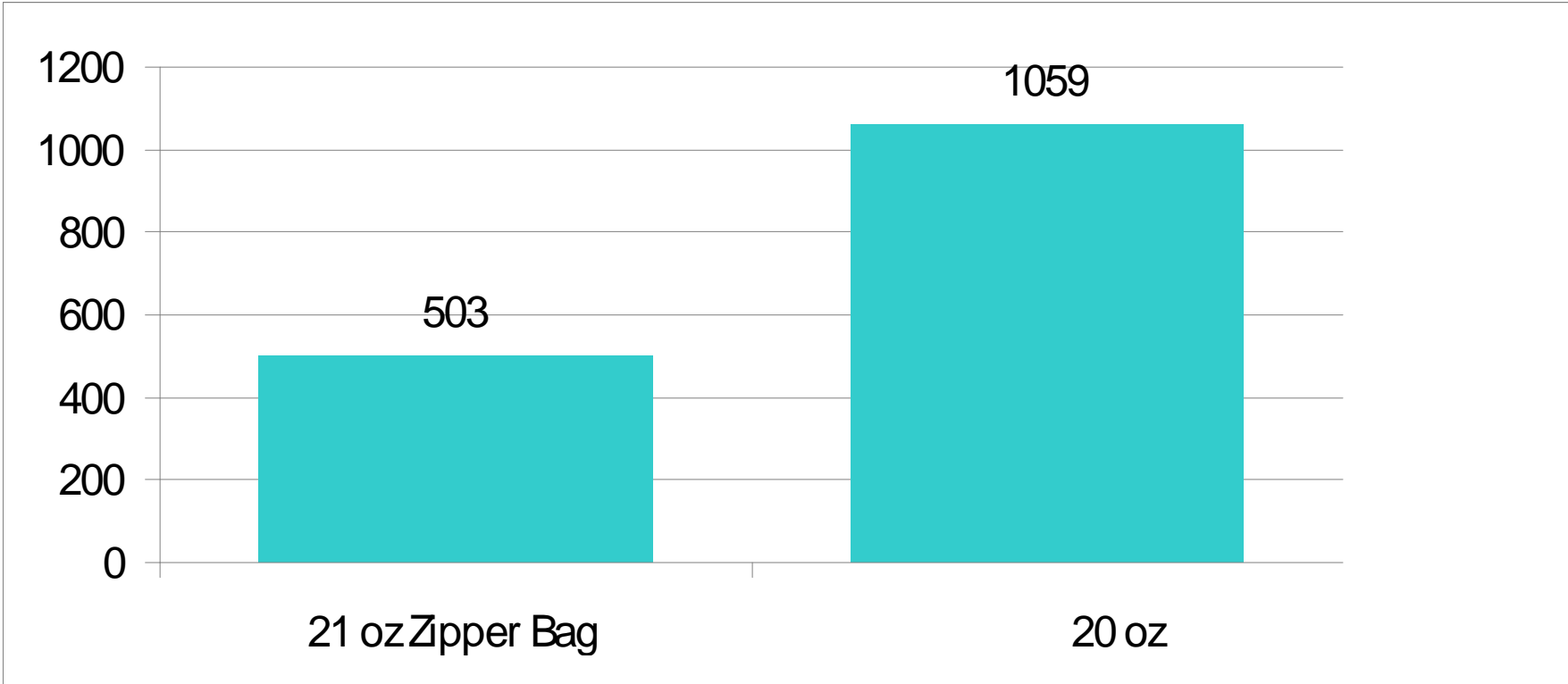
# Solid Waste— Total (Weight)

(lbs per 1000 lbs of food)



Greenhouse Gas<sub>(cereal pkg.)</sub>

(lbs of CO2 equivalent per 1000 lbs of food)





- Scoring categories
  - Greenhouse gas from package production
  - Sustainable Material
  - Average distance to transport material
  - Product to package ratio
  - Cube Utilization
  - Recycled Content
  - Recovery
  - Renewable energy to power each facility
  - Innovation different from energy standard standard

# Package Modeling: Cereal Bag in Box/Cereal Flexible Bag

The screenshot displays the 'Package Modeling' software interface for Wal-Mart Stores, Inc. The main window is titled 'Package & Model Properties' and 'Package & Model Scores'. It features a table comparing 'Package Score' and 'My Metrics' for various metrics. The 'Weighted Score' row is highlighted in yellow, showing a significant improvement from 19,000 to 6,900. Below the table, there are sections for 'Equivalents', 'Scorecard Questions', and 'Transport Packaging Materials'.

Metric	Package Score	My Metrics
Greenhouse Gas Emissions from Package Production	0.0000029	0.0000000
Sustainable Material	0.0002788	0.0018239
Average Distance to Transport Material	0.0005384	0.0012474
Package to Product Ratio	0.0009384	0.0012674
Cube Utilization	0.433	0.259
Recycled Content	0.0056139	0.0009158
Recovery	0.0017354	0.0027695
Renewable Energy to Power Each Facility	0	0
Innovation Different from Ener or Standar	0	0
<b>Weighted Score</b>	<b>19,000</b>	<b>6,900</b>

## Score Improvements Improvements

- Greenhouse gas
- Sustainable Material
- Avg. Dist to Transport
- Pkg. to Product
- Cube Utilization
- Recycled Content
- Recovery

- Scores improved between 42% and 58%

# Summary: Reclosable Bags Lower Impacts Than Bag in Box.



- **Franklin Assoc. Life Cycle Inventory says Bag in Box:**
  - Use 85% more energy.
  - Generate 3½ times more waste.
  - Generate 2 times more Greenhouse gasses.
- **WAL-MART Scorecard:** reclosable bag scores higher in 7 of 9 categories and average score increase over 47%.
- **Revenue--Bag in Box costs more to make**