Boreas Fridge

Red B
American families throw away 25% of their food, worth $2,275 per year.
The Boreas Fridge

kills microbes to keep food fresh
Key Features

- **Low Pressure/Humidity/O2**
  - Slow pathogen growth
  - Avocados last 2-3x longer

- **Air Ionizer**
  - Kill airborne bacteria and spores
  - Kill bacteria by 58%

- **Copper Handle**
  - Kill bacteria on contact
  - Reduce bacteria by 83%
Vacuum Compartment

Time to pump down?

Time to vent?

Safe to vent?

Disturb food?
Rapid Venting

Pressure Sensor

Vent Hole

Data Logger

Vacuum Chamber

Air Pump
Rapid Venting

Pressure Sensor

Vent Hole

1 min. to reach 0.1 atm vacuum

< 0.3 sec. to vent

Data Logger  Vacuum Chamber  Air Pump
Vacuum Release Handle

Intuitive and Fast
Food under Pressure

Food moved by venting air - requires air dispersion design

Some containers burst at ~200 mmHg
### Benchmarking

<table>
<thead>
<tr>
<th></th>
<th>Annual Energy Cost</th>
<th>Food Lifespan</th>
<th>Ease of Use</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Standard Refrigerator</strong></td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Vacuum Tupperware</strong></td>
<td>0</td>
<td>× 2-3</td>
<td>Manual</td>
</tr>
<tr>
<td><strong>Boreas Fridge</strong></td>
<td>6</td>
<td>× 2-3</td>
<td>Automatic</td>
</tr>
</tbody>
</table>