The Scientific Approach to Reducing Food Waste

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Why does the U.S. waste so much food? Two reasons.

1

Cultural norms

A culture of abundance,
and much less *mottainai*

2

Monetary incentives

Cheap food, cheap disposal,
and **today's topic**

30–40% of the U.S. food supply goes uneaten · $444 billion per year · food is 24% of U.S. landfill content

Sources: USDA; ReFED; EPA.

To know what works, we must become impartial investigators

- A **politician** spends political capital passing a food-waste ban.
  Can they publicly admit it if the policy fails?

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- That is why **expert peer review** comes *before* a study is treated as credible.

I have evaluated policies of both kinds

Public policy

1. Food-waste landfill bans
2. Expiration-date label rules

Market-based solutions

1. Dynamic pricing on perishables
2. Retailer learning

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Public policy

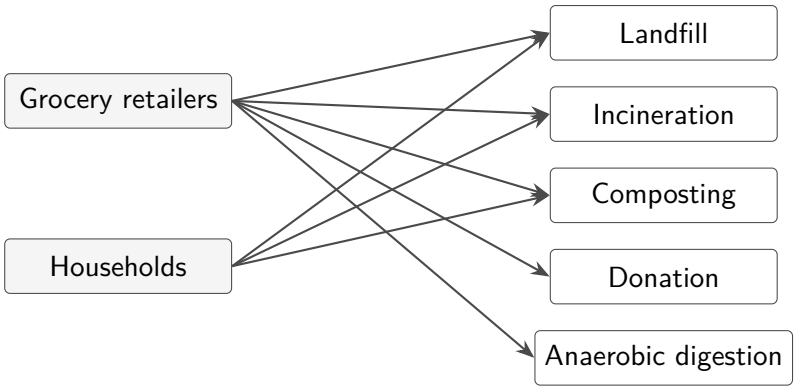
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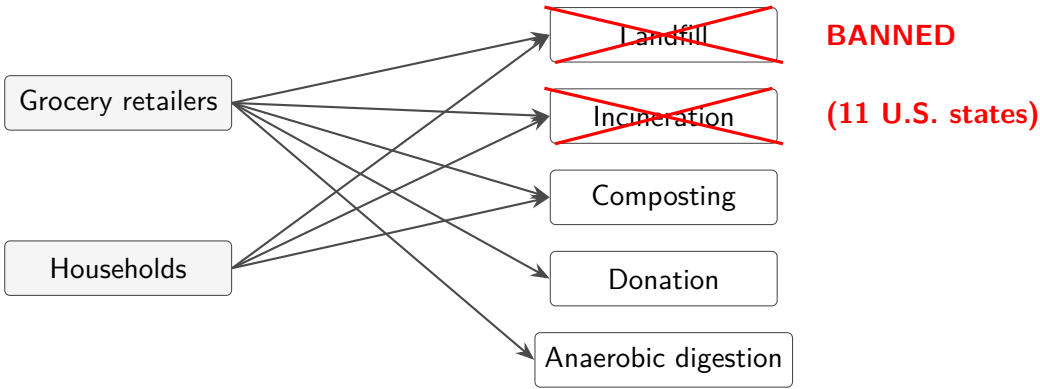
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Green = through peer review—today's focus

Food-waste bans block the cheapest destinations



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Two hoped-for effects: **waste less** (works like a tax)—and **divert** what remains.

Did the bans work? Largely, no.

Waste less?

No.

Retail waste is highly **inelastic**: disposal costs would need to rise **50**× to reduce it much.



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Dynamic Pricing and Organic Waste Bans: A Study of Grocery Retailers' Incentives to Reduce Food Waste

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Divert what remains?

No.

In **4 of 5** first ban states: no detectable diversion from landfills.



Science

Of the first five US states with food waste bans, Massachusetts alone has reduced landfill waste

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The exception: Massachusetts. Most enforcement, densest recycling infrastructure—easy to comply, costly not to.

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−21%
waste, immediately

+3%
retailer gross profit margin

+0.3%
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So why is it rare? UPC barcodes carry no expiration date—in the U.S. *and* Japan.

Unlike hotels or airlines, stores cannot see freshness-level inventory without auditing the shelf.





What I hope you take away

Waste bans

- can work—but only with careful design and commitment
- divert waste at best; they rarely reduce it

Dynamic pricing

- a triple win: profits, consumers, environment
- blocked by barcode technology—until ESLs meet expiration-date barcodes (∼2027)
- only time-dependent policies in the meantime

Thank you—ご清聴ありがとうございました

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