



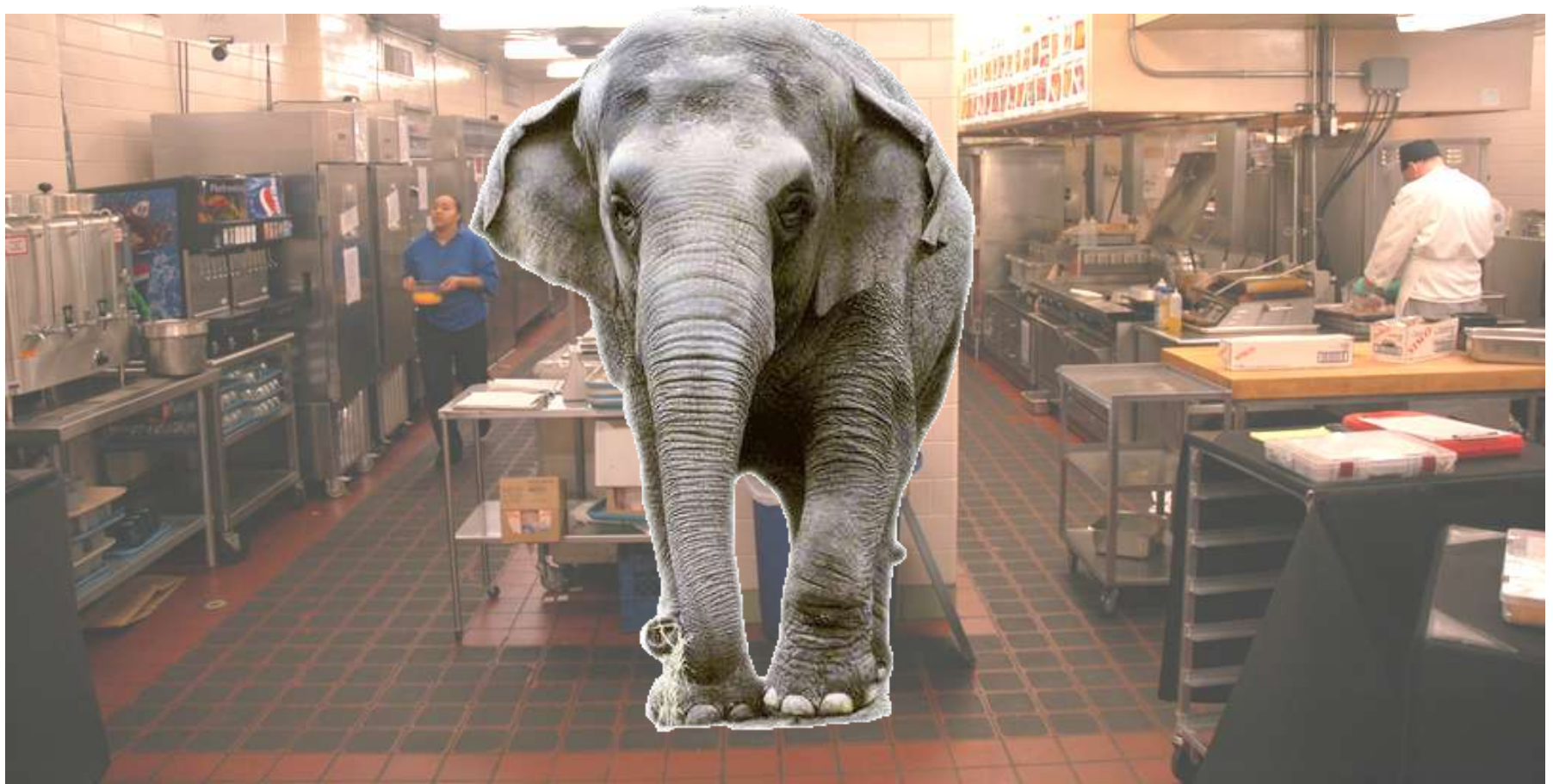
# ABC's of Food Waste Reduction & Diversion

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*Presented by:*  
**Andrew Shakman**  
Co-Founder & President,  
LeanPath, Inc.

**Contact:**  
**Phone:** (503) 620-6512 x100  
**E-mail:** [ashakman@leanpath.com](mailto:ashakman@leanpath.com)  
**Web:** [www.leanpath.com](http://www.leanpath.com)  
**Blog:** [blog.leanpath.com](http://blog.leanpath.com)







**Sustainability goals have led operators to learn a great deal about the food production system...**

**It's becoming  
necessary for  
operators to go  
through a similar  
learning curve on  
waste management...**



**Waste is no longer a facilities concern.  
The stakes are high.  
Operators must develop the expertise to make the best choices.**



# Learning Areas

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- Review Key Foodservice Waste Management Concepts/Foundations
- Review Best Practices for Food Waste Reduction & Diversion

# Why focus on waste?

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## *The Case For Waste Management*

Reduce  
Environmental  
Impacts

Reclaim  
Financial  
Resources

Engage Staff

# Why focus on waste?

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## *The Case For Waste Management*

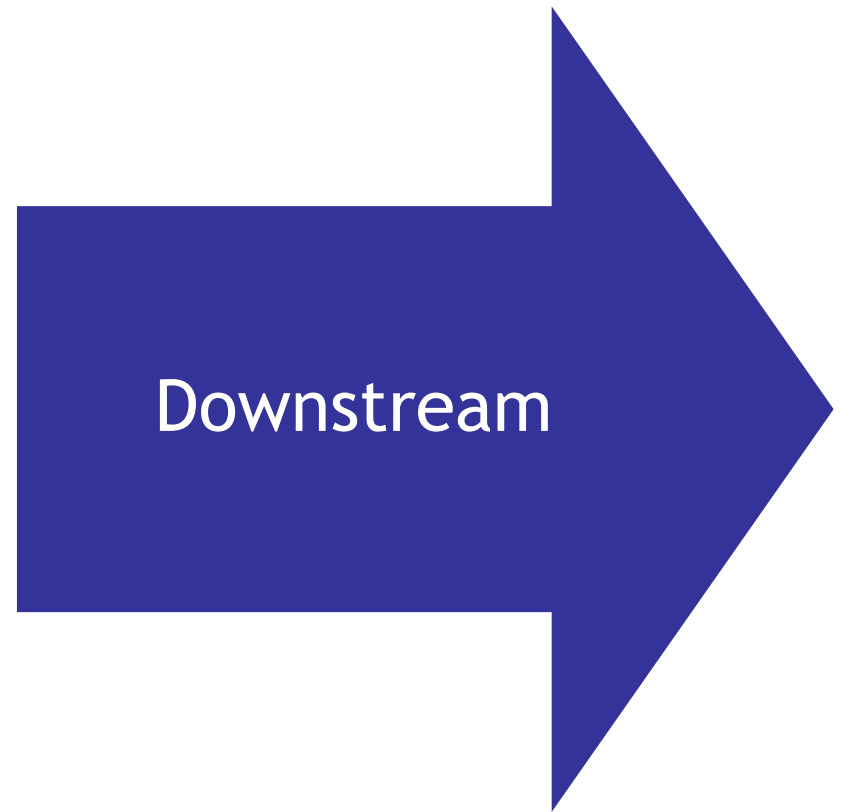
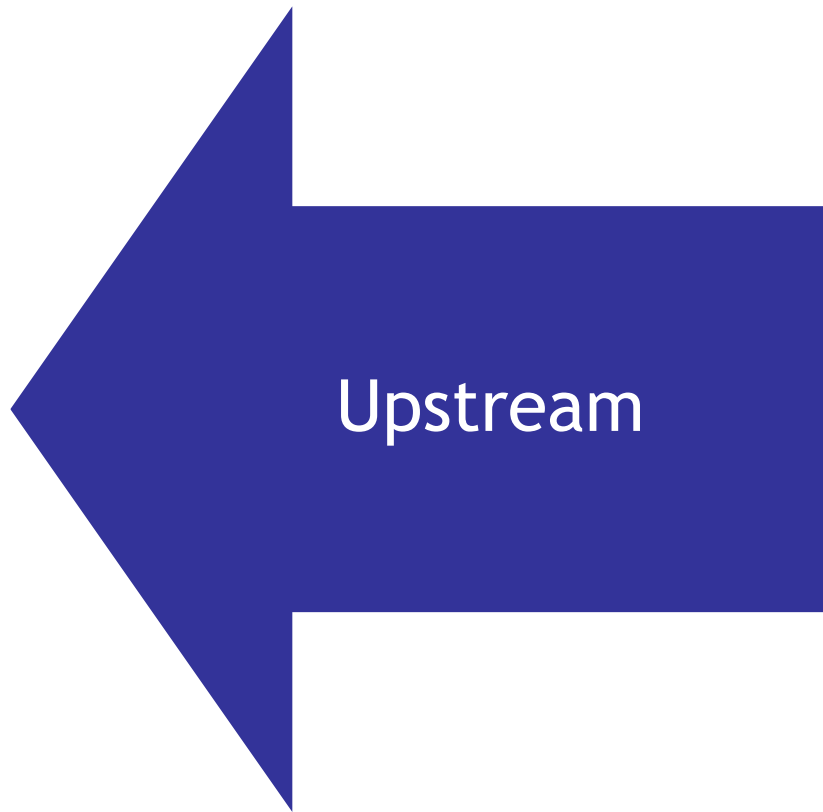
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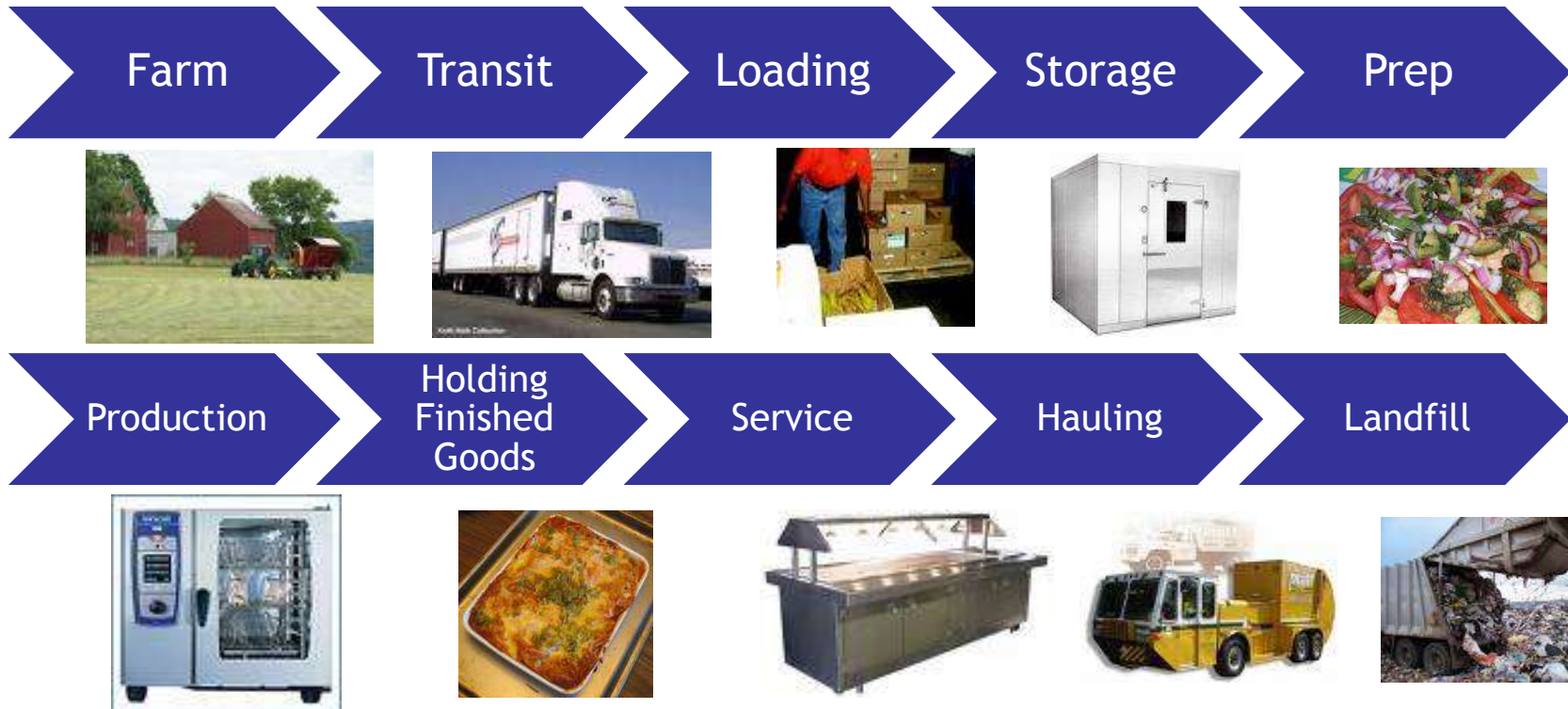
Engage Staff

# Environmental Impact

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# Upstream Impact - Food Waste



*Every item we throw away includes a large amount of invisible embedded energy and other resources*

# Downstream Impact – Food Waste

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- The decomposition of food in landfills produces methane, a green-house gas 20+ times more potent than Carbon Dioxide.
- Landfills are the largest human-related source of methane in the US, accounting for 34% of all methane emissions.



# Why focus on waste?

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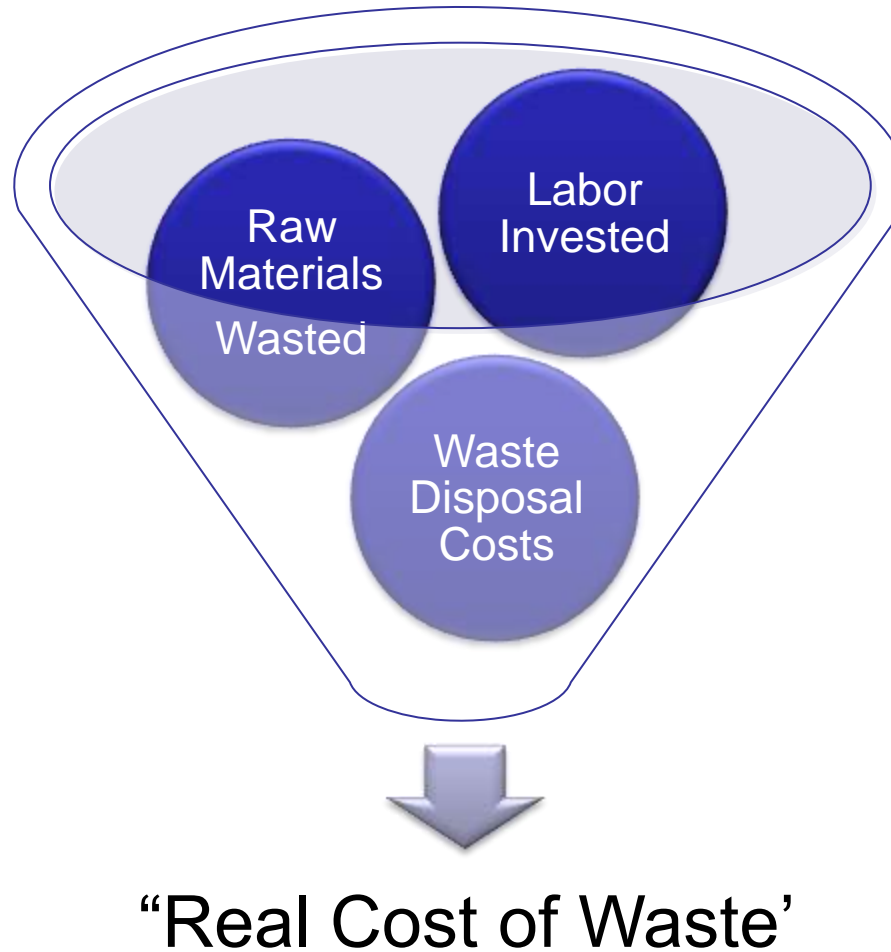
## *The Case For Waste Management*

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# The Real Cost of Waste

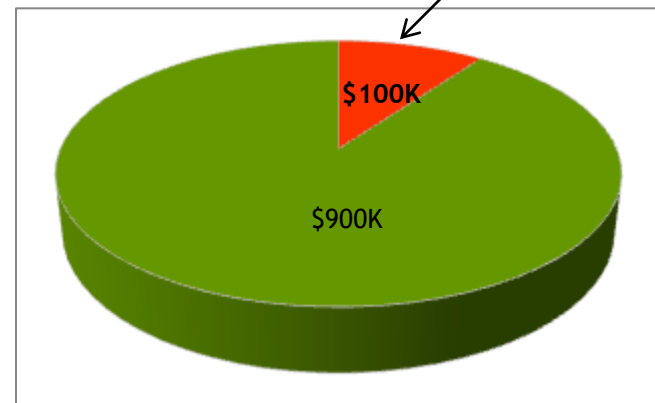


# Raw Material Cost Savings – Food Example



Food waste generated by the operator (“pre-consumer waste”) represents 4-10% of the food purchased in volume foodservice

Up to \$100K in Food Waste!



Example: \$1.0M Food Purchases

# Why focus on waste?

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## *The Case For Waste Management*

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# Waste Definitions

# Two Types of Food Waste

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Pre-Consumer  
Food Waste  
(aka "Kitchen Waste")

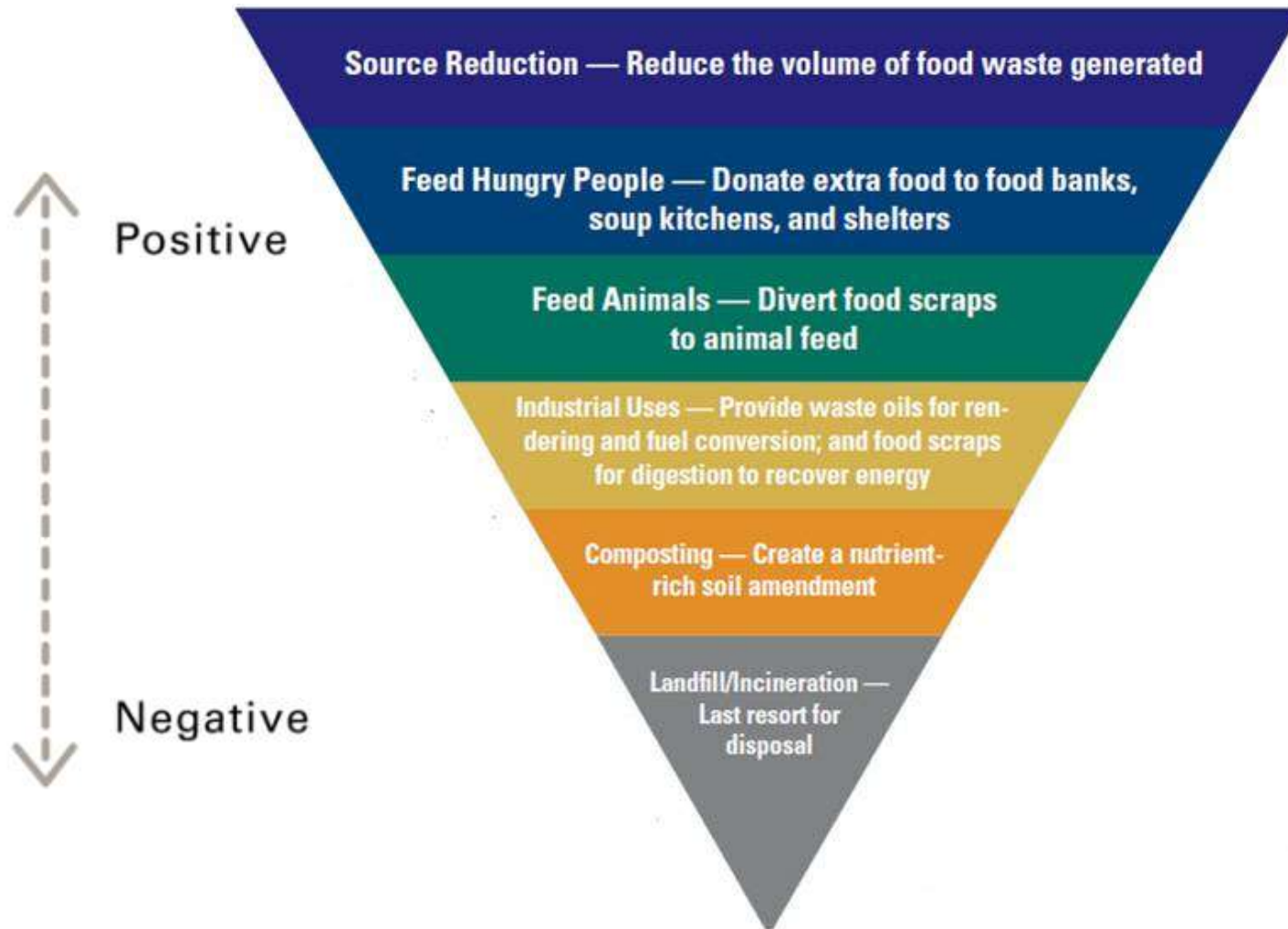
Post-Consumer  
Food Waste  
(aka "Plate Waste")



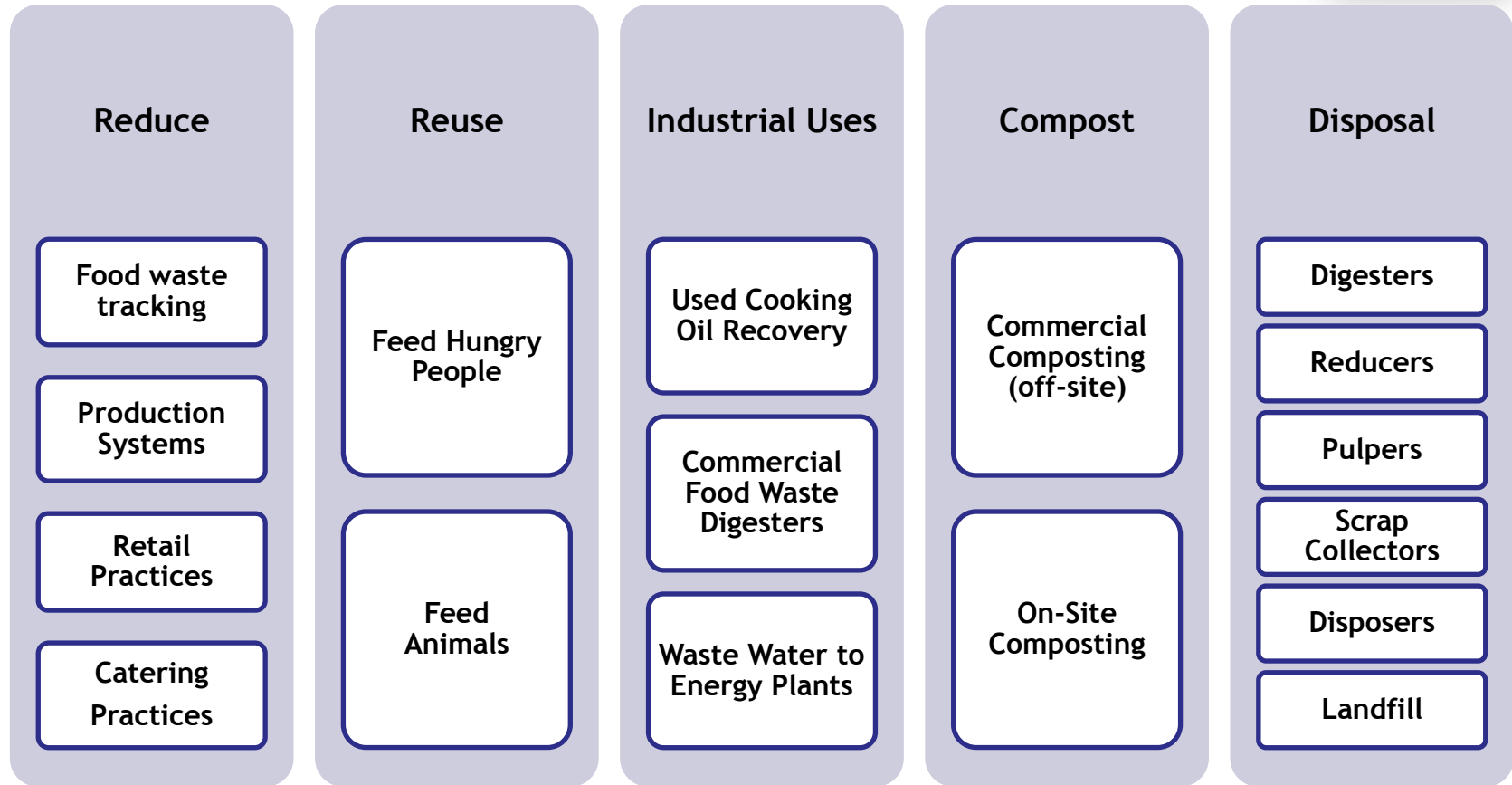
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# Best Management Practices: Food Waste

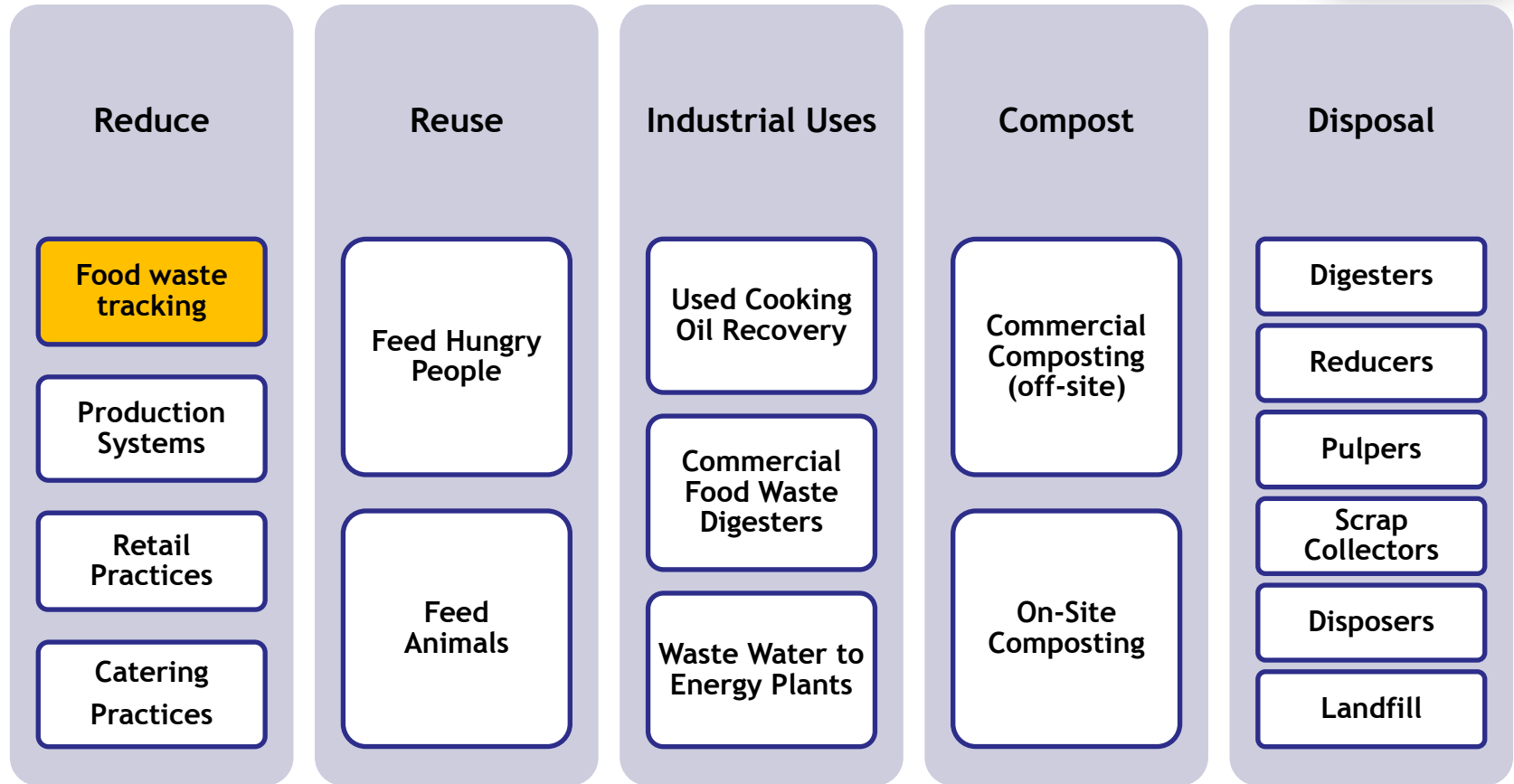
# EPA Food Waste Recovery Hierarchy



# BMP's: Food Waste



# BMP's: Food Waste

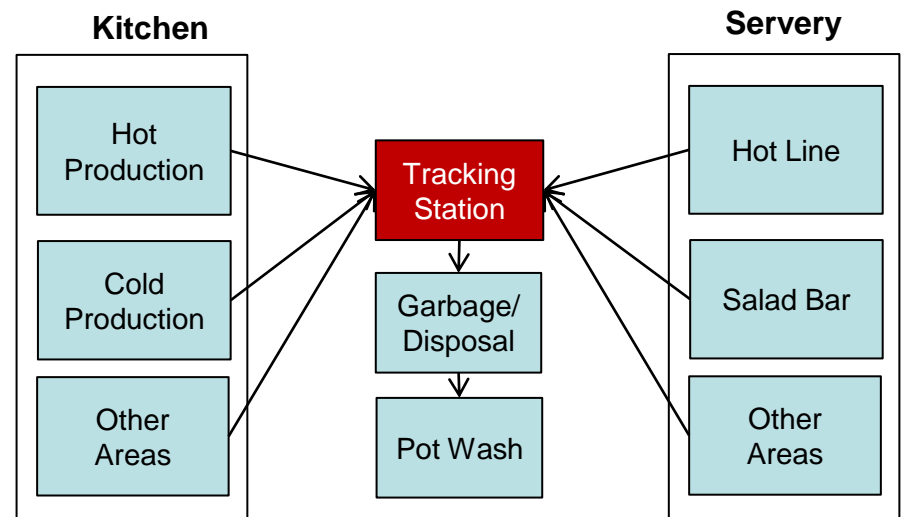


# Reduction: Food Waste Tracking



*What happens when we receive our electric or gas bill at home?*

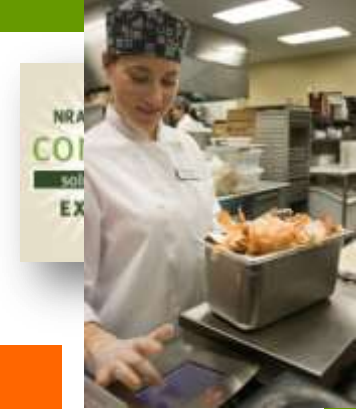
- Food waste tracking is a key step toward food waste reduction
- Establish baselines, benchmark and monitor progress



# Automated Tracking



# Waste Recording: Step 1

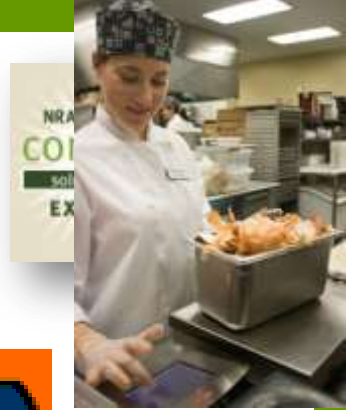


10.0 lb. set zero

Jun 19, 2009 11:47:15 AM

START COMIENZO

A/V Settings Control Panel View/Change Paper Tracking



# Waste Recording: Step 3

4.8 lb. set zero

Vangie C

Select Food

Select Reason

Select Container

X

Bakery

Beef - Grnd

Beef - Whl

Casserole

Chix

Chix-w/Bone

Compound Salad

Weekly Soup

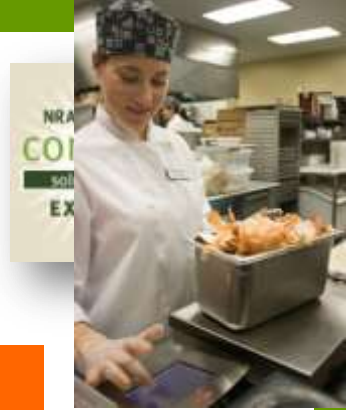
Daily Soup

Dairy

Deli Meat

More

# Waste Recording: Step 7



**10.0 lb.** [set zero](#) **Christopher M** [Change User](#)

Jun 19, 2009 12:09:36 PM

[Weigh More](#) [Done](#)

**Value of Last Recorded Item: \$42.81**

[A/V Settings](#) [Control Panel](#) [View/Change](#) [Paper Tracking](#)

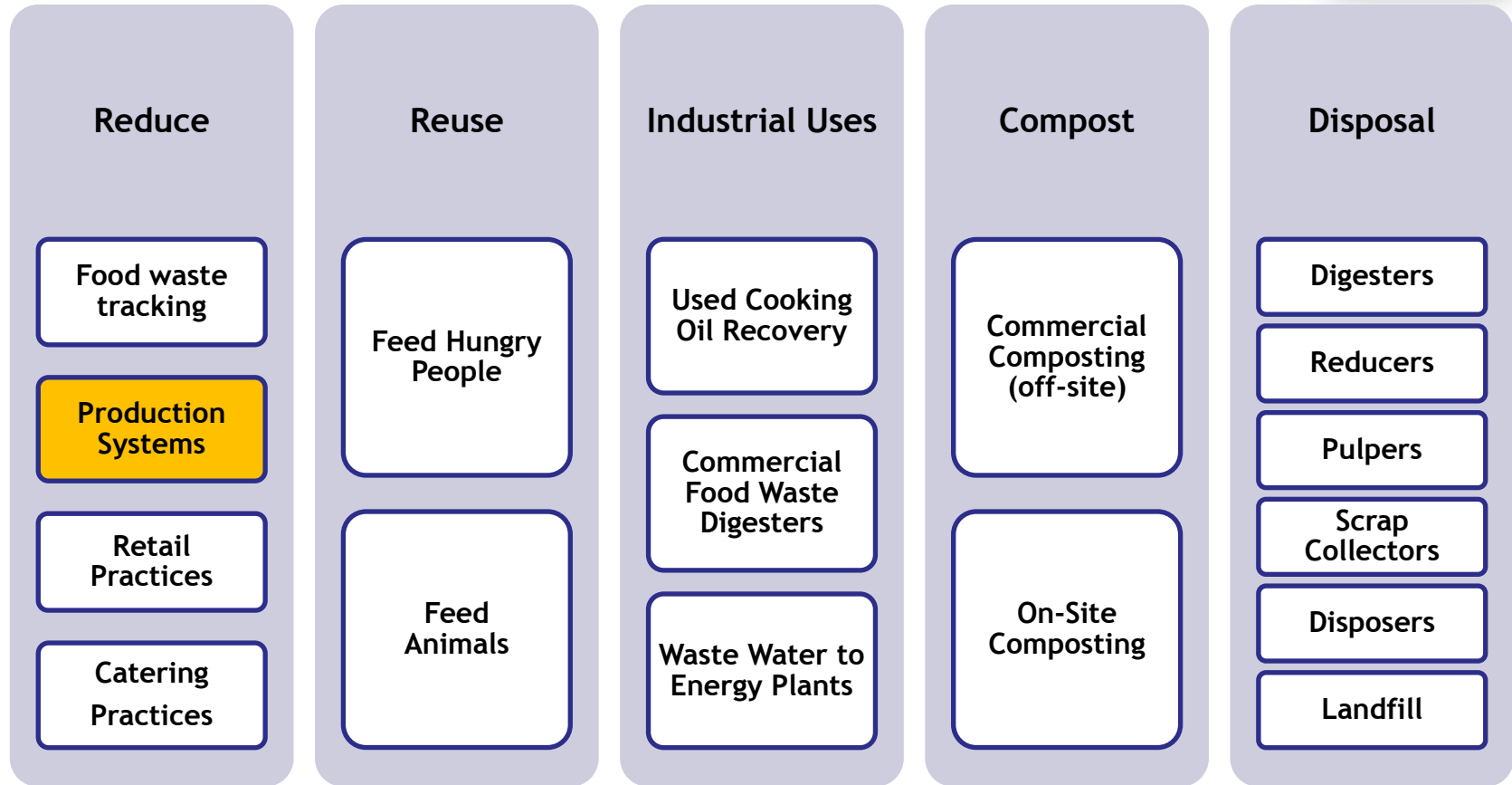
# When to Track Food Waste

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- All pre-consumer food waste should be tracked daily
- Post-consumer food waste should be tracked periodically, in aggregate.
  - Monthly or quarterly assessments work well in most operations.

# BMP's: Food Waste



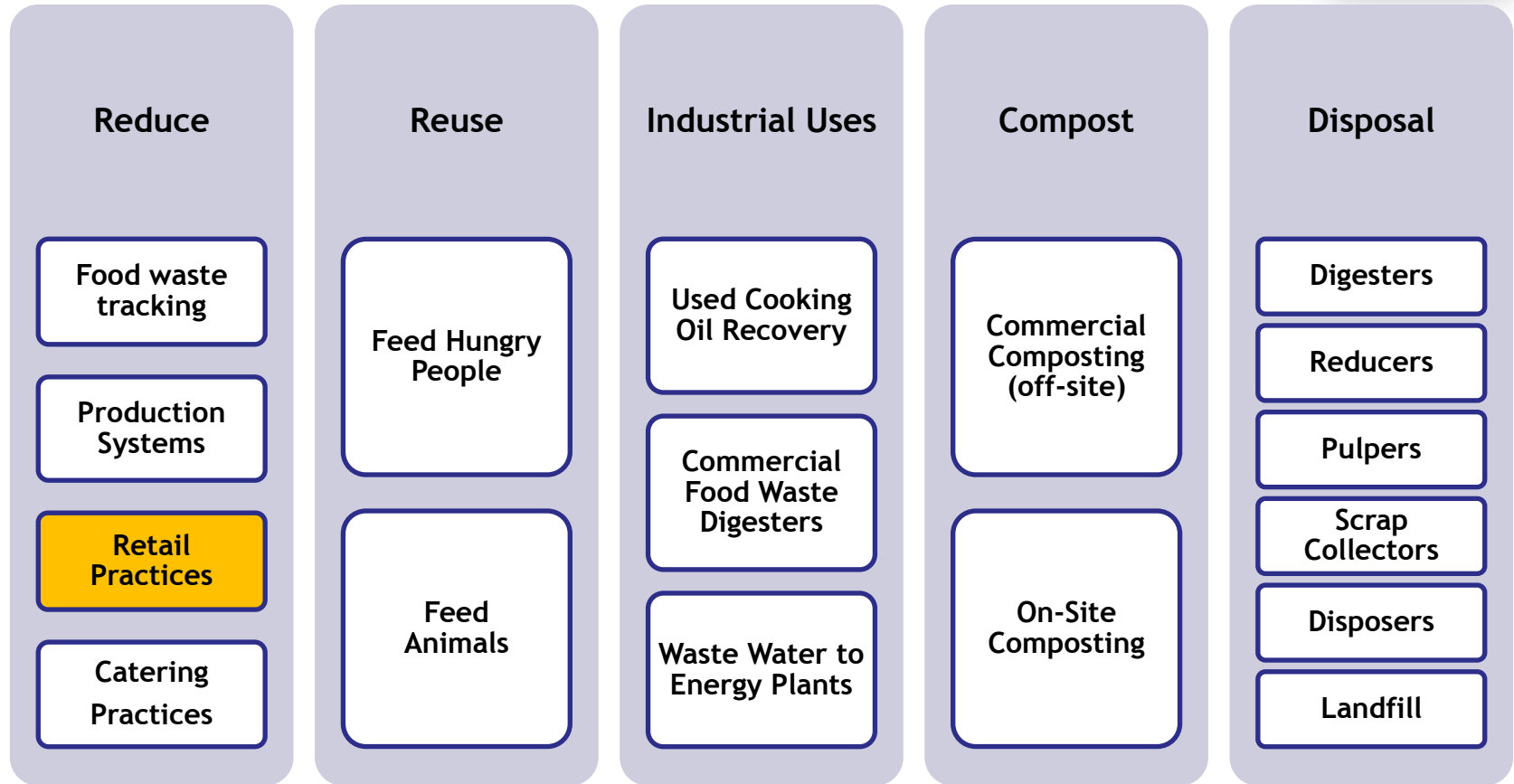
# Source Reduction: Production Systems



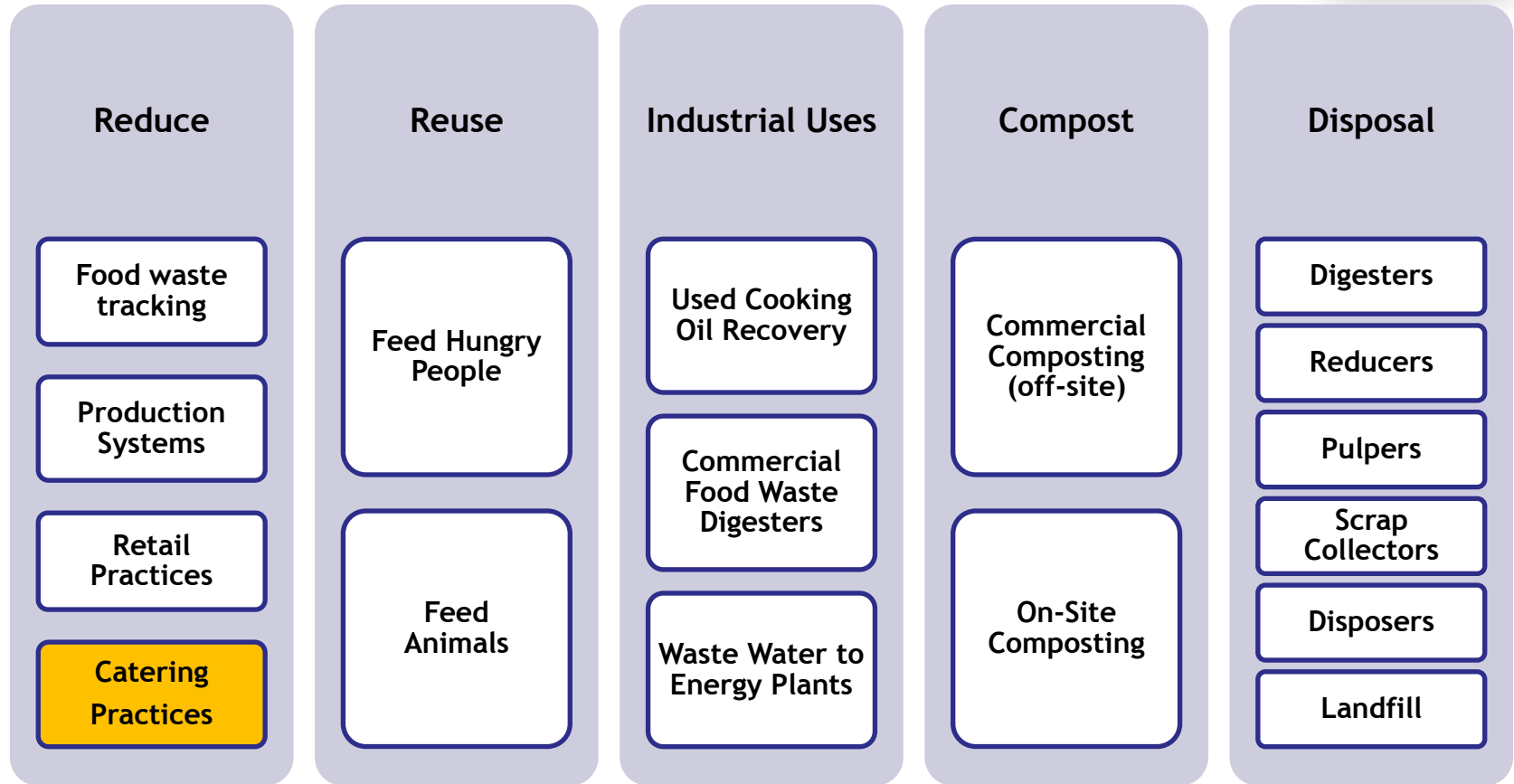
- Production systems are critical to successful forecasting, purchasing, inventory management, recipes, menus and production.
- They focus on production management data rather than the culture of the operation, so do not replace the need for food waste tracking.



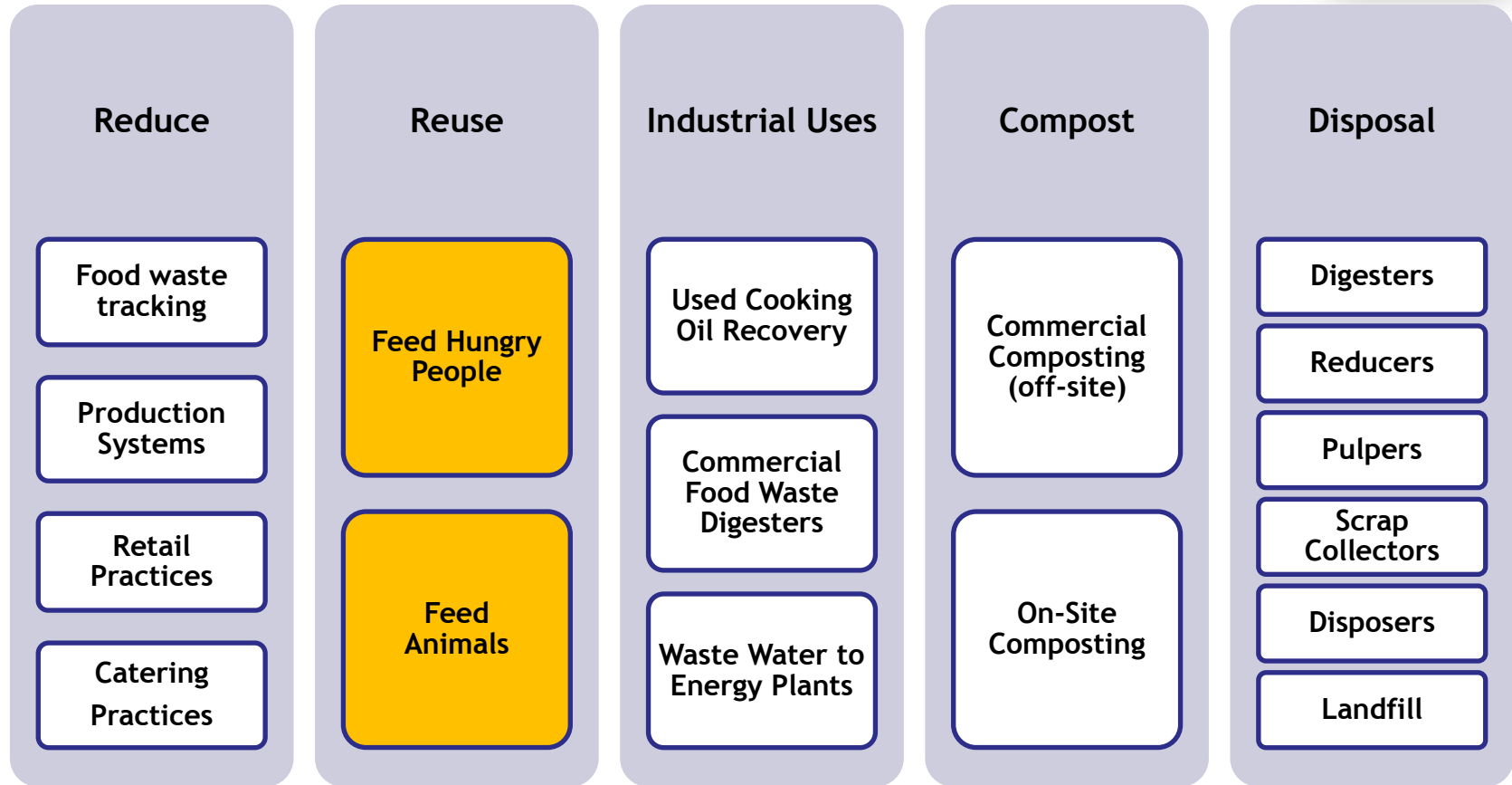
# BMP's: Food Waste



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# BMP's: Food Waste



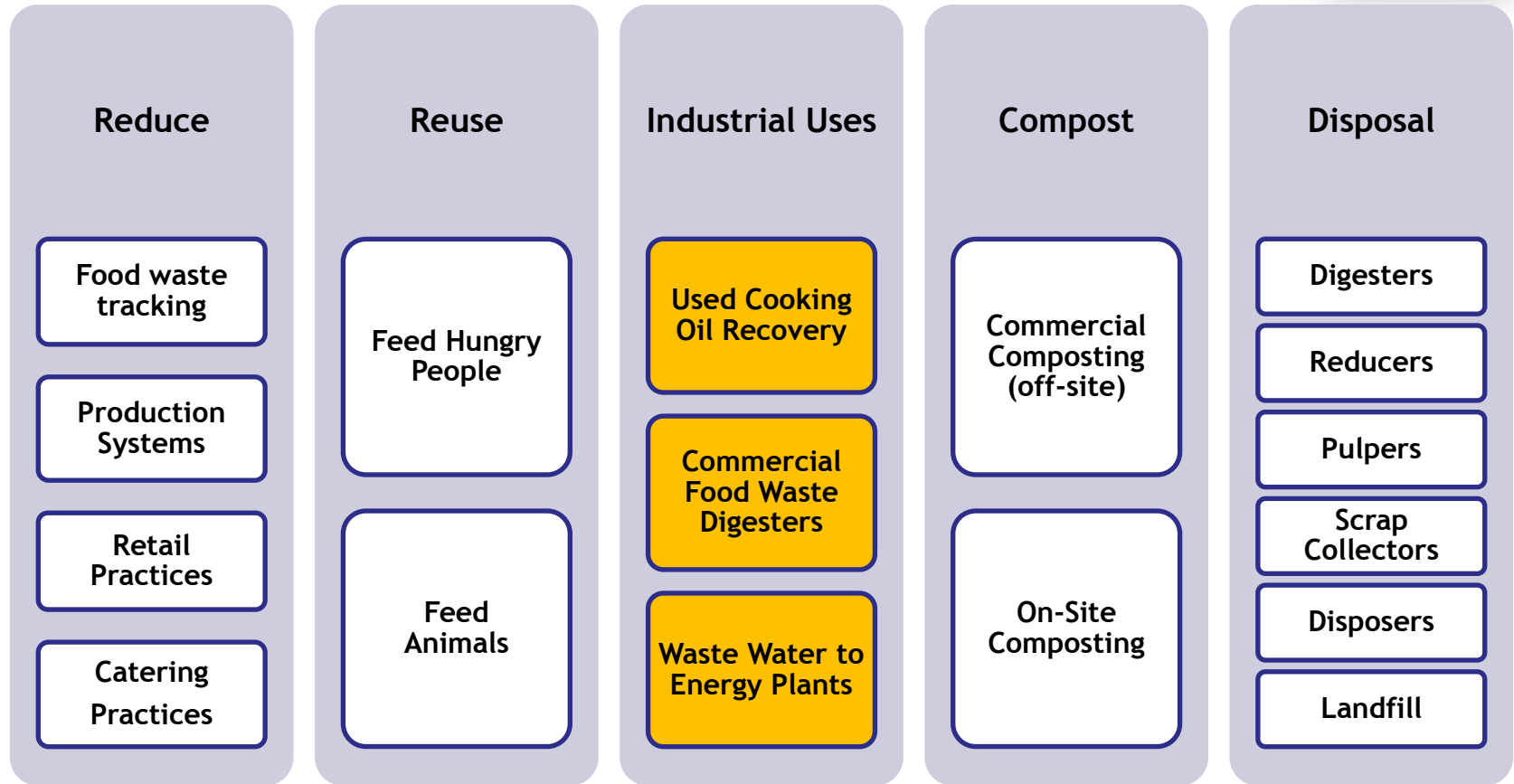
# Reuse: Food Recovery



- Feed People
  - Re-use review policy
  - Food Donation Connection
    - [www.foodtodonate.com](http://www.foodtodonate.com)
- Feed Animals
  - Farms may be a viable option



# BMP's: Food Waste



# Industrial Uses: Used Cooking Oil



- Provide used Cooking Oil (UCO) to a biofuel refiner
- Process UCO on-site (e.g. Vegawatt)



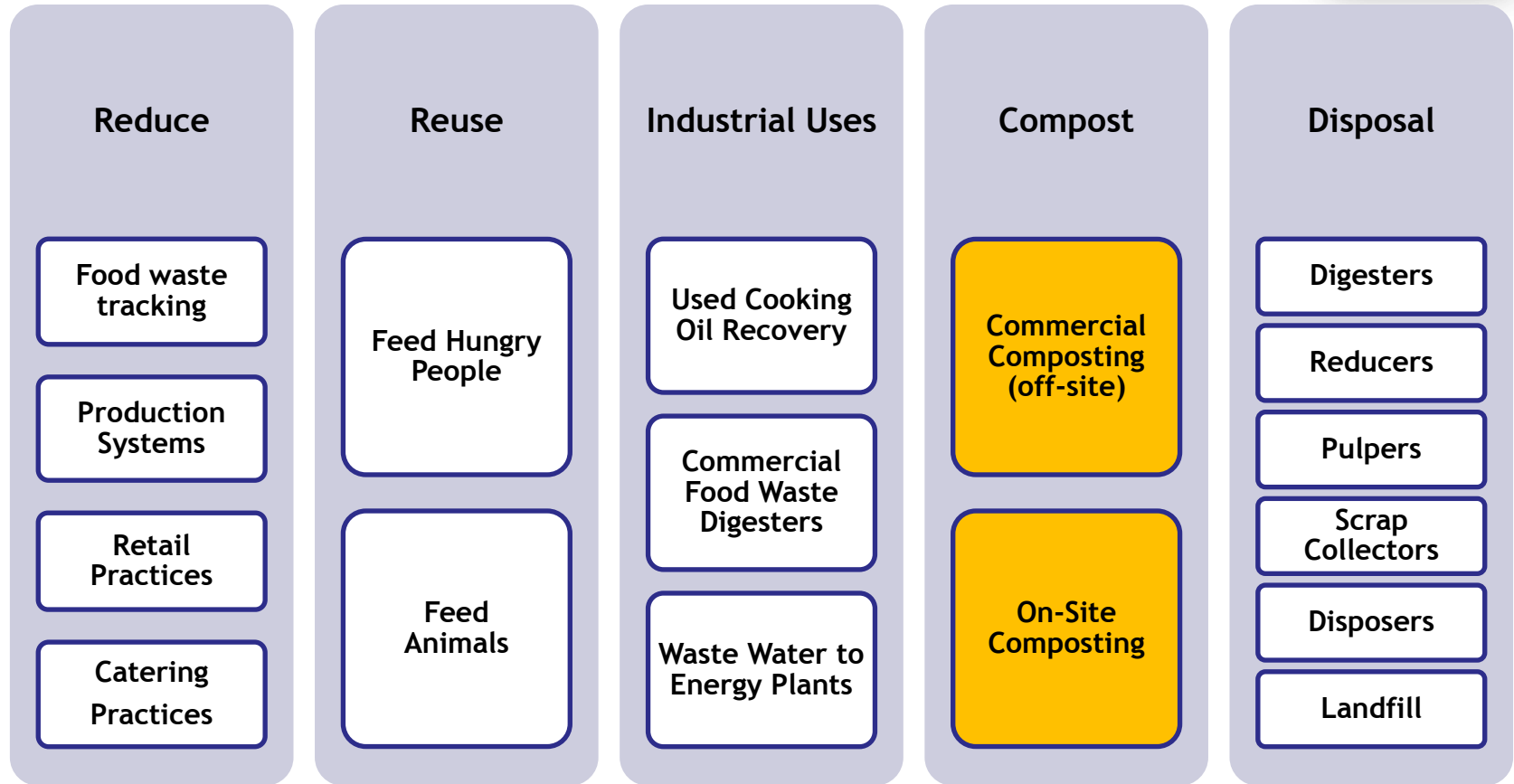
# Industrial Uses: Food Waste to Energy



- Partner with a commercial biogas digester
- Run waste through a garbage disposer and transport via municipal sewage system for energy extraction at a waste water treatment plant (WWTP)



# BMP's: Food Waste



# Food Waste Composting: On-Site



- Options
  - In-vessel
  - Windrow
  - Vermiculture
- Requires
  - Appropriate space
  - Consistent labor
  - Technical skill
  - Compost user(s)



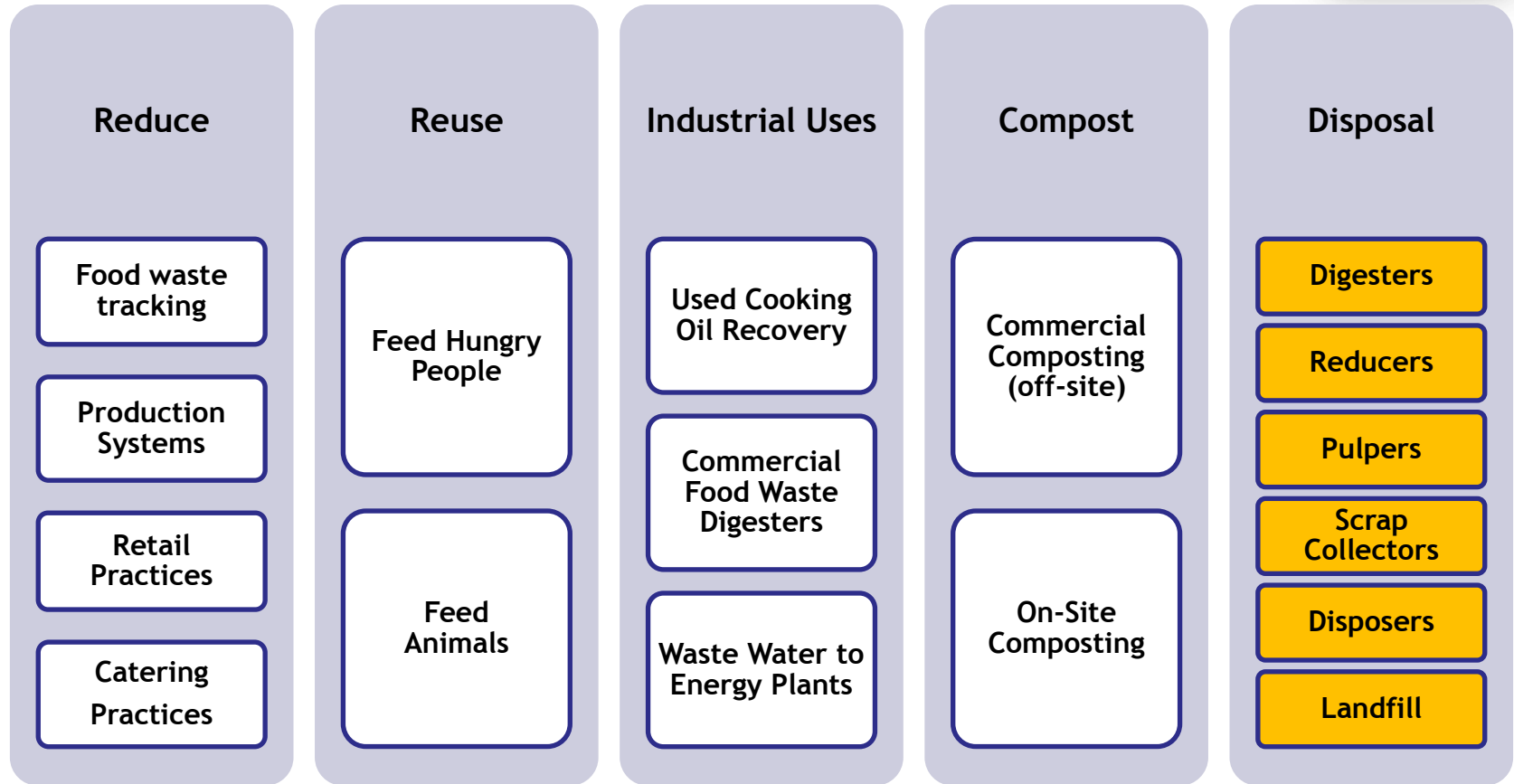
# Food Waste Composting: Off-Site



- Commercial food waste composting offers scale, expertise, and distribution
- Not available everywhere
- Collective effort will support industry development



# BMP's: Food Waste



# On-Site Digester

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- On-site digester
  - Aerobic
  - No energy production



# On-Site Reducer

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- Reduce volume
- Create a soil amendment (not compost)



# On-Site Pulpers, Scrap Collectors



- Pulpers
  - Macerate
  - Dewater
  - Configurable
    - Close-coupled
    - Remote
- Scrap Collectors
  - Capture non water-solubles
- Reduce transportation Impacts
- Reduce waste volumes by removing water
- Lower disposal costs



# Garbage Disposers

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- Use the municipal waste water system to transport food waste
- Food waste is approximately 70% water
- Reduces emissions from transportation
- Acceptance varies by region
  - Amount of organic load on current plant(s)
  - Regional/local regulations on garbage disposers
- Residual bio-solids may be used as fertilizers

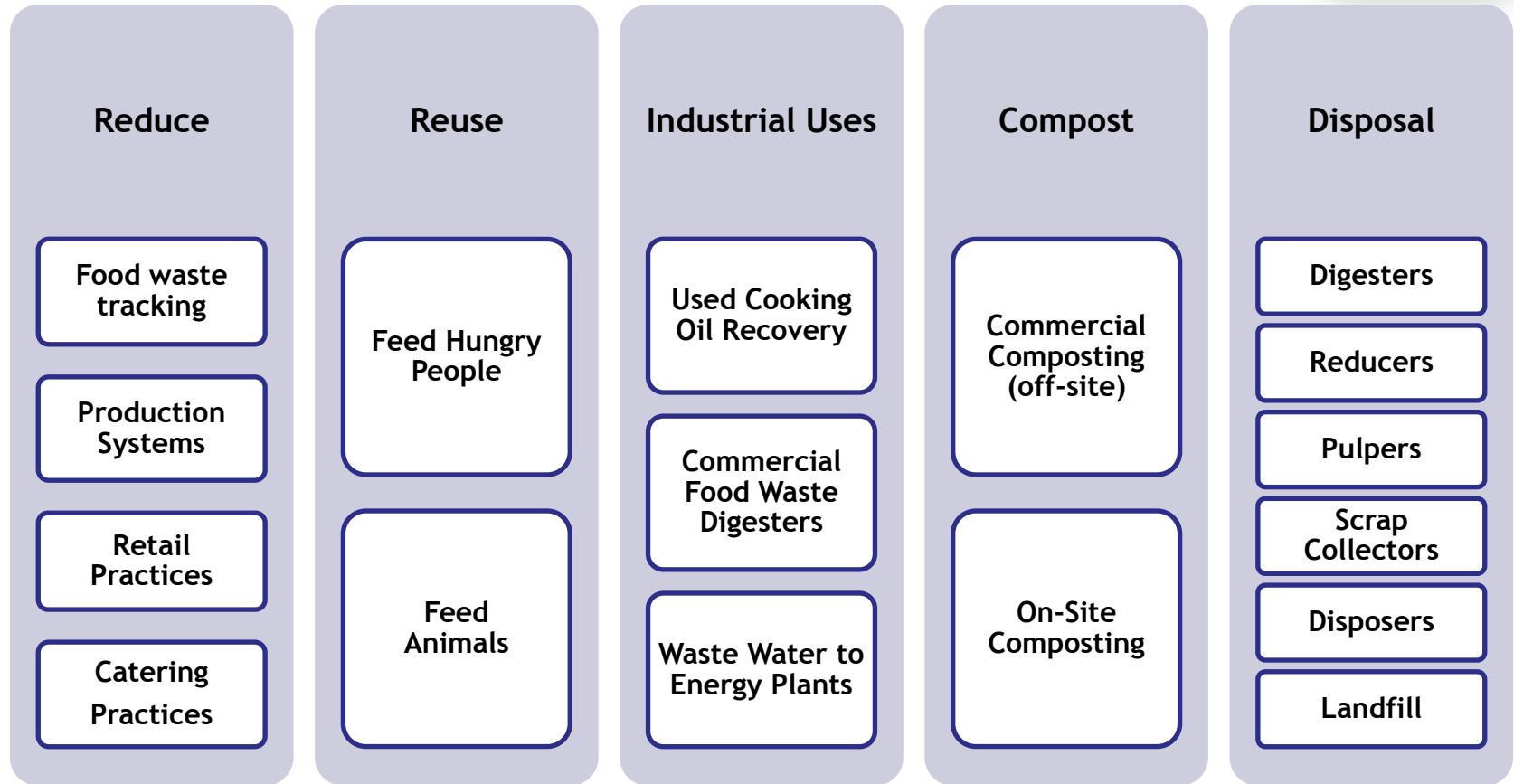
# Landfill

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- The final option
- Not a good one!
  - Environmental impact from hauling
  - Landfill methane emissions
  - Leachate
  - Lost land and utility

# BMP's: Food Waste





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# **Food Waste Focus**

**[blog.leanpath.com](http://blog.leanpath.com)**



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# Notes

[leanpath.com/notes](http://leanpath.com/notes)



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## Q&A

**Andrew Shakman**  
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**Contact:**

**Phone:** (503) 620-6512 x100

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