Pollution Prevention Institute

# Alternatives to Landfilling Food Waste

MORA 2018 Conference

Barbara Goode, P.E.

Kansas State University

# Who is PPI?

**Kansas State University**

College of Engineering

Engineering Extension

**Pollution Prevention Institute**

Small Business Environmental Assistance Program

# Overview

- Intro to food loss and waste
- EPA food recovery hierarchy
- K-State PPI food recovery projects

# Food production/food loss and waste information

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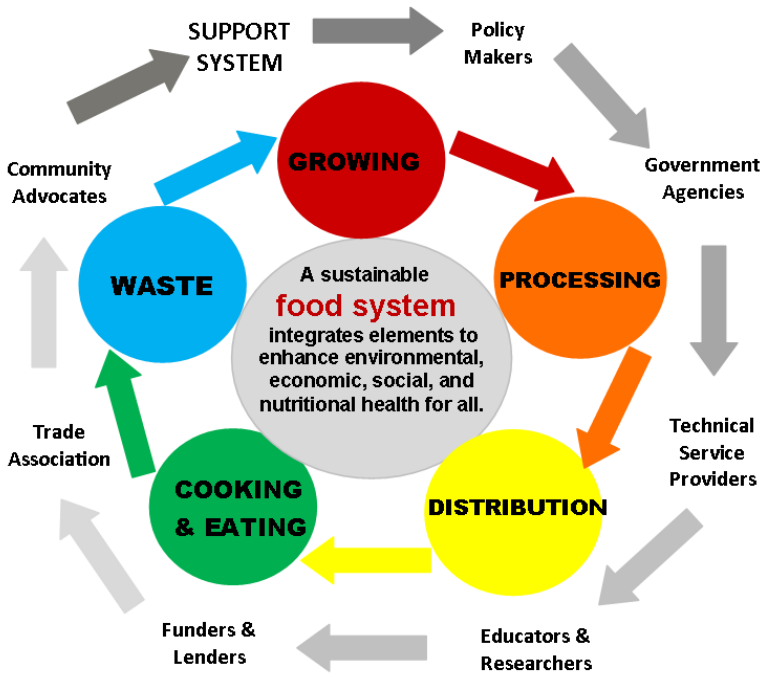
# Food production and resource use

- Food and agriculture consume
  - 16% of U.S. **energy**,
  - 50% of U.S. **land**, and
  - 67% of all **freshwater** used in the U.S.




Yet, 40% of food goes uneaten!

Source: NRDC, WASTED: HOW AMERICA IS LOSING UP TO 40 PERCENT OF ITS FOOD FROM FARM TO FORK TO LANDFILL, 2017 www.nrdc.org

MORE THAN JUST FOOD

# THE U.S. WASTES TONS OF RESOURCES WHEN WE WASTE FOOD

**1,250** CALORIES PER PERSON PER DAY
THAT IS HALF OF THE RECOMMENDED DAILY INTAKE FOR ADULTS

**19%** OF ALL U.S. CROPLANDS
THAT IS MORE LAND THAN ALL OF NEW MEXICO

**21%** OF U.S. LANDFILL CONTENT

THE NO. 1 CONTRIBUTOR BY WEIGHT

**18%** OF ALL FARMING FERTILIZER
WHICH CONTAINS 3.9 BILLION POUNDS OF NUTRIENTS

**$218,000,000,000**
WHICH IS EQUAL TO 1.3% OF THE U.S. GROSS DOMESTIC PRODUCT (GDP)

**2.6%** OF ALL U.S. GREENHOUSE GAS EMISSIONS ANUALLY

37 MILLION PASSENGER VEHICLES' WORTH

**21%** OF THE U.S. AGRICULTURAL WATER USAGE

MORE THAN: TEXAS + CALIFORNIA + OHIO

Source: NRDC, WASTED: HOW AMERICA IS LOSING UP TO 40 PERCENT OF ITS FOOD FROM FARM TO FORK TO LANDFILL, 2017
www.nrdc.org

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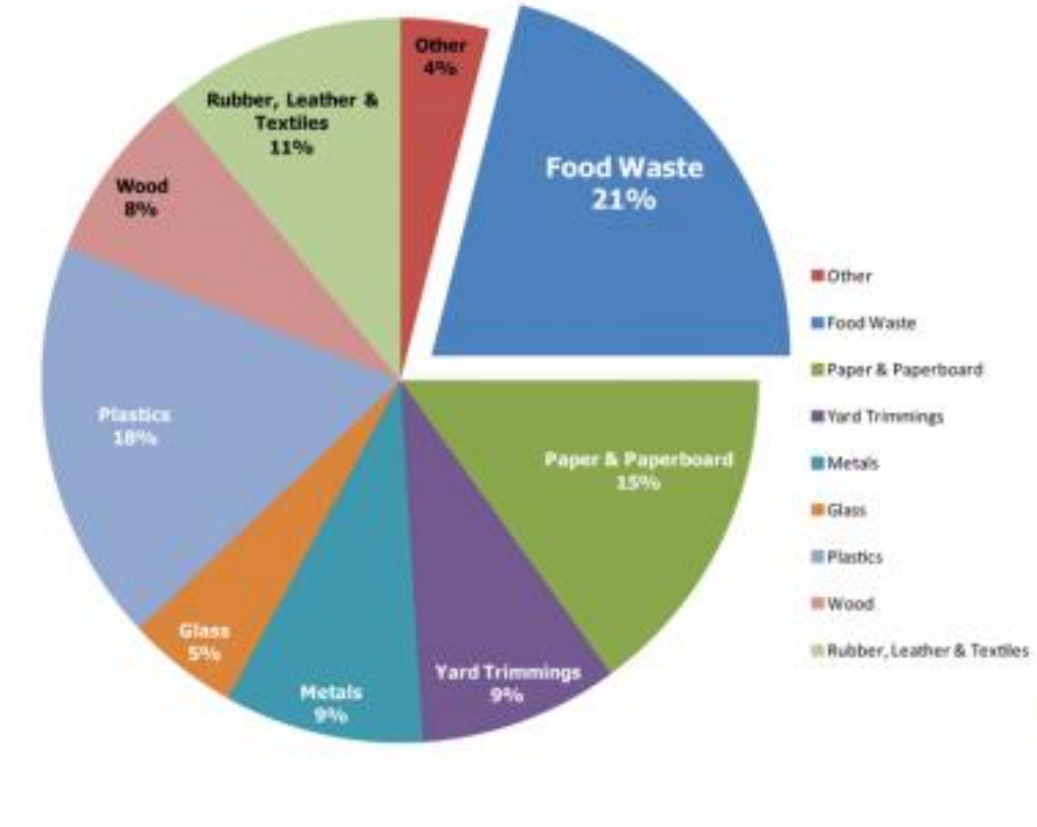
# Food accounts for 21% of the American waste stream



Source: EPA Food: Too Good to Waste Implementation Guide and Toolkit

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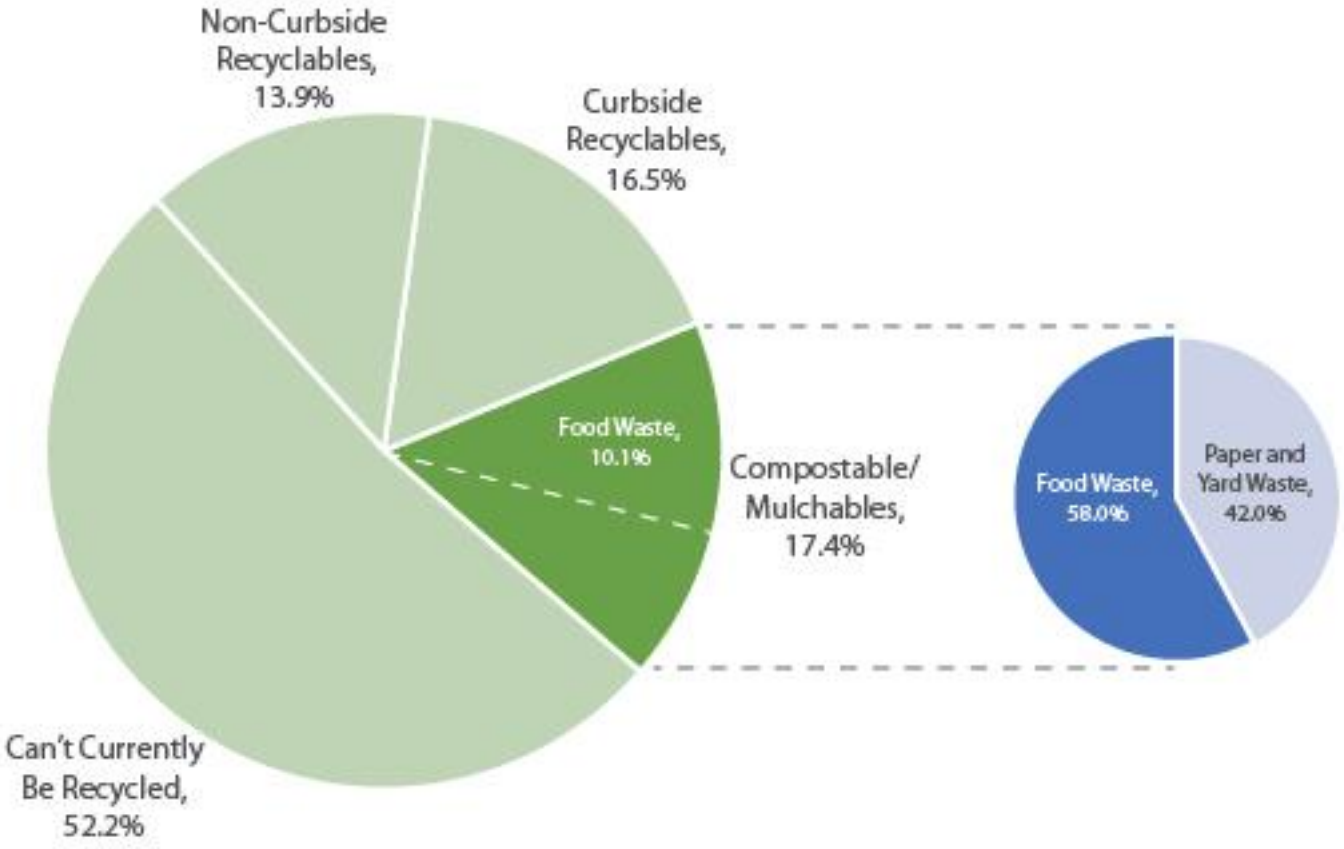
# What's going into Missouri landfills?

Missouri produced more than 5.7 million tons of waste that went to landfills in 2016. Of that, nearly half could have been recycled or composted, according to a recent Missouri Department of Natural Resources study. The most prevalent material found was food waste.




Source: Missouri Department of Natural Resources / Infographic by Huiqi Xu

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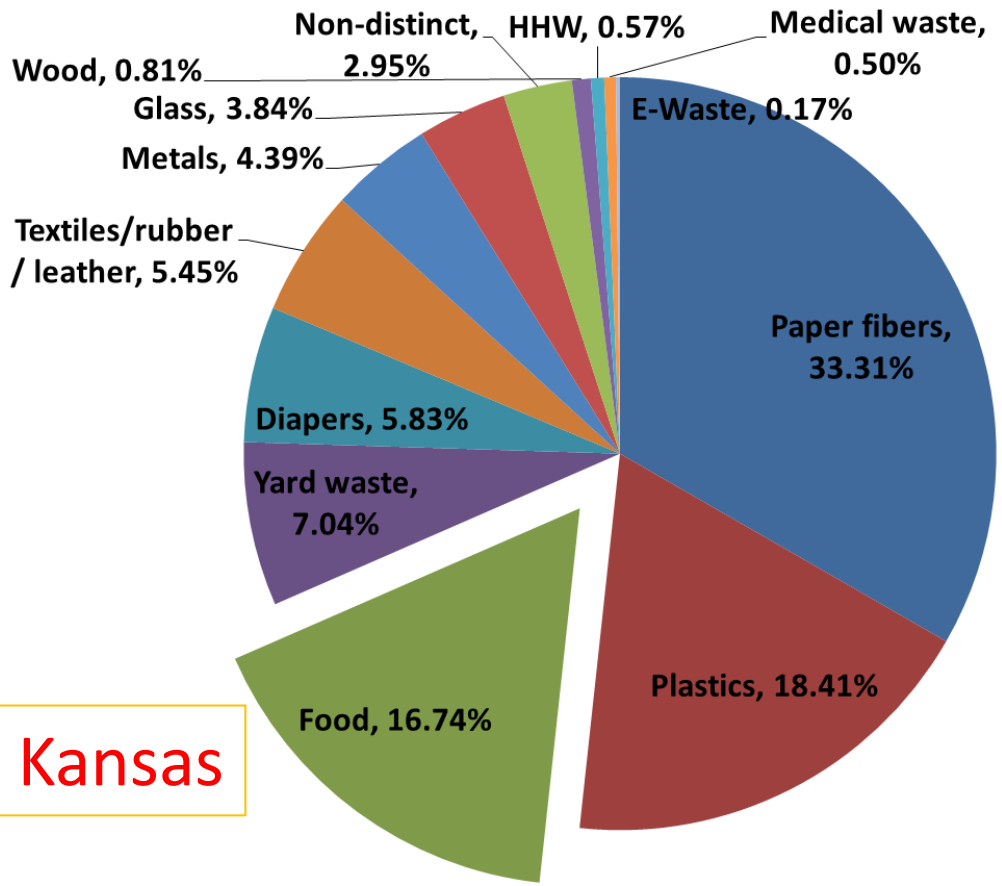
# Kansas MSW composition - 2012




17 % in Kansas

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# U.S. Annual Household Food Waste

76 billion pounds =

238 pounds food/person =

$450/person =

$1,800/yr for a household of four

Bill Marsh and Kari Haskell/The New York Times; Photograph by Tony Cenicola/The New York Times

One month waste for family of 4

Source: ReFED *A Roadmap to Reduce US Food Waste by 20 Percent*, (2016) www.refed.com.

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# EPA Food Recovery Hierarchy

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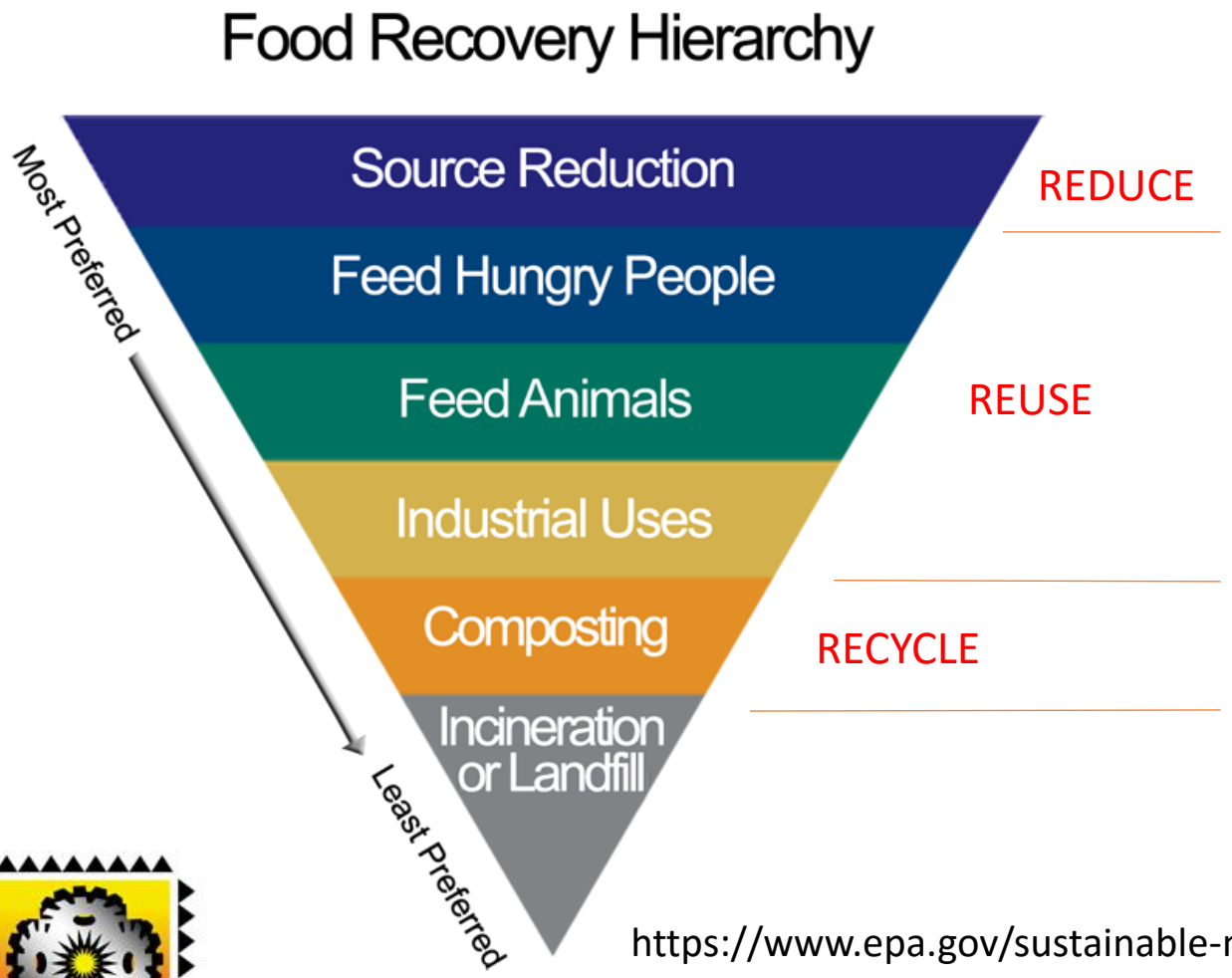
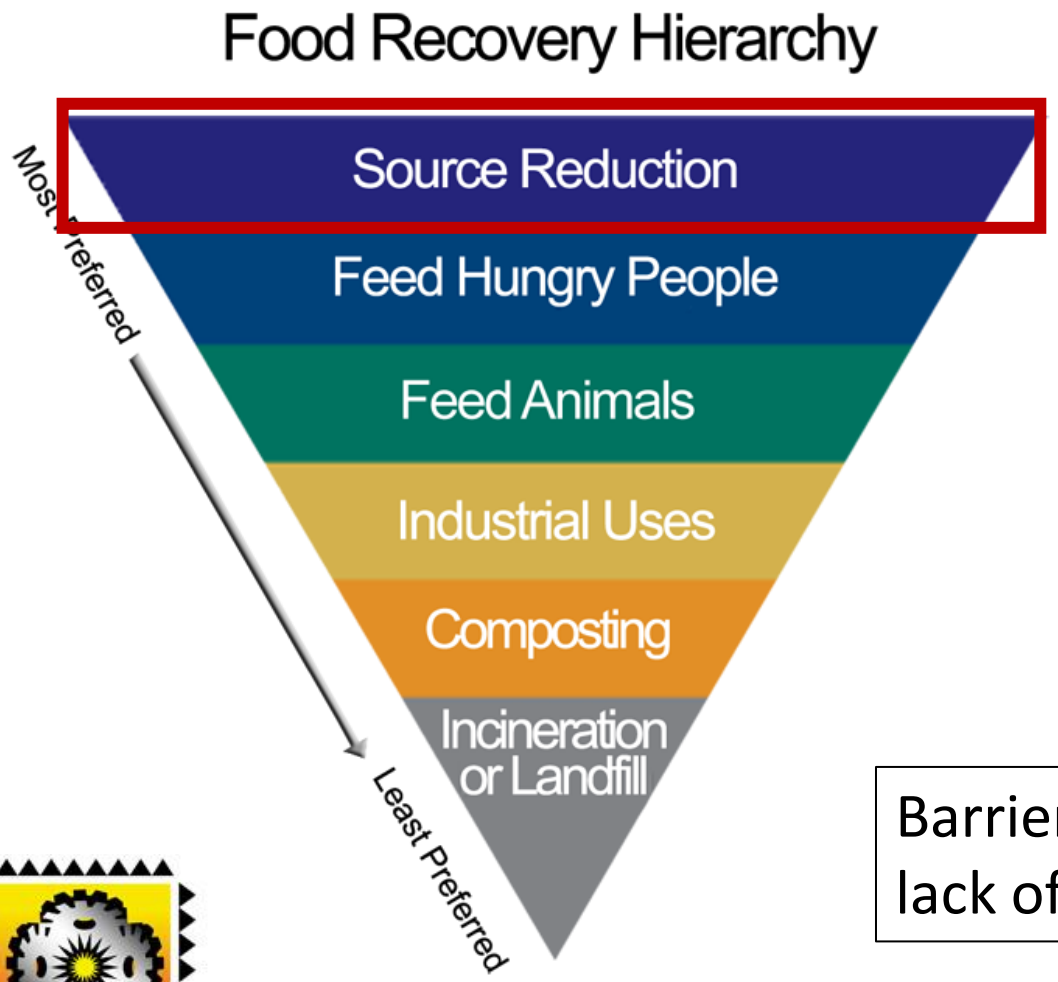
# Food waste reduction opportunities




In 2015 – USDA and EPA joint goal to reduce food waste by 50 percent by 2030

https://www.epa.gov/sustainable-management-food/food-recovery-hierarchy

# Source Reduction




- Food waste baseline assessment
  - Estimate amount and types of food wasted
    - Determine what portion was edible
  - Identify root causes for food waste
  - Set reduction goals (esp. for meat/dairy)
  - Adopt best practices

Barrier to preventing wasted food is lack of standardized food date labels

# Tools to track food waste

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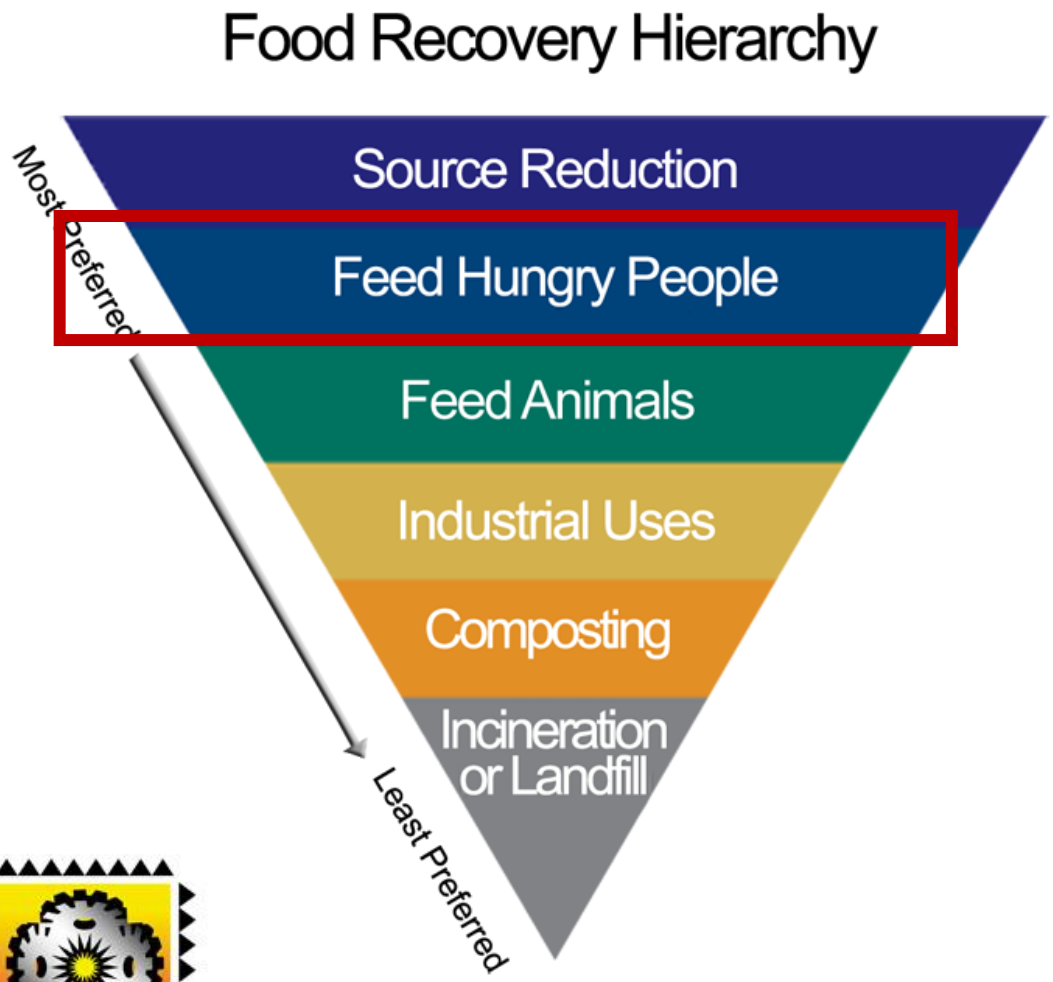
# Feed Hungry People




Up to 40% food in US is never eaten

1 in 8 Americans (42 million) struggles to put enough food on the table

- Donate surplus food to—
  - Food banks
  - Shelters
  - Soup kitchens
- Barriers
  - Transportation
  - “Liability”

# Good Samaritan Food Donation Act

PUBLIC HEALTH LAW CENTER

## Food Donation Liability in Kansas

*A Guide for Donors and Distributors*

Many families in the United States, and in Kansas, struggle with h
nutritious food (this is known as "food insecurity"). In Kansas, it is
Kansans representing 183,000 households, or almost one out of every
at least once in 2013.[1] Meanwhile, studies show that each year, m
food,[2] or forty percent of food goes uneaten in the United States.[3] I
in need diverts unused food from landfills[4] and assists in reducing h

The purpose of this fact sheet is to explain the laws governing food donation in Kansas. Readers are encouraged to use this document in tandem with another Public Health Law Center resource on the national food donation law, *Liability Protection for Food Donation*, for additional information about the federal food donation law.

### Why don't more people donate food?

Potential food donors may be reluctant to donate unused food to the needy for a variety of reasons. Some may fear liability for an illness or injury caused by someone eating the donated food[5] or

Kansas Health Foundation

This fact sheet is funded by the Kansas Health Foundation to increase access to and consumption of healthy food in Kansas.

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## The Legal Guide to the Bill Emerson Good Samaritan Food Donation Act

By James Haley · August 8, 2013 · 2013 Ark. L. Notes 1448
In categories: Administrative Law, Agricultural Law, Environmental Law, Extended Article, Food Law, Health Law, Practice Tips, Students

¶1 James Haley
University of Arkansas School of Law
*Sponsored by the Women's Giving Circle, University of Arkansas*

### Introduction

¶2 Food waste and food insecurity are both very real and very large problems in the United States. Nonprofit organizations have identified

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A Division of the Center for Health Law and Policy Innovation

**The Bill Emerson Good Samaritan Food Donation Act**

or receive donated food are generally well-protected by laws designed to
to food donations. The Bill Emerson Good Samaritan Food Donation Act
aseline of protection for food donors.[1] The Emerson Act covers individuals,
officers of businesses and nonprofit organizations, and gleaners—
ural crops for a nonprofit organization that distributes the food to the

ng as the following criteria are met:
or must donate to a nonprofit organization that distributes the donated
ct donations from the donor to needy individuals are not protected by

t be made in good faith.[v]

ust donate qualifying foods, unless specific reconditioning steps have
those that meet "all quality and labeling standards imposed by Federal,
s," even if they are not "readily marketable due to appearance, age,
ther conditions."[vi] State and local quality and labeling laws vary, and
nents specific to their state or locality since the Emerson Act does not
mpliance with those laws.[vii]

g Food: If a food does not meet all applicable federal, state, and local
ll be protected by the Emerson Act as long as (s)he follows all of the
ures,[x] which include:
the nonprofit of the nonconforming nature of the product;[x]
s to recondition the item so that it is compliant;[xi] and
s the standards for reconditioning the item.[xii]

ecipients cannot pay anything of monetary value for the donated
tes food to another nonprofit for distribution, the Act allows the
nonprofit a nominal fee to cover handling and processing costs.[xiv]

by the Emerson Act: So long as the above criteria are met,
d does not hold a donor liable unless the donor acts with gross

nd conscious conduct (including a failure to act)" by a person or
was made that the donated food was likely to have harmful

**Intentional Misconduct** is when a person or organization donates "with knowledge . . . that the conduct is harmful to the health or well-being of another person."[xvi]

In other words, one should not donate or facilitate the distribution of donated food that one knows is likely to be harmful or dangerous. Unfortunately, the Act gives little guidance on what activities qualify as gross negligence or intentional misconduct. The House of Representatives Report associated with the Emerson Act has indicated that each case must be analyzed individually.[xvii] The lack of court cases interpreting the Emerson Act suggests how protective the Act is of donors; research does not turn up a single case related to food donation liability.[xviii]

In addition to federal liability protections, states are free to enact state level liability protections that are more protective of food donors than the federal Emerson Act.

Source of middle article:
http://media.law.uark.edu/arklawnotes/2013/08/08/the-legal-guide-to-the-bill-emerson-good-samaritan-food-donation-act/
University of Arkansas School of Law – James Haley, Aug 8, 2013

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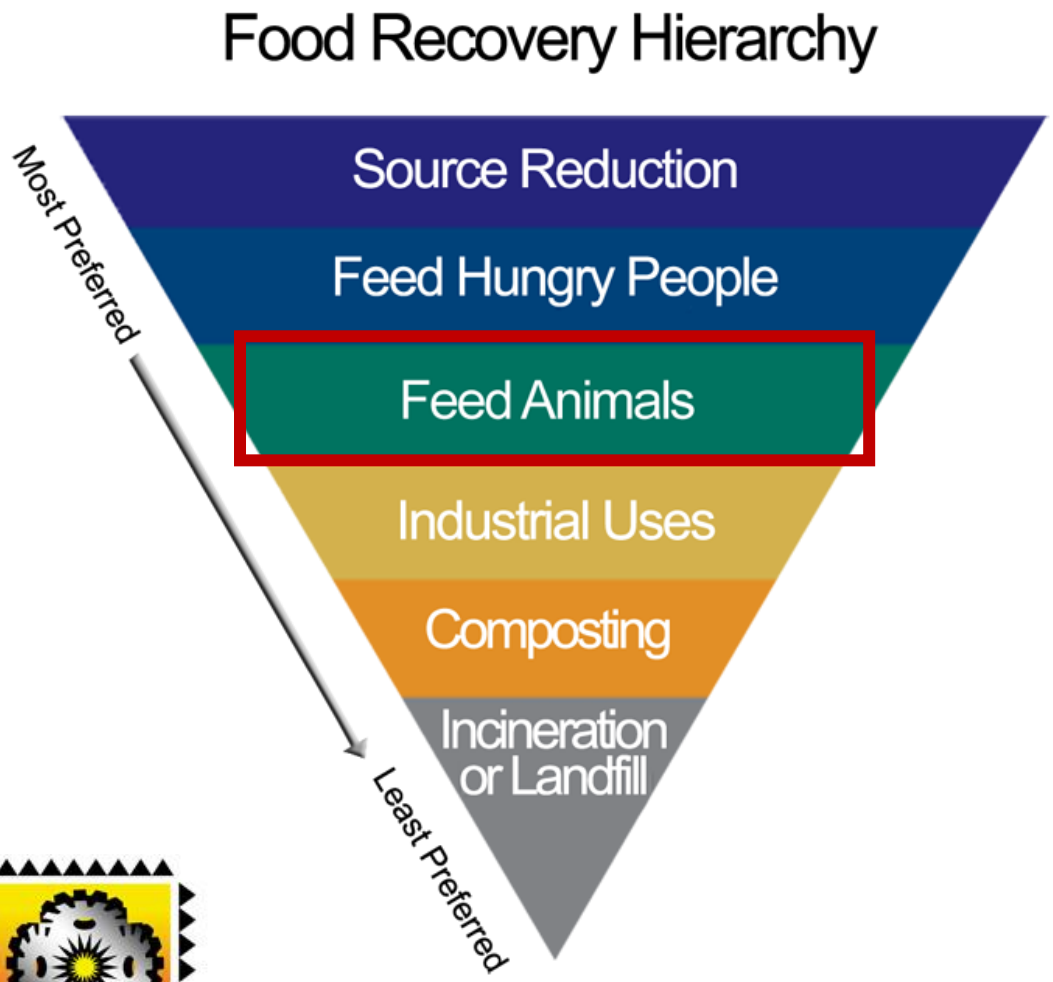
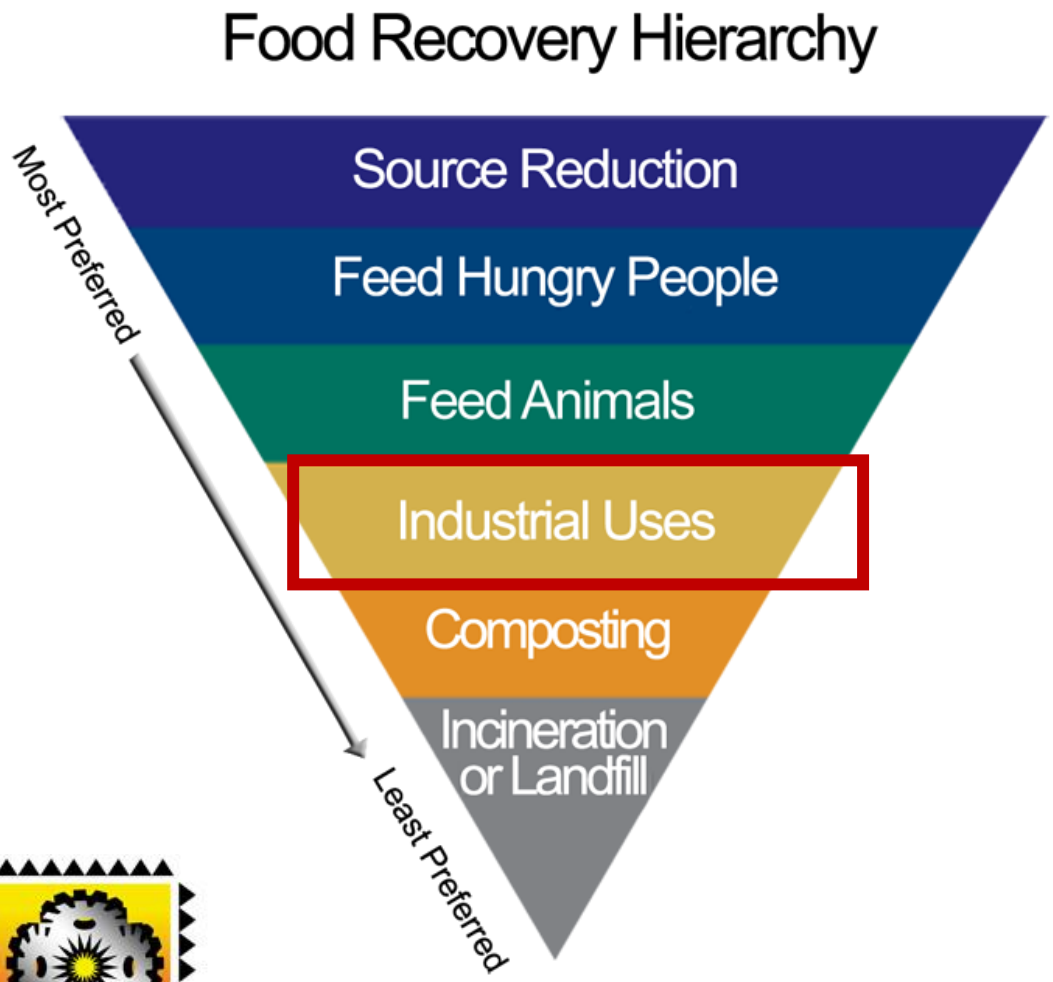
# Feed Animals



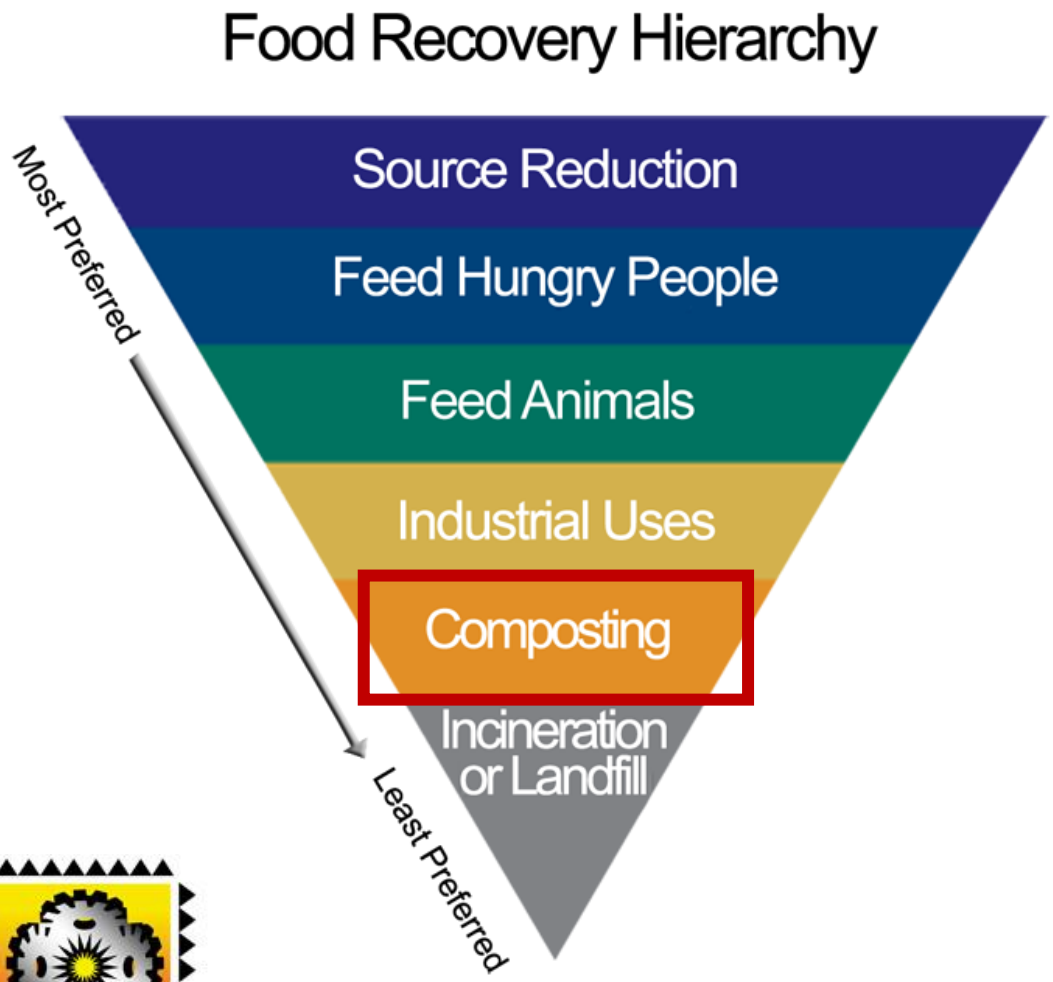

- Provide to area farms and zoos
  - Vegetable trimmings
  - Post-consumer plate waste
- Barriers
  - Some states ban food donation for animal feed
  - Strict diets in corporate operations

# Industrial Uses



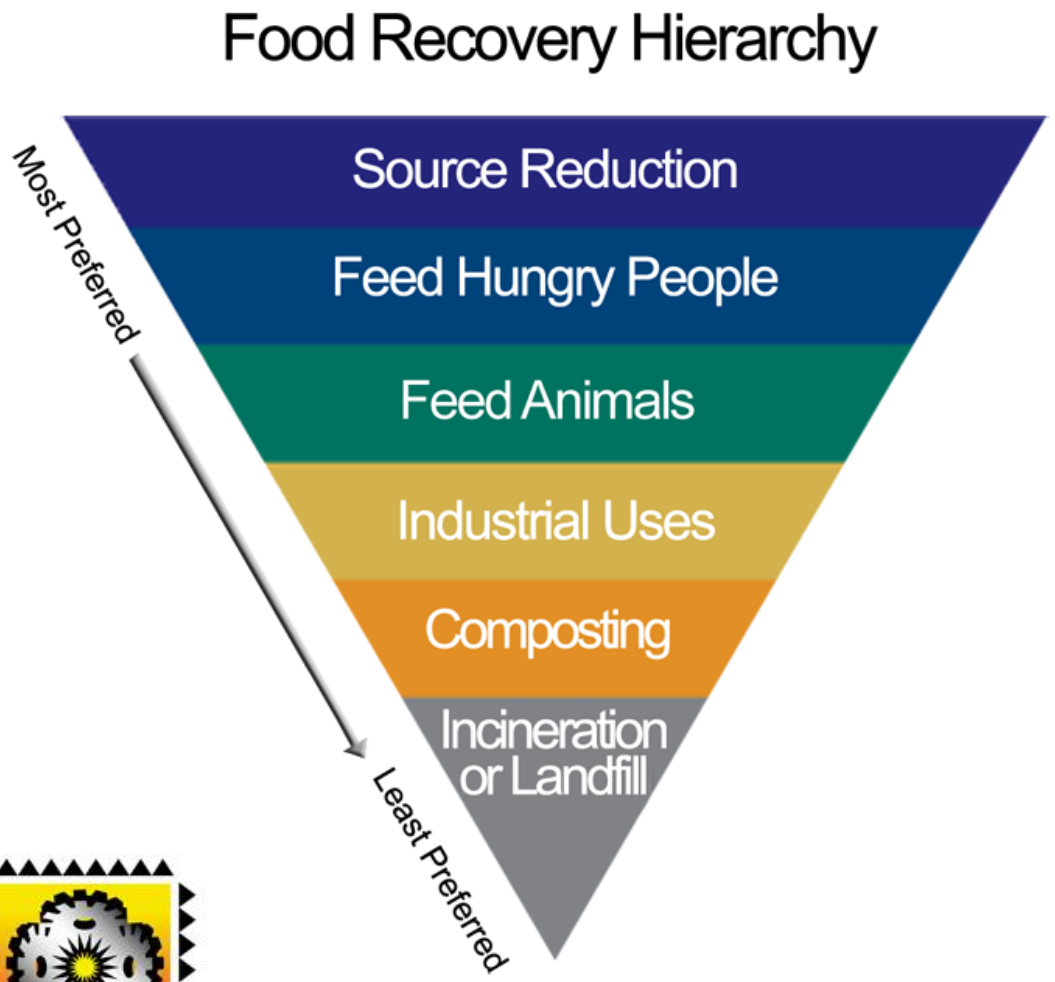

- Anaerobic digestion for energy recovery
- Biofuels from waste oils

# Composting




- Create a nutrient-rich soil amendment
- Barrier
  - Lack of commercial composting facilities

# Landfilling




Last resort!

# PPI Food Recovery Projects

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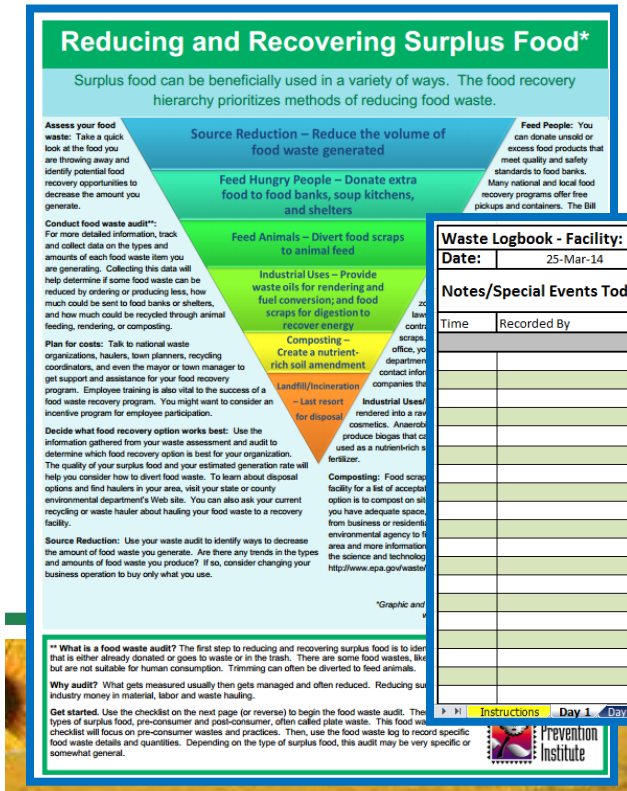
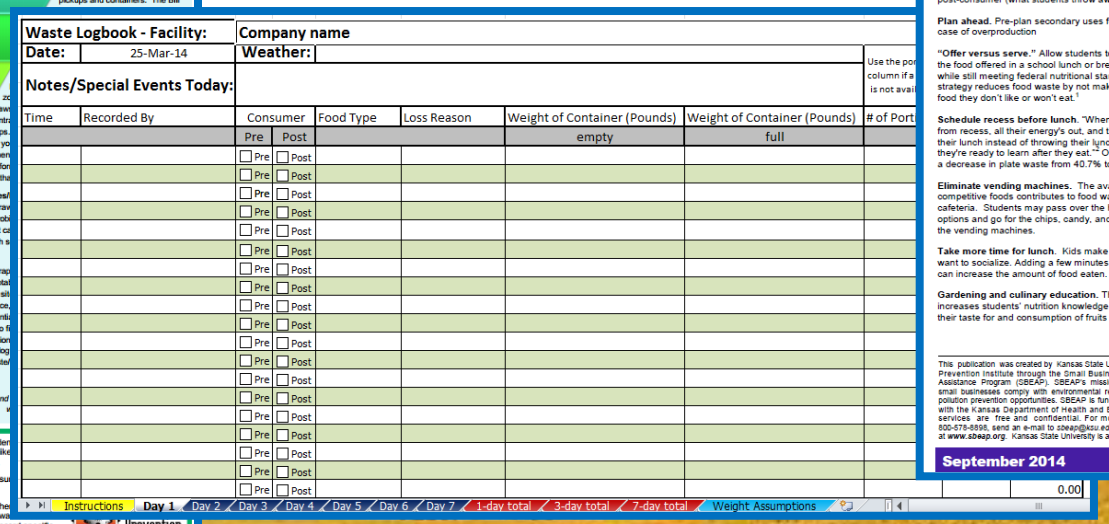
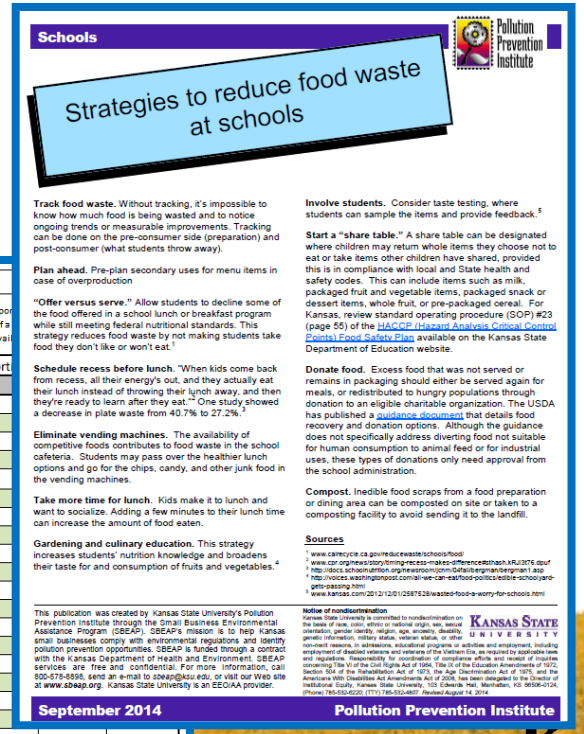
# USDA project (2013)

- Worked with nine schools, institutions, and businesses
- Focus area was SE Kansas (worked w/ several throughout state)
- Developed resources to assist in food waste-reduction efforts




www.sbeap.org/services-programs/food-recovery

# Kansas Health Foundation project (2013-14)

**Title:** FRC feeds Sedgwick County Hungry

**Project:** Work with Sedgwick County grocery chains to reduce food waste and identify excess food that can be donated to programs that feed the hungry.

Dillons FOOD STORES®

PERISHABLE DONATIONS PARTNERSHIP

A partnership between the stores in the Kroger family and local food banks that benefits hungry people in our communities.

Kroger

KANSAS food bank

RESCUING FOOD • HELPING PEOPLE • SINCE 1984

FEEDING AMERICA

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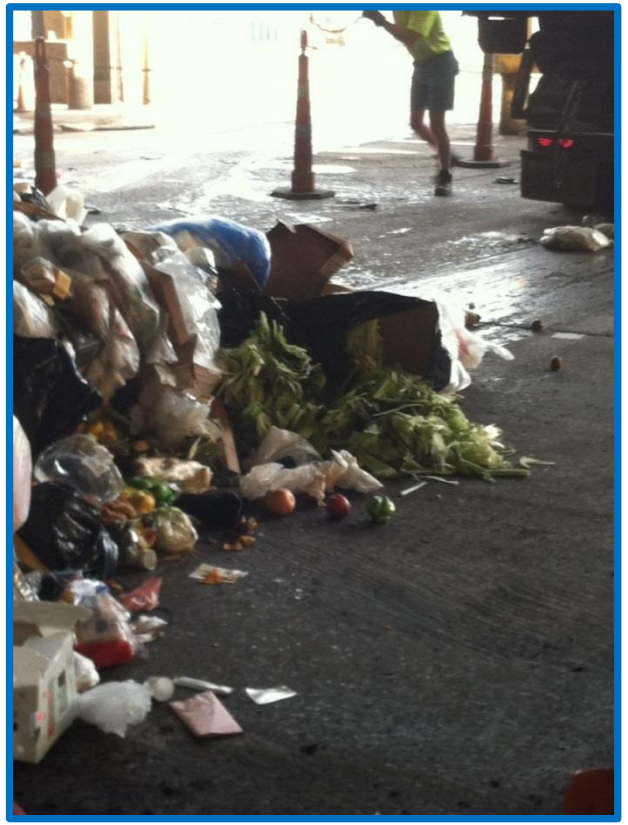
# Transfer station June 2013

Large amounts of produce found in trash

Cornhusks account for a large amount of waste



Approximately 30% of waste was organics

# Opportunities

## PRODUCE

- Source Reduction
- Reduce soup options from four to two
  - 50% reduction for 6 months – 1,460 lb./yrs.
  - Implemented immediately

- Recommended all trimmings and excess be diverted to Quest.

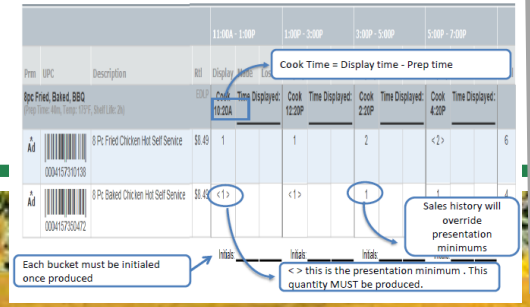
## BAKERY

Increased donations to the Kansas Food Bank by 87%!!

## DELI

**Source Reduction**

- Baked and BBQ Baked Chicken
  - Recommended reduce production by 50%
  - Not eligible for KFB or Quest
  - If implemented, 4 tons of waste reduced.




## DAIRY

First Week's Food Donations to Kansas Food Bank: 26 crates of milk – 111 gallons!

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# 2013 P2 Intern Results

2013 Case Study

## Dillons

Intern: Kara Hall
Major: Civil Engineering
School: University of Kansas

Wichita, Kansas

*Company background*

Dillons is a grocery chain owned and operated under Kroger, a national company based in Cincinnati, Ohio. The company operates 2,424 grocery retail stores, 791 convenience stores, and 348 jewelry stores in 31 states. Kroger employs 343,000 associates nationwide in its stores as well as 34 distribution centers, and 37 food processing plants. The Dillons division operates 88 stores in the Midwest region, 66 of which are located in communities across Kansas. Dillons strives to provide their customers with the freshest and highest quality products in its stores.

*Project background*

The objective of the summer 2013 internship was to reduce the amount of excess food and food-related product being sent to the landfill from two stores in Wichita. Through observation, data collection, and analysis areas of opportunity for both source reduction and food diversion were identified in each store.

*Incentives to change*

According to the EPA, "In 2011 alone, more than 36 million tons of food waste were generated, with only

and food diversion, they partnered with K-State's pollution prevention (P2) intern program to host a program titled "Food Recovery Challenge Feeds Sedgwick County Hungry." The project was modeled after The Food Recovery Challenge (FRC), a national EPA program aimed at reducing the amount of food being sent to landfills. Although the Wichita Dillons stores have not formally joined FRC, their parent company has.

*Projects reviewed for P2 potential*

1. Bakery
In the bakery departments, two sources of excess product were identified. In both stores, bulk case donuts that did not sell were being thrown away, creating large amounts of product being sent to the landfill. It was recommended the donuts in the bulk case be boxed up at night rather than left out, making them eligible to be sold at marked down prices. This process extended the opportunity for sales and made the product eligible for donation.

In both stores studied, bolilo rolls were produced in quantities to meet Dillons production standards; however, in one store approximately 40 percent of the bolilo rolls did not sell and were then donated. It was recommended that the store reduced this loss by adjusting their production numbers and times. This allowed the store to produce bolillos on demand,

*Summary of 2013 intern recommendations for Dillons*

| Project description | Annual estimated environmental impact | Annual estimated cost savings | Status |
|---|---|---|---|
| Grocery | 2.7 tons | $2,058 | Planned |
| Produce | 36 tons | $2,863 | Implemented |
| Bakery | | | |
| Bolilo Rolls | 2.5 tons | $14,202 | Implemented |
| Donuts | 2.1 tons | $9,079 | Partially Implemented |
| Deli | 5.4 tons. | $29,955 | Recommended |
| **Total savings *** | **48.7 tons** | **$58,157** | |
| **GHG reductions *** | **33 metric tons CO2e** | | |

# 2014 P2 Intern Results

2014 Case Study

## Dillons Food Stores

Intern: Bintou Bayo
Major: Engineering Technology
School: Wichita State University

*ompany background*

illons is a chain of grocery supermarkets owned and erated by the Kroger Company, an American retailer sed in Cincinnati, Ohio. The Kroger Company owns re than 3,700 stores nationwide. In Kansas, Kroger erates more than 50 stores under the Dillons Division, in dition to two distribution centers.

*ject background*

estimated 50 million Americans are food-insecure, yet d waste makes up the largest percentage (21%) of te sent to the landfills.[1] In an effort to address this e, Dillons partnered with the Kansas State University ution Prevention Institute (PPI) for a second year, ng a food-recovery intern. In 2013, Dillons mented source-reduction recommendations across stores, reducing production of bolilo rolls and erie chicken, and increasing donations to the Kansas Bank (KFB). In late 2013, Dillons began contracting Quest, a service that diverts food trimmings and s to animal feed programs.

014 intern was assigned to work with two different in the Wichita area, studying and identifying source- on and food redistribution opportunities. Through ssessments, observations, and interviewing store tes, the intern was able to identify the following:

rce reduction opportunities for the deli, bakery, and luce departments of both stores;

% increase in food donations to the Kansas Food (KFB) from all perishable food departments; and

ased food trim and waste diversion from produce tments to Quest, an animal feed program.

plemented some of the 2014 intern's dations immediately, and the estimated annual ntal impact and cost savings can be found in a

Locally, Dillons stores are just as committed to reducing environmental impacts, especially in the area of food waste. In recent years, management has executed several pollution prevention (P2) initiatives to source reduce, feed hungry families, and divert food waste to animal feed. Source-reduction opportunities identified by the 2013 intern reduced over production and saved Dillons approximately $50,000 at just two stores. In 2014, Dillons wanted to continue the food recovery work, with a goal to reduce excess food at the source and redistribute what could not be reduced, to hungry populations or animals.

*Projects reviewed for P2 potential*

1. **Deli**
The hot case at the deli in both stores was the area with the highest source-reduction opportunity. The intern identified possible areas of reduction with the BBQ baked chicken, baked chicken, and small sides.

The intern's audit revealed that more BBQ chicken was being discarded than sold. Chicken and a few other deli products are not eligible for redistribution to the KFB or Quest, so excess is landfilled. Reducing the production of BBQ baked chicken by 50% and baked chicken by 25% could prevent landfilling approximately 0.9 tons, saving the department $5,800 annually.

Small sides at Dillons' deli have a shelf life of eight hours. The intern calculated that more small sides are discarded than sold. It was recommended the deli adjust the packaging time, reducing waste at the source. By delaying the initial packaging time by two hours, approximately 1.4 tons of waste would be avoided. Based on the sales price of these sides, Dillons could save about $5,600 annually. The recommendation was implemented quickly.

2. **Produce**
The produce department was responsible for the largest portion of weight going to the landfill, generated through produce trimmings and food that was not

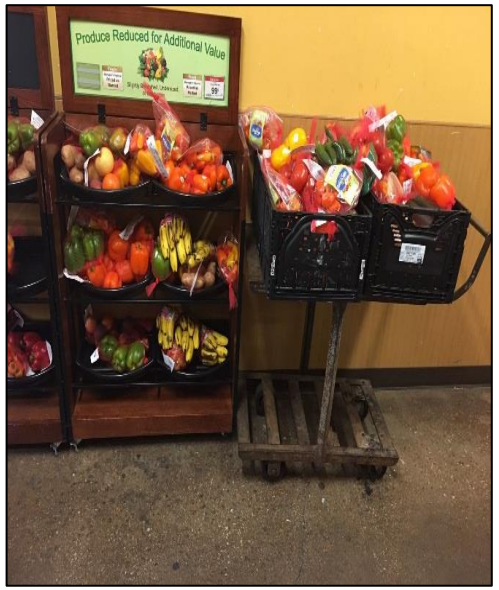
*Summary of 2014 P2 intern recommendations for Dillons Food Stores*

| Project description | Annual estimated environmental impact | Annual estimated cost savings | Status |
|---|---|---|---|
| Deli BBQ baked chicken | 0.5 tons | $3,500 | Recommended |
| Deli baked chicken | 0.4 tons | $2,300 | Recommended |
| Deli small sides | 1.4 tons | $6,000 | Implemented |
| Produce | 26.6 tons | $14,000 | Implemented |
| Bakery | 12.8 tons | $1,000 | Implemented |
| Water | 1,300,000 gal | $7,000 | Implemented |
| **Total savings** | **41.7 tons waste diverted**<br>**1.3 million gallons of water saved** | **$33,800** | |
| **GHG reductions *** | **67.2 metric tons CO2e ($MTCO_2E$)** | | |

# Feed People, Not Landfills (2017)

**Larger chain** - behavior change needed

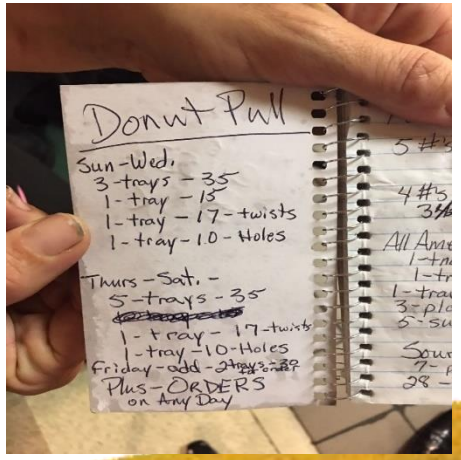
- Large chain has the resources and infrastructure in place
- Top management training and support needed to make progress



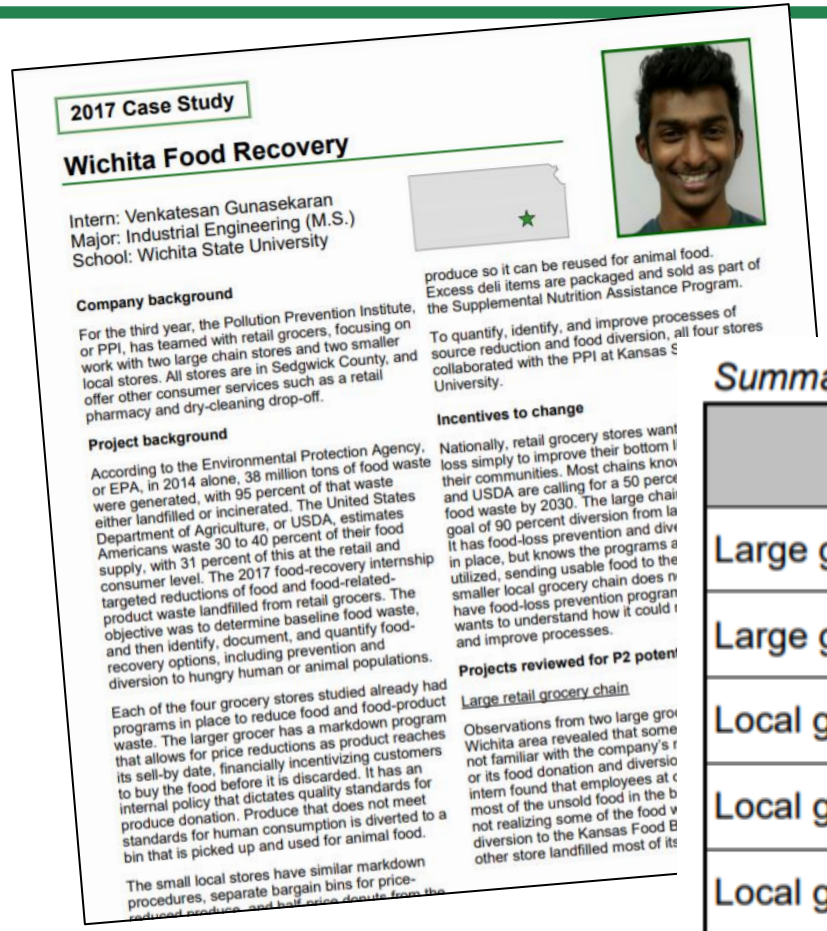
# Feed People, Not Landfills (2017)

**Small chain -**

- Worked with two stores.
- Both stores used mark downs for produce, then collected for local farmer to use for animal feed (about 9.1 tons/year)
- Excess bakery items go to trash, not aware of KFB option (2.4 tons/year)
- Kept hand-written logs of excess food



# Case Study and Results



2017 Case Study

## Wichita Food Recovery

Intern: Venkatesan Gunasekaran
Major: Industrial Engineering (M.S.)
School: Wichita State University

**Company background**

For the third year, the Pollution Prevention Institute, or PPI, has teamed with retail grocers, focusing on work with two large chain stores and two smaller local stores. All stores are in Sedgwick County, and offer other consumer services such as a retail pharmacy and dry-cleaning drop-off.

**Project background**

According to the Environmental Protection Agency, or EPA, in 2014 alone, 38 million tons of food waste were generated, with 95 percent of that waste either landfilled or incinerated. The United States Department of Agriculture, or USDA, estimates Americans waste 30 to 40 percent of their food supply, with 31 percent of this at the retail and consumer level. The 2017 food-recovery internship targeted reductions of food and food-related-product waste landfilled from retail grocers. The objective was to determine baseline food waste, and then identify, document, and quantify food-recovery options, including prevention and diversion to hungry human or animal populations.

Each of the four grocery stores studied already had programs in place to reduce food and food-product waste. The larger grocer has a markdown program that allows for price reductions as product reaches its sell-by date, financially incentivizing customers to buy the food before it is discarded. It has an internal policy that dictates quality standards for produce donation. Produce that does not meet standards for human consumption is diverted to a bin that is picked up and used for animal food.

The small local stores have similar markdown procedures, separate bargain bins for price-

produce so it can be reused for animal food. Excess deli items are packaged and sold as part of the Supplemental Nutrition Assistance Program.

To quantify, identify, and improve processes of source reduction and food diversion, all four stores collaborated with the PPI at Kansas S University.

**Incentives to change**

Nationally, retail grocery stores want loss simply to improve their bottom l their communities. Most chains know and USDA are calling for a 50 perce food waste by 2030. The large chai goal of 90 percent diversion from la It has food-loss prevention and dive in place, but knows the programs a utilized, sending usable food to the smaller local grocery chain does n have food-loss prevention program wants to understand how it could and improve processes.

**Projects reviewed for P2 potent**

Large retail grocery chain

Observations from two large gro Wichita area revealed that some not familiar with the company's r or its food donation and diversio intern found that employees at most of the unsold food in the b not realizing some of the food diversion to the Kansas Food B other store landfilled most of its

*Summary of 2017 food-recovery intern recommendations for each facility*

| Project description | Annual estimated environmental impact | Annual estimated cost savings | Status |
|---|---|---|---|
| Large grocer produce (Store 1) | 9.1 tons | $40,000 | Recommended |
| Large grocer bakery (Store 1) | 11 tons | $66,000 | Implemented |
| Local grocer produce (Store A) | 5.5 tons | $11,000 | Recommended |
| Local grocer produce (Store B) | 3.6 tons | $7,200 | Recommended |
| Local grocer bakery (Store A) | 2.6 tons | $19,700 | Recommended |
| **Total savings[1]** | **31.6 tons** | **$143,900** | |
| **GHG Reductions[1]** | **17 metric tons $CO_2e$[2]** | | |

[1]Does not include projects "not recommended" or where "further research is needed."
[2]EPA WARM Tool, v. 14 (GHG reductions based on 50 percent source reduction.)

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# K-State food recovery projects (2018)

- *KDHE grant for Shawnee (Topeka and vicinity) and Wyandotte Counties (Kansas City, Kansas and surrounding communities)*
  - Food reduction as well as diversion to hungry populations and animals
  - ICI facilities
  - October 2017 through June 2018

# Background on SN and WY counties

| Kansas County | Percent of Population Food Insecure (all) | Percent of Population Food Insecure (child) | Percent Below SNAP Thresholds (130% poverty) | Percent Eligible for Child Nutritional Programs (185% poverty) |
|---|---|---|---|---|
| Shawnee | 13.9 | 19.5 | 49 | 64 |
| Wyandotte | 16.8 | 23.7 | 67 | 74 |

2016 Feeding American data - http://map.feedingamerica.org/county/2016/overall/kansas

# FR Findings for SN and WY counties

| Project Participant | Shawnee County Project Partners | Wyandotte County Project Partners | Estimated Annual Excess Food to Landfill (tons) | Estimated Annual Environmental Impact (metric tons of $CO_2e$) | Estimated Annual Food to Donations (tons - actual and projected) | Estimated Annual Economic Impact (cost savings from reduction) |
|---|---|---|---|---|---|---|
| Schools (public and private, including daycare/preschools) | 10 | 3 | 21 | 12 | 6 | $37,262 |
| Grocers | 3 | 2 | 26 | 12 | 53 | $183,825 |
| Hotels/Convention Centers/Casinos | 1 | 0 | 3 | 2 | 2 | $11,036 |
| Universities/Colleges | 1 | 0 | 14 | 8 | 12 | $24,816 |
| Hospitals/In-patient Surgical Centers/Nursing Care | 3 | 3 | 79 | 21 | 13 | $208,872 |
| Corporate/Industry | 1 | 1 | 9 | 7 | 5 | $43,865 |
| Totals | 19 | 9 | 152 | 62 | 91 | $484,860 |

[1] Annual overproduction of food estimated from actual weights measured being sent to the landfill on the day of the visit. Reduction assumes overproduction elimination.
[2] Annual environmental impact estimates the GHG emissions not emitted if the source reduces all food waste. Calculations were made using the EPA GHG WARM tool.
[3] Annual food to donations is estimated based on the types of foods measured on the day measurements were taken.
[4] Prices were based on known retail price for food items at the time of technical assistance or if not known, the prices were based on wholesale prices. Source: Bureau of Labor Statistics, 2015.
[5] This represents one daycare, one private school and one public school central kitchen producing food for seven schools.
[6] This represents one public central kitchen producing food for three schools.
[7] Both hospitals served as central kitchens for offsite sources including inpatient surgical centers, outpatient clinics and a long term care skilled nursing facility.

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# K-State food recovery projects (2018)

- *Douglas County Health Department Grant Funds*
  - Lawrence school district and the University of Kansas food systems
  - KU student intern assisting
  - January through June 2018

# Background on DG county

| Kansas County | Percent of Population Food Insecure (all) | Percent of Population Food Insecure (child) | Percent Below SNAP Thresholds (130% poverty) | Percent Eligible for Child Nutritional Programs (185% poverty) |
|---|---|---|---|---|
| Douglas | 16.5 | 18 | 53 | 51 |

2016 Feeding American data - http://map.feedingamerica.org/county/2016/overall/kansas

# University of Kansas data

| Project | Annual estimated food waste | Annual estimated environmental impact – reduction | Annual estimated GHG savings – donations | Annual estimated GHG savings – composting |
|---|---|---|---|---|
| South Dining | 38.6 tons | 21.0 metric tons CO2e | 16.9 metric tons CO2e | 6.8 metric tons CO2e |
| Mrs. E's | 19.1 tons | 10.3 metric tons CO2e | 9.4 metric tons CO2e | 3.4 metric tons CO2e |
| The Commissary | 10.4 tons | 5.6 metric tons CO2e | 4.6 metric tons CO2e | 1.8 metric tons CO2e |
| Status | | Recommended | Recommended | Implemented |

# Lawrence Public Schools - 6 schools

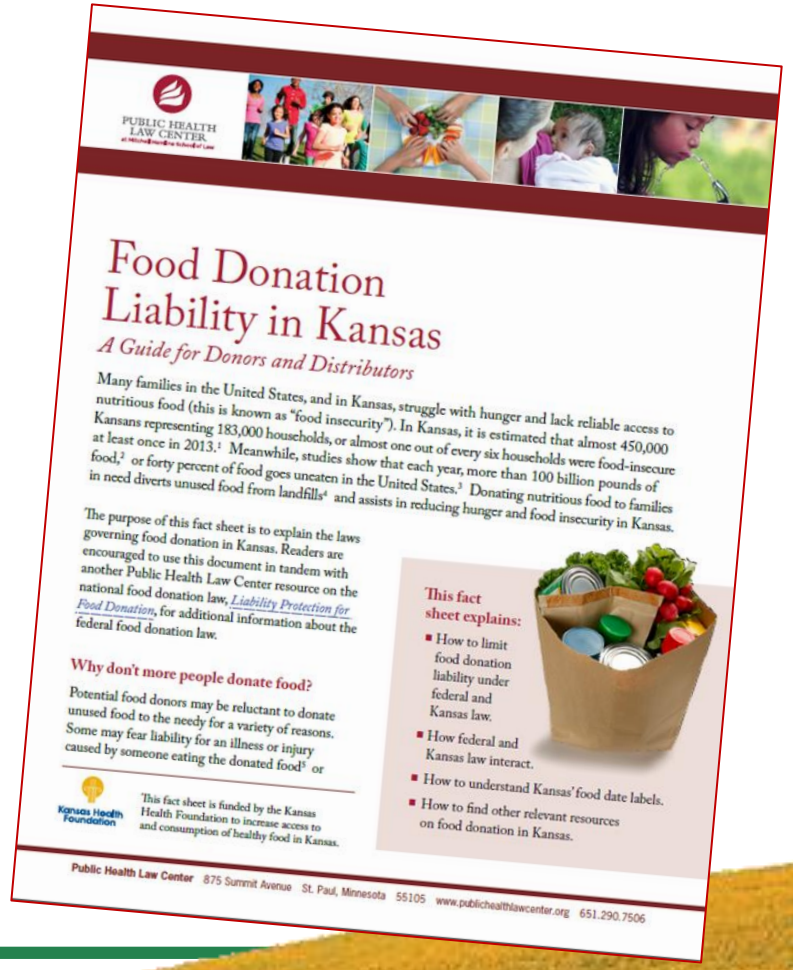
| Summary | Annual estimated environmental impact – reduction | Annual estimated GHG savings – donations | Annual estimated GHG savings – composting |
|---|---|---|---|
| Total annual weight | 11.5 tons | 2.3 tons | 0.4 tons |
| GHG reductions | 6.2 metric tons CO2e | 1.2 metric tons CO2e | 0.1 metric tons CO2e |
| Annual cost savings | $ 21,312.53 | $ 12,668.57 | $ 511.44 |
| Status | Recommended | Partially implemented | Partially implemented |

# Conclusions for WY, SN and DG counties

- Computer assisted ordering (CAO) and computer assisted production (CAP) programs
- Communication
- On-site policies = more restrictive than food safety requirements
  - Edible food going to trash
  - Policies prohibiting donation of certain foods
- Buffet food service still greatest problem and opportunity!

# Conclusions for WY, SN and DG counties

- Food liability issues remain a concern
  - Food Donation Liability in Kansas protections and information
  - Opportunities for public education and guidance is abundant
- Building coalitions and partners is essential
- PPI and Feeding America
  - MealConnect App https://mealconnect.org/



PUBLIC HEALTH LAW CENTER

## Food Donation Liability in Kansas

*A Guide for Donors and Distributors*

Many families in the United States, and in Kansas, struggle with hunger and lack reliable access to nutritious food (this is known as "food insecurity"). In Kansas, it is estimated that almost 450,000 Kansans representing 183,000 households, or almost one out of every six households were food-insecure at least once in 2013.[1] Meanwhile, studies show that each year, more than 100 billion pounds of food,[2] or forty percent of food goes uneaten in the United States.[3] Donating nutritious food to families in need diverts unused food from landfills[4] and assists in reducing hunger and food insecurity in Kansas.

The purpose of this fact sheet is to explain the laws governing food donation in Kansas. Readers are encouraged to use this document in tandem with another Public Health Law Center resource on the national food donation law, *Liability Protection for Food Donation*, for additional information about the federal food donation law.

**Why don't more people donate food?**

Potential food donors may be reluctant to donate unused food to the needy for a variety of reasons. Some may fear liability for an illness or injury caused by someone eating the donated food[5] or

**This fact sheet explains:**

- How to limit food donation liability under federal and Kansas law.
- How federal and Kansas law interact.
- How to understand Kansas' food date labels.
- How to find other relevant resources on food donation in Kansas.

Kansas Health Foundation

This fact sheet is funded by the Kansas Health Foundation to increase access to and consumption of healthy food in Kansas.

Public Health Law Center 875 Summit Avenue St. Paul, Minnesota 55105 www.publichealthlawcenter.org 651.290.7506

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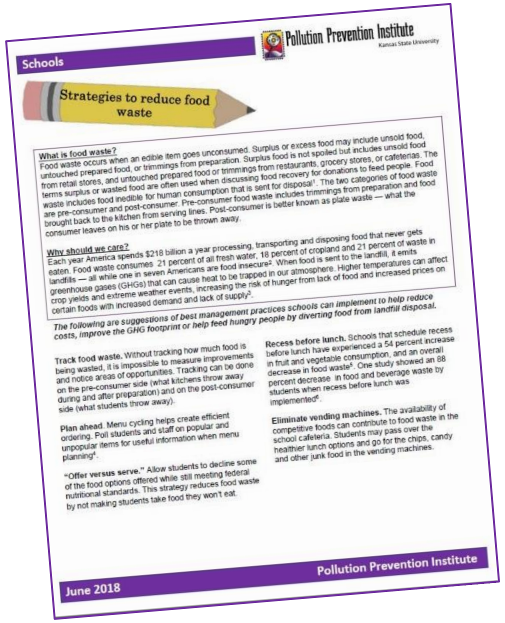
# Guidance Documents and Case Studies


Schools

Pollution Prevention Institute
Kansas State University

Strategies to reduce food waste

**What is food waste?**
Food waste occurs when an edible item goes unconsumed. Surplus or excess food may include unsold food, untouched prepared food, or trimmings from preparation. Surplus food is not spoiled but includes unsold food from retail stores, and untouched prepared food or trimmings from restaurants, grocery stores, or cafeterias. The terms surplus or wasted food are often used when discussing food recovery for donations to feed people. Food waste includes food inedible for human consumption that is sent for disposal[1]. The two categories of food waste are pre-consumer and post-consumer. Pre-consumer food waste includes trimmings from preparation and food brought back to the kitchen from serving lines. Post-consumer is better known as plate waste — what the consumer leaves on his or her plate to be thrown away.

**Why should we care?**
Each year America spends $218 billion a year processing, transporting and disposing food that never gets eaten. Food waste consumes 21 percent of all fresh water, 18 percent of cropland and 21 percent of waste in landfills — all while one in seven Americans are food insecure[2]. When food is sent to the landfill, it emits greenhouse gases (GHGs) that can cause heat to be trapped in our atmosphere. Higher temperatures can affect crop yields and extreme weather events, increasing the risk of hunger from lack of food and increased prices on certain foods with increased demand and lack of supply[3].

*The following are suggestions of best management practices schools can implement to help reduce costs, improve the GHG footprint or help feed hungry people by diverting food from landfill disposal.*

**Track food waste.** Without tracking how much food is being wasted, it is impossible to measure improvements and notice areas of opportunities. Tracking can be done on the pre-consumer side (what kitchens throw away during and after preparation) and on the post-consumer side (what students throw away).

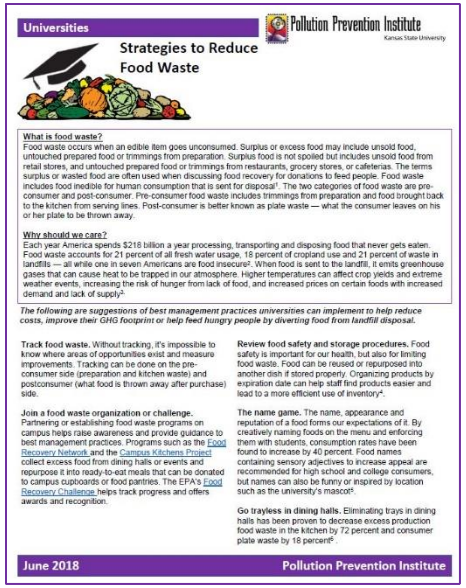
**Plan ahead.** Menu cycling helps create efficient ordering. Poll students and staff on popular and unpopular items for useful information when menu planning[4].

**"Offer versus serve."** Allow students to decline some of the food options offered while still meeting federal nutritional standards. This strategy reduces food waste by not making students take food they won't eat.

**Recess before lunch.** Schools that schedule recess before lunch have experienced a 54 percent increase in fruit and vegetable consumption, and an overall decrease in food waste[5]. One study showed an 88 percent decrease in food and beverage waste by students when recess before lunch was implemented[6].

**Eliminate vending machines.** The availability of competitive foods can contribute to food waste in the school cafeteria. Students may pass over the healthier lunch options and go for the chips, candy and other junk food in the vending machines.

June 2018 Pollution Prevention Institute


Universities

Pollution Prevention Institute
Kansas State University

Strategies to Reduce Food Waste

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Each year America spends $218 billion a year processing, transporting and disposing food that never gets eaten. Food waste accounts for 21 percent of all fresh water usage, 18 percent of cropland use and 21 percent of waste in landfills — all while one in seven Americans are food insecure[2]. When food is sent to the landfill, it emits greenhouse gases that can cause heat to be trapped in our atmosphere. Higher temperatures can affect crop yields and extreme weather events, increasing the risk of hunger from lack of food, and increased prices on certain foods with increased demand and lack of supply[3].

*The following are suggestions of best management practices universities can implement to help reduce costs, improve their GHG footprint or help feed hungry people by diverting food from landfill disposal.*

**Track food waste.** Without tracking, it's impossible to know where areas of opportunities exist and measure improvements. Tracking can be done on the pre-consumer side (preparation and kitchen waste) and postconsumer (what food is thrown away after purchase) side.

**Join a food waste organization or challenge.** Partnering or establishing food waste programs on campus helps raise awareness and provide guidance to best management practices. Programs such as the Food Recovery Network and the Campus Kitchens Project collect excess food from dining halls or events and repurpose it into ready-to-eat meals that can be donated to campus cupboards or food pantries. The EPA's Food Recovery Challenge helps track progress and offers awards and recognition.

**Review food safety and storage procedures.** Food safety is important for our health, but also for limiting food waste. Food can be reused or repurposed into another dish if stored properly. Organizing products by expiration date can help staff find products easier and lead to a more efficient use of inventory[4].

**The name game.** The name, appearance and reputation of a food forms our expectations of it. By creatively naming foods on the menu and enforcing them with students, consumption rates have been found to increase by 40 percent. Food names containing sensory adjectives to increase appeal are recommended for high school and college consumers, but names can also be funny or inspired by location such as the university's mascot[5].

**Go trayless in dining halls.** Eliminating trays in dining halls has been proven to decrease excess production food waste in the kitchen by 72 percent and consumer plate waste by 18 percent[6].

June 2018 Pollution Prevention Institute

**University of Kansas Dining**
**Lawrence, Kansas**
**Food Recovery Partnership**

*Company background*
The University of Kansas Dining Services has 250 employees at 20 locations on campus ranging from large cafeterias and food courts, to small coffee shops with to-go sacks and meals. Hours vary widely, but at least one dining operation is open every day of the year including holidays. KU is a public research university with an enrollment of 28,447 students as of 2018, with its main campus located in Lawrence, Kansas.

*Project background*
Every year, $218 billion are spent nationally growing, transporting and disposing food that is never eaten, amounting to 52 million tons of food sent to the landfill. Food waste makes up 21 percent of waste in landfills, yet one in seven Americans experience food insecurity[1]. When food is sent to the landfill, it emits greenhouse gases that can cause heat to be trapped in our atmosphere. Higher temperatures can affect crop yields and create extreme weather events, increasing the risk of hunger from lack of food and increased prices on certain foods, thus increased demand and lack of supply[2]. Reducing food waste not only saves money, but can also help save our environment from harmful greenhouse gas emissions.

In effort to address these issues, the Lawrence-Douglas County Health Department partnered with the Kansas State University Pollution Prevention Institute to host an intern to identify food recovery opportunities. The goal of the project was to reduce pre-consumer food waste and divert excess food to hungry populations. The intern was to perform on-site visits to include observation, interviews, and measurement for potential food recovery at agreed-upon locations and provide technical assistance in development of strategies for implementing recommendations. The EPA's food recovery hierarchy was followed when researching food recovery opportunities. Recommendations include triple-bottom-line data (social, economic and environmental outcomes).

Currently all pre-consumer trimmings from food prep and the large majority of food waste leftover on the lines at the end of each day at all locations on campus are composted through Missouri Organics for a price based on weight. KU is planning on participating in new initiatives to provide meal options to students in need created by the new food insecurity committee this fall. KU Dining has donated to local organizations for 15+ years including Just Food totaling $7,000 - $10,000 of food annually.

*Incentives to change*
In Douglas County, 16.5 percent of the overall population is food insecure and 18 percent of the child population is food insecure[3]. The sustainability board of the city of Lawrence has the goals of expanding waste reduction and reducing greenhouse gas emissions by 30 percent by 2020, and 80 percent by 2050[4]. According to Lawrence's Climate Protection Plan, the greatest problem the city faces relating to waste is volume, so source reduction is recommended as the best action. Reducing the amount of food waste going to the landfill and increasing the amount going to people addresses all of these concerns. KU takes pride in being a sustainable and forward-thinking campus. The university has the opportunity to be a role model for not only other universities, but for K-12 schools and large businesses as well.

*Projects reviewed for food recovery opportunities*
1. *Mrs. E's*
Mrs. E's is an "all-you-care-to-eat" dining hall on the first floor of Lewis Hall located on Daisy Hill on the campus of the University of Kansas. The dining hall's main customers are college students on meal plans living in the residence halls, but it is open to all students and the public who choose to pay a flat fee upon entry for unlimited access to food while inside the facility. Mrs. E's serves up to 3,500 people a day. The dining hall is open from 7 a.m. to 8 p.m. Monday – Thursday and closes at 7:30 p.m. on Fridays. Weekend hours are 11 a.m. to 7:30 p.m. Service is continuous until the lines are pulled at closing. At this time, the majority of pre-consumer and excess edible food off the line is placed in bins, and sent to Missouri Organics to be composted. Missouri Organics picks up the food three times a week. Some food is saved and repurposed according to staff.
2. *South Dining Commons*
South Dining Commons is located between Oliver and Cora Downs residence halls and is a "all-you-care-to-eat" dining hall. The majority of consumers are university students living in the residence halls, but is also open to all students and the public for a flat access fee. South Dining Commons serves between 1,700 and 2,000 people a day. Monday through Thursday, the hall is open from 7 a.m. to 7:30 p.m. and closes at 7 p.m. on Fridays. Weekend hours are shortened to 11 a.m. to 7 p.m. Service is continuous, and the majority of food is pulled at closing by staff and placed into bins, and sent to Missouri Organics to be composted three times a week. Some food is saved and repurposed according to staff.
3. *The Commissary*
The Commissary opened in August of 2017 serving as a central kitchen to the dining services on the university's campus. It is located in the same building as South Dining Commons and prepares large quantities of foods such as salsa and tartar sauce, as well as many fruits and vegetables, along with cheeses and to-go meals such as sandwiches and salads for KU's 20 dining locations. At the time of the visit, the Commissary was conducting a yield study of its own, measuring case weight, waste and final

**USD 497**
**Lawrence, Kansas**
**Food Recovery Partnership**

*Company background*
USD 497 is a public school district located in Lawrence, Kansas, with 20 schools including elementary, middle, and high. The kitchens of USD 497 are open five days a week from August to May, (except holidays or other closure of the campuses). The cafeterias serve the students and are available to staff as well.

*Project background*
In Kansas alone, 18.3 percent or 131,130 children are food insecure[1]. As of 2012, food waste makes up 17 percent of waste in landfills in Kansas, which is a 5 percent increase since 2002[2]. When food is sent to the landfill it emits greenhouse gases (GHGs) that can cause heat to be trapped in the atmosphere. Higher temperatures can affect crop yields and extreme weather events, increasing the risk of hunger from lack of food, and increased prices on certain foods with increased demand and lack of supply[3]. Reducing food waste not only saves money, but it can also help save our environment from harmful greenhouse gas emissions.

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*Incentives to change*
In Douglas County, 18 percent of the child population is food insecure. There are 5,643 students on free and reduced lunch plans, which is 36 percent of the county's total enrollment[4]. The city of Lawrence's Sustainability board has goals of expanding waste reduction and reducing GHG emissions by 30 percent by 2020 and 80 percent by 2050[5]. Reducing the amount of food going to the landfill and increasing the amount of going to people addresses all of these issues. Reducing wasted food can also lead to cost savings that could be put toward the schools for supplies and technology to better students' education.

*Projects reviewed for food recovery opportunities*
1. **Lawrence High**
One of two public high schools in the district, Lawrence High (LHS) serves as a distribution center for schools on the east side of Lawrence. The high school also houses donations for a recent partnership with Just Food and the school district. According to the staff interviewed, nonuniform packaging was mentioned as a hindrance to storage. The school's truck drivers are responsible for picking up donations from other schools as well as delivering donations to Just Food. Staff said this increased the workload of its truck drivers. LHS serves 650 to 700 students each lunch period and up to 150 for breakfast. LHS has open-campus for lunch allowing students to go elsewhere if desired. The menu follows a three-week rotation for lunch and a two-week rotation for breakfast. Written production records are kept to guide future production and reduce the risk of overproduction. Staff mentioned poor communication regarding field trips and large absences cause overproduction at times. LHS donated 6.2 lbs. of breakfast pizza, 1.6 lbs. of pizza and 6.3 lbs. of tangerine chicken to Just Food on the day of the visit.
2. **Sunflower/Southwest**
This elementary and middle school are joined together by a shared kitchen. Sunflower Elementary feeds around 350 students each lunch and Southwest Middle School feeds 250 to 300 students each lunch period. When lunch ends for Southwest, all remaining food is brought to Sunflower's cafeteria. The staff keeps written records of prepared reimbursable meals, and the number and weight of leftovers. This helps the staff gage how much of certain foods to prepare for the next time. Both schools are self-serve. The kitchen calls a driver when it has enough food to donate to Just Food. Staff interviewed mentioned a vermiculture composting bin where they place produce trimmings and some food waste weather permitting. Staff expressed the cold weather had not allowed them to utilize it. On the day of the visit, four pounds of vegetables trimmings were put in the composting bin after lunch preparation. Sausage from lunch was saved for making gravy the next morning, successfully demonstrating food recovery.
3. **Schwegler**
This elementary school serves 270 to 300 students each lunch. The school receives Sysco deliveries every Thursday and may ask Lawrence High for some produce if they are running low, but this is not common. The staff keeps written production records to reduce the risk of overproduction. The staff interviewed did not feel trained on Just Food, and were not sure what they could donate or how to store food to be donated. According to staff, salsa is an area of opportunity because not many students eat it, but they have to make it. Staff were unsure of its ability to be donated however, because of their seven-day criteria. On the day of the visit, the kitchen had lasagna leftovers, but the staff did not want to donate it in their own pans because they need to use them regularly. The district should work with Just Food to determine if containers can be provided, or consider investing in storage specifically for donating food and clarify what acceptable donations are.

[1] http://www.feedingamerica.org/research/map-the-meal-gap/2016/2016-map-the-meal-gap-child-food-insecurity.pdf
[2] http://www.kdheks.gov/waste/reportspublications/stateplan16.pdf
[3] https://www.wfp.org/climate-change/climate-impacts
[4] https://ipsr.ku.edu/ksdata/ksah/education/6ed21.pdf
[5] https://assets.lawrenceks.org/assets/agendas/cc/2009/03-31-09/03-31-09h/cptf_final_draft_report.pdf pg 3

http://www.sbeap.org/services-programs/food-recovery

KANSAS STATE UNIVERSITY

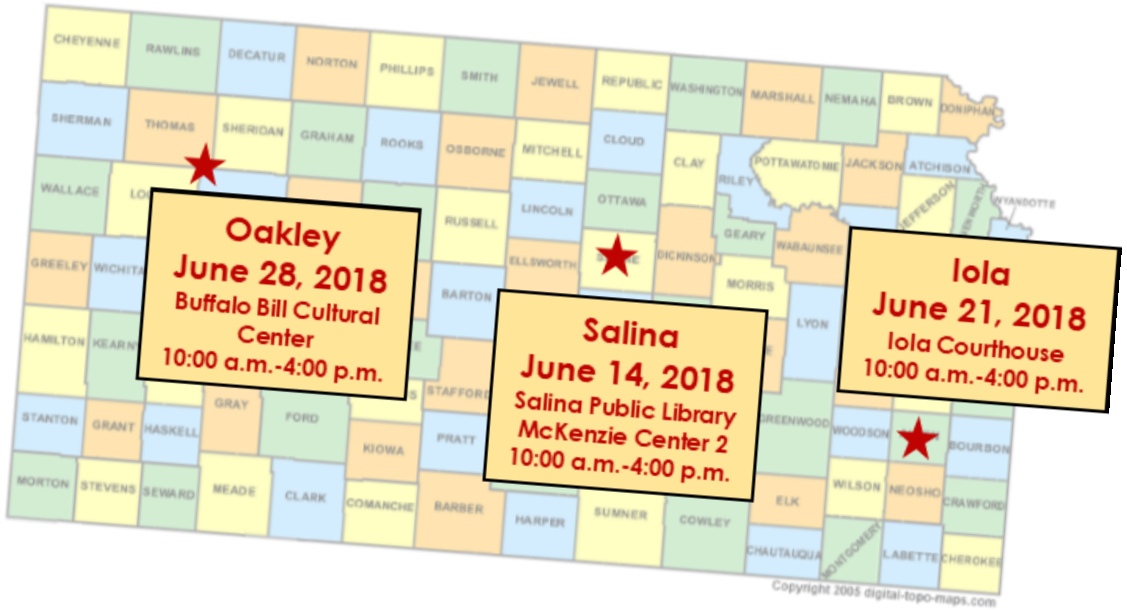
# USDA Rural Utilities Service Grant (2018)

*Providing Technical Assistance and Training to Rural Entities to Reduce Food Loss and Find Alternatives to Landfilling Food Waste*

- One-year project funded by USDA SWM grant (FFY 2017)
- Five rural Kansas industries, communities and institutions
  - Use P2 intern
  - Identify opportunities for reduction and diversion
  - Update Kansas map on PPI website where food/food waste can be diverted
- Train-the-trainer workshops

# USDA Rural Utilities Service Grant

*Train-the-trainer Workshops*



# EPA – Food: Too Good to Waste Tools

## SMART PREP: PREP NOW, EAT LATER

Prepare perishable foods soon after shopping. It will be easier to whip up meals later in the week, saving time, effort, and money.

### HELPFUL TIPS

- When you get home from the store, take the time to wash, dry, chop, dice, slice, and place your fresh food items in clear storage containers for snacks and easy cooking.
- Befriend your freezer and visit it often. Freeze food such as bread, sliced fruit, or meat that you know you won't be able to eat in time.
- Cut your time in the kitchen by preparing and freezing meals ahead of time.
- Prepare and cook perishable items, then freeze them for use throughout the month. For example, bake and freeze chicken breasts or fry and freeze taco meat.

EPA-530-16-F-014-E
February 2016

## GET SMART: TAKE THE CHALLENGE

### KEEP GOOD FOOD FROM GOING TO WASTE

### WHAT IS THE CHALLENGE?

Did you know that in 2013 Americans threw 35 million tons of food into landfills and incinerators? Research shows that nearly everyone wastes more than they think they do. The **Food: Too Good to Waste** Challenge will help you figure out how much food is really going to waste in your home and what you can do to waste less. By making small shift
u shop for, prepare, and store food, you can save time and money, and
roduce and distribute food from going to waste!

EPA-530-16-F-014-F
February 2016

**Smart Saving:**

# EAT FIRST!

## SMART SHOPPING: Shop with Meals in Mind

- Think about how many meals you'll eat at home this week and how long before your next shopping trip.
- Next to fresh items on the list, note the quantity you need or number of meals you're buying for.
- Shop your kitchen first and note items you already have.

| FOOD ITEM | AMOUNT NEEDED | ALREADY HAVE |
|---|---|---|
| Salad greens | Lunch for a week | Enough for one lunch |
| 2% milk | Gallon | NONE |
| | | |
| | | |

## FRUIT AND VEGETABLE STORAGE GUIDE

### INSIDE THE FRIDGE

- Apples, berries, and cherries
- Grapes, kiwi, lemons, and oranges
- Melons, nectarines, apricots, peaches, and plums (after ripening at room temperature)
- Avocados, pears, tomatoes (after ripening at room temperature)
- Almost all vegetables and herbs

### OUTSIDE THE FRIDGE

- Bananas, mangos, papayas, and pineapples: store in a cool place
- Potatoes / onions: store in a cool, dark place
- Basil and winter squashes: store at room temperature—once cut, store squashes in fridge

### MORE STORAGE TIPS

- If you like your fruit at room temperature, take what you will eat for the day out of the fridge in the morning.
- Many fruits give off natural gases that hasten the spoilage of other nearby produce. Store bananas, apples, and tomatoes by themselves and store fruits and vegetables in different bins.
- Consider storage bags and containers designed to help extend the life of your produce.
- To prevent mold, wash berries just before eating.

# Food Recovery Assessments

Five facilities

- Two hospitals
- Two grocery stores
- One restaurant

Assessment activities

- Interview and tour
- Waste measurements
  - Weight and categorization
- Recommendations
  - Finding diversion opportunities in the local community

# Recommendations

The following recommendations were made to most of the facilities:

- Practice recycling
- Claim donations
- Track waste
- Continuing current strategies

# Hospital Recommendations

- Donate scraps to the local zoo or local farmer to feed animals
- Establish a policy for reporting special events to the food director ahead of time when they will affect demand at the cafeteria
- Donate outdates and excess to the local domestic violence shelter for human consumption
- Replace disposable plates and utensils in the cafeteria with reusable or recyclable materials

# Grocery Stores Recommendations

- Donate spoilage for composting
- Find more local residents to take scraps and spoilage for animal consumption and composting
- Donate marked-down products before spoilage

KANSAS STATE UNIVERSITY

# Rural Restaurant - waste reduction and diversion strategies

- Only order food items that have at least three uses in the kitchen to minimize the chance of expiration.
- Inventory, ordering and deliveries are frequent, allowing management to quickly adjust inventory based on predicted demand.
- The inventory is rotated on delivery as it is stocked in order to ensure oldest materials are used first.
- Management has an established relationship with other local businesses allowing each to store food with the others, if coolers or freezers were to go out of service.
- Continuous observations of plate waste are used to adjust the menu and portion sizes.

# Rural Restaurant - waste reduction and diversion strategies (cont.)

- Trimmings are saved and used in making soups, salads, dips and dressings.
- Scraps are sometimes donated to local residents for animal consumption and use in home gardens.
- Almost all food is prepared onsite and as needed in order to minimize over-preparation.
- Employees are allowed to eat and take leftovers home, and what is left is donated to local charity organizations for human consumption.
- As much food as possible is sourced locally, including not only pickups from the local farmers' market but also produce from the gardens of local residents.

# 2018 Rural Communities Data

| Facility background | | Estimated annual baseline | | | Estimated annual impact of recommendations | | |
|---|---|---|---|---|---|---|---|
| Facility | Local Population | Tons of waste | GHG emissions ($MTCO_2E$) | Cost/value of waste | Tons diverted | GHG emissions reduction ($MTCO_2E$) | Status |
| First hospital | 4,000 people | 2.69 | 1.46 | $7,449 | 2.2 | 1.2 | Implemented |
| Second hospital | 5,500 people | 5.79 | 3.14 | $14,141 | 4.4 | 2.39 | Implemented |
| First grocery store | 600 people | 3.3 | 1.79 | $10,585 | 3.3 | 2.37 | Recommended |
| Second grocery store | 1,800 people | 8.14 | 4.42 | $38,139 | 5.01 | 3.6 | Implemented |
| Restaurant | 5,500 people | 0.79 | 0.43 | $2,399 | 0.67 | 0.5 | Recommended |
| **Totals** | | **20.71** | **11.24** | **$72,713** | **15.58** | **10.06** | |

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# Questions?

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