The Mid-America Regional Council

Kansas City Regional Food Loss & Waste Reduction Action Plan

KANSAS CITY FOOD WISE

MARC

MID-AMERICA REGIONAL COUNCIL

October 2023

Project Funding

Funding for the Kansas City Regional Food Loss & Waste Reduction Action Plan was provided by EPA, Region 7, through a two-year, $175,000 Sustainable Materials Management (SMM) Grant.

Introduction

Food Loss & Waste Defined

There is no commonly agreed upon definition of food loss and waste. For its simplicity and clarity, this plan utilizes the definition included in the State of Food and Agriculture Food 2019, a publication of the United Nations Food and Agriculture Organization (FAO):

Food loss and waste is the decrease in quantity or quality of food along the food supply chain.

Food loss occurs along the food supply chain from harvest up to, but not including, the retail level. Food waste occurs at the retail and consumption levels. ReFED further defines food waste as both uneaten food and inedible parts that end up being landfilled, incinerated, disposed of down the sewer, dumped, or spread onto land.

Food Loss & Waste Action Plan

This plan provides a comprehensive set of solutions designed to reduce the amount of food that is wasted and sent to landfills in the Kansas City region. It takes a holistic "field to fork" approach, addressing food waste wherever it is created along the food supply chain utilizing the following key strategies:

- food waste prevention
- food rescue
- food recycling

The plan recognizes that everyone in the food system has an important role to play, and that what you do as an individual and what we do as a community will truly make a difference in reducing wasted food now and into the future.

While the goal of this plan is food waste reduction, it lays the groundwork for addressing a much broader range of issues that will help make a sustainable food system a vital part of Kansas City's future. Chief among these are food security and ensuring that the diverse cultural, ethnic, and socioeconomic backgrounds of the region's residents are represented and addressed in an equitable manner.

Food waste reduction is the starting point, but a sustainable food system in the Kansas City region is the ultimate goal.

About MARC

The Mid-America Regional Council is a nonprofit association of city and county governments and the metropolitan planning organization for the bistate Kansas City region. Governed by a Board of Directors made up of local elected officials, we serve nine counties and 119 cities. We provide a forum for the region to work together to advance social, economic and environmental progress.

As a voluntary association of local governments, MARC convenes partners and coordinates planning efforts on a wide range of issues that are important to communities in the metro, including aging services, early learning, health care, community development, homeland security, emergency services, the regional 911 system and much more. We work with cities, counties and other entities to identify common objectives and achieve our collective goals. MARC has no taxation or regulatory authority. MARC is funded by federal, state and private grants, local contributions and earned income. A major portion of our budget is passed through to local governments and other agencies for programs and services.

What's my role?

MARC will take a leading role in moving forward the solutions proposed in this plan. However, we can't do it alone.

To bring these solutions to fruition will require strong partnerships and collaboration amongst a diverse set of regional players including government, non-profits, businesses, and individuals such as yourself. We encourage you to visit KCFoodWise.org and find opportunities to engage.

If you work or volunteer for an organization that you think has a role to play, you can join the **KC Food Wise Advisory Committee**. This group meets regularly to keep the solutions proposed in this plan moving forward and to share the important role their organizations play in our regional sustainable food system.

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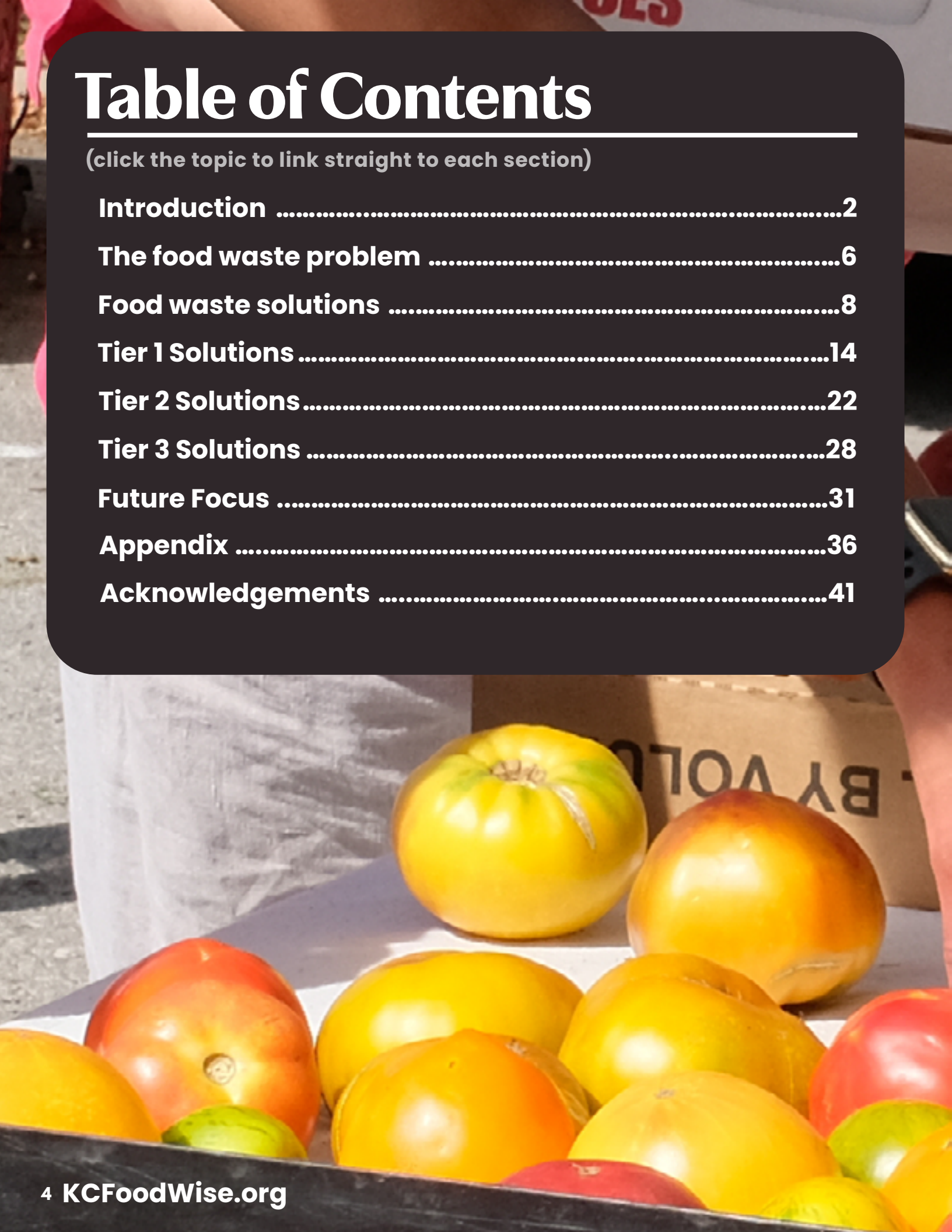



Size

The Food Waste Problem

Food loss and waste hurts us all. It has an enormous negative impact on our community, economy and the environment:

- More than 30 percent of all food in the United States is wasted. USDA[1]
- U.S. households waste nearly one-third of the food they buy every year. That's **enough to fill the Rose Bowl every day,** 365 days a year! AAEA[2]
- The annual cost of food waste for an individual U.S. household is $1,866. USDA[3]
- Wasted food in the U.S. consumes 140 million acres of agricultural land annually - an area the size of California and New York combined. EPA[4]
- In the U.S., wasted food uses up 778 million pounds of pesticides and 14 billion pounds of fertilizer every year. EPA[5]
- Resources lost to food waste equal the annual water and energy usage of 50 million U.S. homes. EPA[6]
- Every year wasted food generates greenhouse gas emissions equivalent to 42 coal-fired power plants. EPA[7]
- In 2020, 10.5 percent (13.8 million) of U.S. households were food insecure. AAEA[8]

Quantities and sources of wasted food

In the average year, the Kansas City metro area generates about 296,000 tons of food waste from residential and commercial sources. The 2016 Johnson County Solid Waste Characterization Study stated that of the 742,652 tons of MSW (municipal solid waste, i.e., trash) landfilled in the county that year, about 22 percent was food waste. The 2018 Missouri Statewide Waste Composition Study stated that of the 760,417 tons of MSW landfilled in Missouri that year, 15 percent was food waste. In 2021, Missouri Organic Recycling, the largest composting operation in the Kansas City metro area, composted approximately 19,500 tons of food waste.

Nationally, about 39 percent of food waste is coming from residential households. That number increases to about 50 percent in Missouri, and 56 percent in Kansas.

The next biggest category nationally is specialty crops like such as fruits and vegetables - which doesn't apply to Missouri and Kansas since both states are primarily commodity crop (corn, wheat, etc.) producers.

Next is food service, which includes any place that prepares meals outside the home: restaurants, school and hospital cafeterias, catering operations, etc.

This number is 20 percent at the national level, but is higher in Kansas and Missouri at 30 percent.

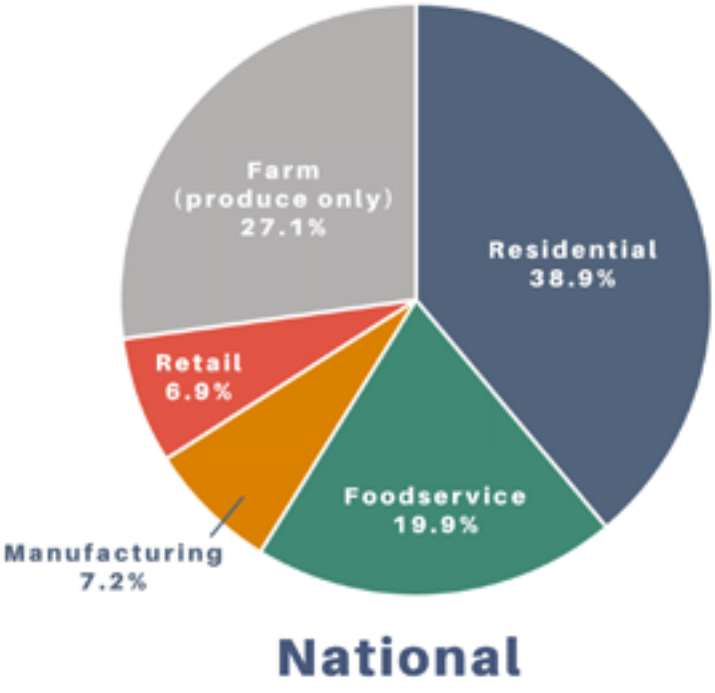
At the lowest levels is retail such as grocery stores and manufacturing which are at about 7 percent nationally but an average of 8 percent in Missouri and Kansas.

(***ReFED, Food Waste Monitor, 2019***)

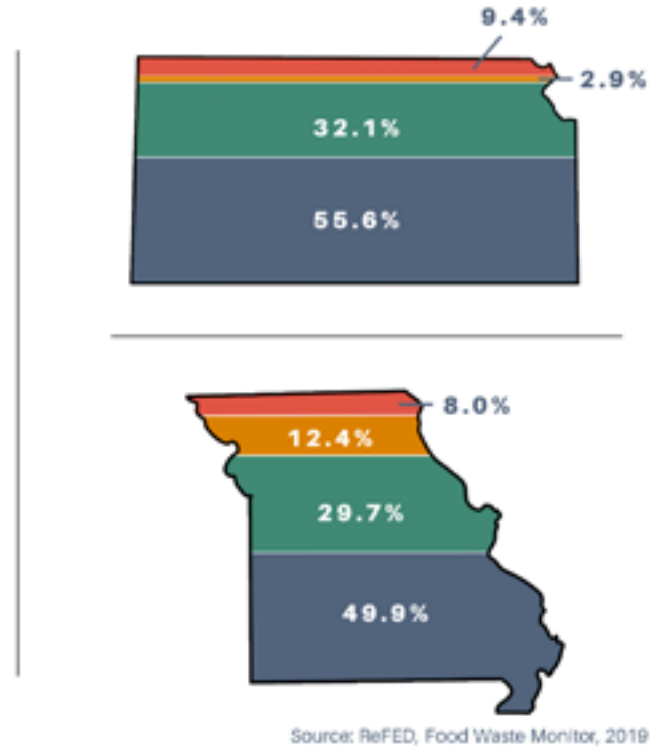
The problem with landfilling food

Nationally, more than half of all wasted food goes to a landfill. When food and food-soiled paper decompose in a landfill they produce methane, a powerful greenhouse gas (GHG). Landfills are the third-largest source of global methane emissions, after agriculture and oil and gas systems. Even though it accounts for about 11 percent of greenhouse gas emissions and lasts about 12 years in the atmosphere, methane traps 80 times more heat in the atmosphere than carbon dioxide. Two of the Kansas City Regional Climate Action Plan's (CAP) nine focus areas - Food Systems and Industry & Resource Management - deal directly with addressing food waste and its role in GHG production.

Food Wasted in 2019



National



Source: ReFED, Food Waste Monitor, 2019

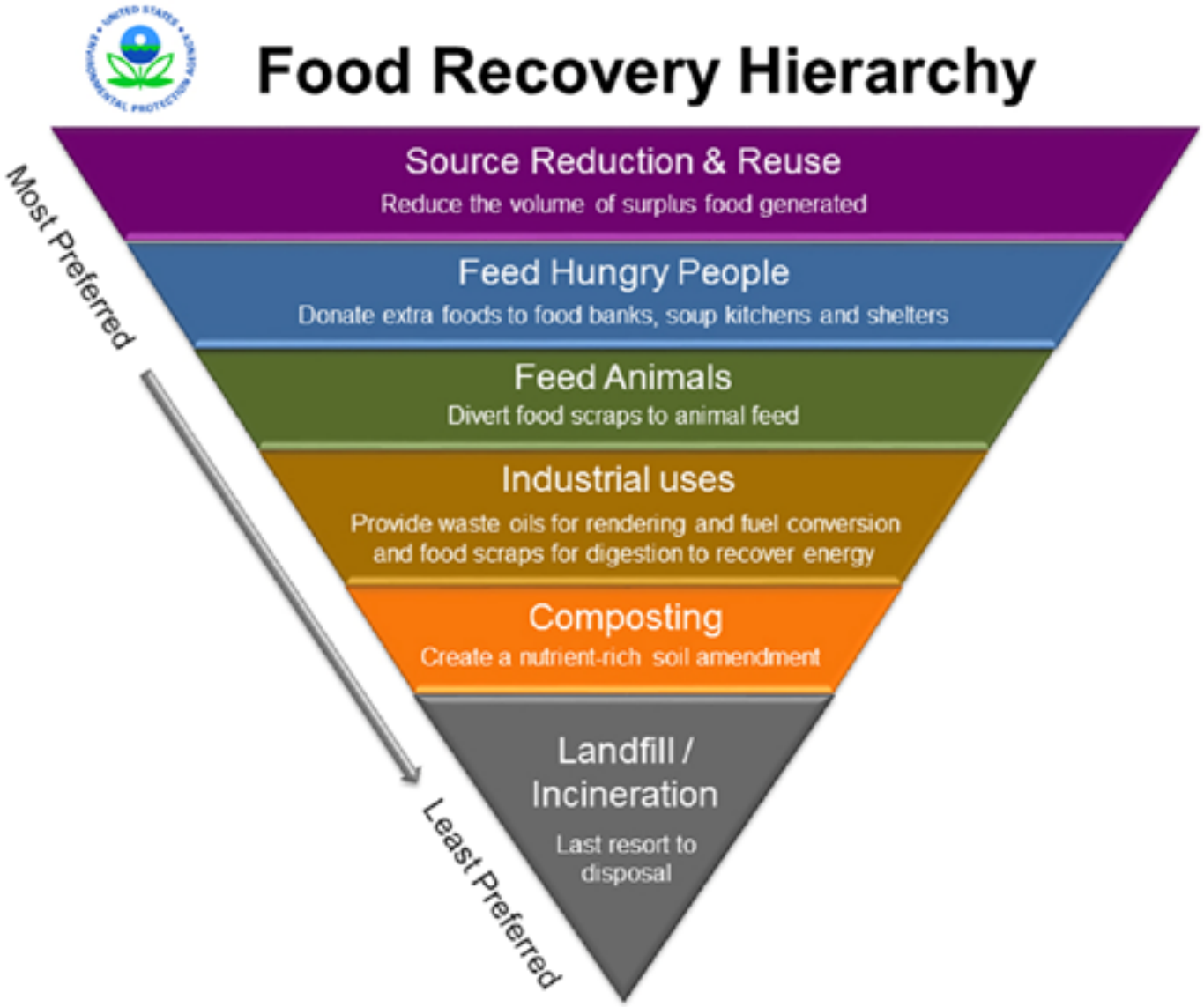
Food Waste Solutions

The Recovery Hierarchy

How can the Kansas City region truly move the needle on this seemingly overwhelming problem?

It's important to understand that our region is not starting from scratch, and we are not alone. The U.S. Environmental Protection Agency, among many other organizations around the country and world, has been hard at work tackling food loss and waste for many years.

The EPA's Food Recovery Hierarchy prioritizes actions organizations can take to prevent and divert wasted food. Each tier of the hierarchy focuses on different management strategies. The top levels of the hierarchy are the best ways to prevent and divert wasted food because they create the most benefits for the environment, society and the economy.



Sustainable Materials Management Grant

In 2021, the U.S. Environmental Protection Agency, Region 7 awarded a two-year, $175,000 Sustainable Materials Management Grant to the Mid-America Regional Council. The goal of the grant was to reduce the amount of food that is wasted and sent to landfills in the Kansas City region. The grant had the following objectives:

Food Loss & Waste Reduction Action Plan

The Kansas City Regional Food Loss & Waste Reduction Action Plan takes a comprehensive, multi-tiered approach to the problem of food waste, and provides possible solutions to be implemented over the next several years and beyond. The plan assesses current conditions, establishes food waste reduction targets, provides a measurement plan, makes policy and program recommendations, and utilizes principles of inclusion.

Web map

KCFoodWise has been developed to facilitate food loss and waste reduction among organizations, stakeholders and community members. It does this through three major components: a directory, mapping system, and a communication platform.

A few examples of how the website can be used:

- A corporate event has catered food leftover and needs to find the nearest food pantry to donate it before it spoils.
- An elected official wants to understand how the food waste issue is being dealt with in the KC metro area.
- A wholesaler needs to find a food bank to donate its surplus products to.
- A high school student needs service hours and wants to volunteer at the nearest food pantry.

Education campaign

The project includes a consumer education campaign that will raise awareness about food waste, provide food waste reduction information, and will drive users to the website.

Equity considerations

Successful food waste reduction and a sustainable food system in the Kansas City region will only be achieved if everyone has equitable access to opportunities and solutions.

To ensure this plan addresses equity, MARC shared a draft of the plan and sought input from four organizations that work with socially vulnerable populations in the Kansas City metro area.

The following are the questions they were asked and a summation of their answers:

Q: Is food waste an issue of concern for the population you work with?

There was agreement that food waste is not an issue of concern among the populations with which they work. These populations are dealing with survival issues like crime, abuse, addiction, and housing on a daily basis, so these populations do not currently see food waste being relevant to them.

Related issues that are of concern are food insecurity, knowing how and where to donate food, lack of access to transit, and adequate emergency assistance funding.

"The real work is making it make sense and have relevance to people's lives."
– Dina Newman, Center for Neighborhoods

Q: Do you see the food waste action plan helping to advance the work you're doing with this population?

There was agreement that educating the populations they work with about food waste is important. The money that can be saved by not wasting food should be a primary focus.

Some proven ways to successfully communicate with and educate these populations are by:

- Working with organizations who directly serve these groups to get the word out. Each organization has communication methods and tools that work best for their audience.
- Communicating with people where they're at: home, retail locations, neighborhood events, etc.
- Translating messaging into multiple languages.
- Paying community liaisons that look like their audience and speak their language to spread the word

"A lot of times when people go to food pantries, they grab whatever is available. Then when they get it home, they don't really have a use for it, and it becomes part of the food waste problem."
– Jesse Love, Historic East Neighborhoods Association

"Success to us is everybody's got enough healthy food to eat, backed up by a robust safety net system."
– Erin Stryka, Rosedale Development Association

"So many of our clients are used to eating unhealthy, highly-processed foods. We want to help them broaden their food horizons."
– Stephanie Hoover, Sheffield Place

"You may have 200 people who don't know anything about the neighborhood association, but they're all going to show up for a neighborhood event," says **Dina Newman**, Center for Neighborhoods. "If you can have food waste information available at that event, you'd be surprised about how many people are champions in the making for a cause, but just haven't been exposed to that information before."

Q: How would you define success when it comes to food equity and insecurity within this population?

Having plenty of fresh, healthy food options for everyone was a priority for all four organizations. They support a number of ways to achieve this:

- Eliminate food deserts.
- Increase participation in community gardens.
- Provide healthy food preparation and cooking instruction.
- Increase access to local food resources such as pantries.
- Include farmers of color in the conversation, and more broadly as a vital part in a sustainable food system.

"People in the Kansas City region seem more ready to work together, and funders are starting to want true collaboration," says Dina. "We need to have honest conversations and try to figure this out together.

“There’s a lot of knowledge and history that’s been left out by not including farmers of color, and now’s the time to right some of those wrongs.”
– Dina Newman, Center for Neighborhoods

A Tiered Approach

On March 30, 2022, MARC held the Food Loss & Waste workshop to introduce the Kansas City region to the food waste problem, the goals of the SMM grant, and to identify core groups willing to work on solutions. There were 60 in attendance including cities and counties, food policy groups, producers, processors, distributors, commercial and institutional buyers, the organics management industry, and food recovery groups.

Prior to the workshop, MARC developed and distributed a survey to all potential attending organizations. The purpose of the survey was to understand how Kansas City metro area organizations are currently dealing with food loss and waste (FLW). The information shared in the survey was utilized to help shape the agenda at the workshop and the content of the Kansas City Regional Food Loss & Waste Reduction Action Plan.

The survey asked the following questions (*a summary of answers is included in the Appendix*):

- How does your organization currently address FLW?
- What are your successes and challenges?
- What does your organization need to better address FLW?
- What opportunities do you see for collaborating with other organizations to address FLW?
- When it comes to reducing FLW, what has the metro area gotten right, and what are its challenges?
- Do you know of any FLW reduction efforts outside the metro area that are successful?
- On a scale of 1-5 (1 being low, 5 being high), how big a priority is each of the following FLW waste reduction approaches for your business or organization: prevention, rescue, and composting?
- What specific FLW topics would you like to see addressed in the upcoming workshops and plan?
- Does your organization produce food waste? If it does, do you measure it/have you performed an audit?

In June 2022, three workgroups were assembled from those who attended the workshop to develop solutions to include in the Kansas City Regional Food Loss & Waste Reduction Action Plan. Each workgroup focused on one of the following strategies: food waste prevention, rescue, and recycling.

The groups utilized ReFED's Roadmap to 2030 as a model for the content and structure of their work.

The workgroups came up with a tiered set of solutions based on the following criteria:

- Ease of implementation
- Current support level
- Funding availability
- Regulatory considerations
- Research and development considerations
- Turnaround time

Tier 1	Relatively easy and simple, high support level, already underway, well-funded, little to no regulatory research and development considerations, short turnaround time.
Tier 2	Moderately difficult and more complex, high support level, underway to a limited degree, funding inconsistent/harder to obtain, moderate amount of regulatory, research and development considerations, medium turnaround time.
Tier 3	Highly difficult and very complex, low or unknown support levels, little-to-no or unknown funding levels, high amount of regulatory, research and development considerations, long turnaround time.
Future Focus	Future focus areas for the Kansas City region as it strives toward a comprehensive, long-term approach to food waste reduction.

Tier 1

Consumer education campaign

Description:

Effective in-home food waste prevention centers on consumer awareness and behavior change around purchasing, storage, handling, preparation and disposal. Communities across the nation that have implemented consumer education campaigns have reported significant improvements in consumer awareness, behavior change and food waste prevention. Once developed, the campaign can be easily updated and expanded in subsequent years. Model campaigns include Natural Resources Defense Council's SaveTheFood, Hennepin County, Minnesota's Stop Food Waste Challenge, and Oregon Department of Environmental Quality's Don't Let Good Food Go Bad.

Objectives:

- Increase consumer awareness and behavior change to reduce food waste.
- Promote new and existing programs and services.
- Increase amount of food going to people, animals, industrial uses, and composting.
- Reduce amount of food waste going to landfills.

Audience:

Residential

Action:

- Research successful in-home education campaigns.
- Form subcommittee.
- Develop plan and assets.
- Negotiate media purchases
- Implement campaign.
- Update and continue campaign annually.

Measurement:

- Number of media impressions
- Number of individuals reached.
- Number of attendees at special events.
- Reduction in food waste from homes that volunteer to measure.
- Pre/post surveys measuring sentiment and consumer behavior change.
- Amount of material diverted by existing programs and services.

Potential Partners:

- MARC Solid Waste Management District
- FLW Reduction Project Advisory Committee
- Local government
- Culinary training entities
- Neighborhoods

Potential Funding:

- EPA
- MARC Solid Waste Management District

Food system mapping website

Description:	Objectives:
A food-system mapping website will help bridge the gaps among stakeholders in the local food system by identifying and mapping all the organizations in the system. Currently there is no system that does this for all stakeholders including farmers, food pantries, food rescuers, composters, donation kitchens, volunteers, or other stakeholders in the Kansas City metro area. There are several successful food-system mapping websites that have been developed including Vermont Farm to Plate Map, Colorado Food Systems Map, Maryland Food System Map, and Minnesota Food Charter Champion Map.	Create a website that will: • Bridge the gaps among stakeholders by identifying and mapping all the organizations in the local food system • Aid in the continued development of a sustainable local food system. • Complement existing regional food system websites and resources. • Increase amount of food going to people, animals, industrial uses, and composting. • Reduce amount of food waste going to landfills.
Audience:	
Residential & Industrial, Commercial, Institutional	

Action:	Measurement:	Potential Partners:
• Develop website. • Maintain and improve website over time.	• Website visits and usage data. • Number of stakeholder listings. • Case studies of successful website use. • Website expansion and improvements over time. • Diversion (weights and/or volume)	• MARC Solid Waste Management District • FLW Reduction Project Advisory Committee • Johnson County Community College • Other stakeholders

Potential Funding:

- EPA
- MARC Solid Waste Management District

Tier 1

Residential food waste composting

Description:

Residents have many options for diverting and composting food waste at home including on-site backyard composting, vermicomposting, and bokashi composting, as well as curbside pickup and community drop-off opportunities. MU Extension and K-State Research & Extension services offer extensive how-to information about on-site home composting. Kansas City-based artist and educator, Stan Slaughter, offers compost education opportunities in many formats to residents of all ages. Compost Collective KC, Jerusalem Farm, and Food Cycle KC offer residential curbside pickup options and education. KC Can Compost offers drop-off composting locations for individuals throughout the Kansas City region. Key to the expansion and success of all these efforts is providing residents with resources, incentives and opportunities for education.

Objectives:

- Increase amount of residential food waste composting.
- Reduce amount of food waste going to landfills.

Audience:

Residential

Action:

Research:

- Viable on-site home composting options.
- Current efforts to promote residential composting in Kansas City metro area.
- Outlets (curbside services, drop-off depots and automated kiosks, community gardens, urban farmers, etc.) for resident's who can't use compost on-site.
- Provide support and resources to entities to increase residential composting including bin subsidies, workshops/ classes, certifications, etc.

Measurement:

- Number of households participating in residential composting.
- Number of entities supporting/promoting residential composting.
- Number of curbside programs and drop-off locations offered.
- Diversion (weights and/or volume)

Potential Partners:

- MARC Solid Waste Management District
- Compost collection entities
- Community gardens
- Urban farmers
- Education and outreach entities including master composters, extension offices, businesses, and nonprofits.
- Local government

Potential Funding:

- MARC Solid Waste Management District
- Federal agencies
- Local government

Backyard composting regulations

Description:

Local codes and regulations can create barriers to backyard composting, often prohibiting or severely limiting the average homeowner's ability to compost on their property.

This is a lost opportunity in terms of food waste reduction and improved soil health. Either eliminating prohibitions or replacing them with more progressive regulations will help increase food waste diversion through backyard composting.

Objectives:

- Eliminate prohibitions or replace with more progressive regulations.
- Increase backyard composting throughout Kansas City metro area.
- Increase amount of food waste being composted.
- Reduce amount of food waste going to landfills.

Audience:

Residential

Action:

- Research communities where regulations prohibit or severely limit backyard composting.
- Research and develop progressive model regulations.
- Promote model regulations for community adoption.

Measurement:

- Number of regulations modified to allow backyard composting.
- Number of homes that practice backyard composting.

Potential Partners:

- MARC Solid Waste Management District
- Nonprofits
- Local government
- Neighborhood associations and HOAs
- Climate Action KC

Potential Funding:

- MARC Solid Waste Management District
- EPA
- Local government

Tier 1

Community compost drop-off programs

Description:

Drop-off compost programs can provide a low-cost, convenient way for residents and small businesses to compost when they are unable to compost on-site. They are also a good platform to raise community awareness, knowledge and behavior change. Drop-off locations can include farmers markets, community gardens, urban farms, schools, churches, and city/county-provided locations. KC Can Compost, Urbavore Urban Farm and Food Cycle KC offer drop-off locations for residents throughout the Kansas City metro area.

Objectives:

- Establish and expand compost drop-off locations throughout the region.
- Enhance capacity of new and existing composting providers providing drop-off services.
- Utilize new technology to advance collection methods.
- Reduce amount of food waste going to landfills.

Audience:

Residential

Action:

- Assess providers' needs.
- Provide financial support to providers.
- Provide promotional support to providers.

Measurement:

- Number of drop-off programs and locations.
- Number of users.
- Amount of materials diverted.
- Equitable distribution of locations throughout Kansas City region.

Potential Partners:

- MARC Solid Waste Management District
- Compost collection entities
- Farmers markets
- Community gardens
- Urban farmers
- Local government
- Schools
- Churches

Potential Funding:

- MARC Solid Waste Management District
- KDHE
- Local government
- Fees

Commercial composting

Description:

Businesses and organizations are significant generators of food waste in the Kansas City metro area. Some of the biggest barriers they face to successful food waste composting are cost, convenience, and employee education and behavior change. Providing convenient, affordable services and thorough employee education and training will help to increase commercial composting throughout the Kansas City metro area. Food Cycle KC, Missouri Organic Recycling, Compost Collective KC, and KC Can Compost currently provide commercial composting services throughout the Kansas City region.

Objectives:

- Increase affordability and convenience of commercial composting services.
- Increase number of businesses and organizations participating in and providing collection services.
- Reduce amount of food waste going to landfills.

Audience:

Industrial, Commercial, Institutional

Action:

- Promote zero waste certification.
- Support composting providers' efforts to increase customer base and amount composted.

Measurement:

- Number of businesses and organizations implementing composting.
- Amount of food waste diverted.

Potential Partners:

- MARC Solid Waste Management District
- EPA
- Compost collection entities
- Businesses and organizations (public, private and nonprofit)
- Johnson County Green Business Program (JCGBP)

Potential Funding:

- MARC Solid Waste Management District
- Johnson County Green Business Program (JCGBP)
- Federal agencies
- Banks
- Fees

Tier 1

Food waste composting feasibility study

Description:

Composting is feasible at many scales, from large-scale commercial composting to individual backyards. This study would determine the most viable options to collect, process and utilize the types and amounts of food waste created in the many diverse locations that make up the Kansas City metro area. Consideration will need to be given to the most efficient ways to collect, process, and transport materials that have a minimal environmental impact while maximizing amounts composted and populations served. A special emphasis should be placed on equitable, community-based composting models that benefit residents and organizations at the local level.

Objectives:

Determine viable options for composting food waste at all levels in the Kansas City metro area including:

- Types and amounts of food waste.
- Community-based/ small scale and large-scale options.
- Regional capacity needs.
- Margins and incentives necessary for success.
- Strategies for implementing or expanding options.
- Competition among composting providers.

Audience:

Residential & Industrial, Commercial, Institutional

Action:

- Fund an entity to undertake the study.
- Assist entity in ensuring diverse voices are represented.
- Share study results with the Kansas City metro area.
- Determine next steps for study recommendations.

Measurement:

- Written report
- Number and types of entities receiving report
- Number of entities that implement study recommendations

Potential Partners:

- MARC Solid Waste Management District
- Federal, state and local agencies
- Private and nonprofit partners

Potential Funding:

- MARC Solid Waste Management District
- Federal agencies

Multi-tiered food waste reduction education and training initiative for food service entities.

Description:

Food service policies and practices are key to reducing the large amount of food waste they create. Best practices should be implemented to prevent and divert food waste front and back of house at these establishments. Policies and practices that should be addressed include inventory ordering, food handling, storage, preparation, portion sizes, customer education, food donation, and composting.

Audience:

Industrial, Commercial, Institutional

Objectives:

- Partner with health departments and local culinary training entities to develop simple, effective education and training resources.
- Increase managerial and employee awareness, knowledge and behavior change regarding food waste and food safety best practices and regulations.
- Improve food waste reduction policies and practices.
- Increase amount of food going to people, animals, industrial uses, and composting.
- Reduce amount of food waste going to landfills.

Action:

Work with health departments and local culinary training entities to:

- Develop/compile outreach, education, and training best practices.
- Incorporate best practices into health department inspections and culinary program instruction.
- Establish and implement tracking protocols.

Measurement:

- Number of health departments and culinary training entities providing education and training.
- Number of food service entities and staff receiving and implementing education and training.

Potential Partners:

- MARC Solid Waste Management District
- FLW Reduction Project Advisory Committee
- Health departments
- Metropolitan Official Health Agencies of the Kansas City Area (MOHAKCA)
- Culinary training entities
- Food service entities
- Johnson County Green Business Program (JCGBP)
- Compost collection entities

Potential Funding:

- MARC Solid Waste Management District
- EPA
- Health departments
- Culinary training entities
- Johnson County Green Business Program (JCGBP)

Grocery in-store point of sale (POS) consumer messaging campaign

Description:

Grocery stores are the most common way for food to enter individuals' homes, and thus provide an excellent opportunity for educating consumers about ways to reduce food waste.

Messages can include understanding food dating, buying imperfect fruits and veggies, freezable foods, and much more.

Objectives:

- Increase consumer awareness, knowledge and behavior change by providing tips and resources at point of sale.
- Influence grocery store food waste reduction practices.

Audience:

Residential

Action:

Develop partnership with pilot grocery store:

- Develop messages and delivery methods.
- Implement messaging campaign.
- Monitor and evaluate effectiveness.
- Develop model to be used in additional grocery stores.
- Expand model to additional grocery stores.

Measurement:

- Number of impressions (digital campaign).
- Pre/post surveys at point of sale measuring sentiment and consumer behavior change over time.

Potential Partners:

- MARC Solid Waste Management District
- EPA
- Grocery store
- Kanbe's Markets

Potential Funding:

- MARC Solid Waste Management District
- EPA

Food service point of sale (POS) consumer messaging campaign

Description:	Objectives:
Food service establishments offer multiple opportunities (dine in, takeout, delivery) to increase consumer awareness, knowledge and behavior change around food waste reduction. Opportunities exist for the food service establishment to showcase their own actions as well as provide information to consumers about actions they can take. Food waste reduction messaging can be used on signage, table toppers, menus, websites, takeout packaging, and social media. Staff can assist guests with making choices to reduce food waste when ordering, and share with them food waste reduction efforts being undertaken by the establishment.	• Increase consumer awareness, knowledge and behavior change by providing tips and resources at point of sale. • Influence food service food waste reduction practices.
Audience:	
Residential	

Action:	Measurement:	Potential Partners:
Develop partnership with food service establishment: • Develop messages and delivery methods. • Implement messaging campaign. • Monitor and evaluate effectiveness. • Develop model to be used at additional food service establishments. • Expand model to additional food service establishments.	• Number of impressions (digital campaign). • Pre/post surveys at point of sale measuring sentiment and consumer behavior change over time.	• MARC Solid Waste Management District • EPA • Food service establishments

Potential Funding:

- MARC Solid Waste Management District
- EPA

Tier 2

School food waste reduction

Description:

The importance of ingraining food waste reduction awareness, knowledge and behavior change in youth makes schools a high priority in the Kansas City metro area. Schools can approach food waste reduction from multiple angles including curricular and instruction, food purchasing and prep, share tables, composting programs, and serving as a community food pantry location. All of these require a significant amount of financial, administrative, and staff support, but with the right mix of outside funding and support, these efforts can be successful. Two successful examples are the Shawnee Mission School District's implementation of food waste reduction and diversion initiatives in its schools, and Missouri Organic Recycling's implementation of the Food Too Good to Waste (FTGTW) Project curricula in Kansas and Missouri schools.

Audience:

Residential & Industrial, Commercial, Institutional

Objectives:

- Increase student, parent, teacher, staff and administrative food waste reduction awareness, knowledge and behavior change.
- Provide support for establishing food waste prevention and diversion in schools.
- Provide support for integrating food waste reduction into curricula and instruction.
- Promote solutions that are adaptable and scalable.
- Increase amount of food going to people, animals, industrial uses, and composting.
- Reduce amount of food waste going to landfills.

Action:

- Reach out to schools to determine status and viability of different options.
- Develop and make available a suite of support services, resources and providers.

Measurement:

- Number of schools and types of initiatives implemented.
- Amount of food waste diverted.
- Potential savings from landfilling costs.

Potential Partners:

- MARC Solid Waste Management District
- Compost collection entities
- Local governments
- Missouri Department of Elementary & Secondary Education (DESE)
- Kansas State Department of Education (KSDE)
- Schools (pre-K, K-12, post-secondary, culinary training entities)
- Kansas City Environmental Education Network (KCEEN)
- Missouri Environmental Education Association (MEEA)
- Kansas Association for Conservation and Environmental Education (KACEE)

Potential Funding:

- MARC Solid Waste Management District
- Johnson County (Kansas) Green Business Program (JCGBP)
- Kansas Department of Health and Environment Solid Waste Grants
- Sustainable Agriculture and Research Education Program (SARE)
- Federal agencies

Increase capacity for food rescue collection and distribution

Description:

The network of food rescue, collection and distribution entities in Kansas City needs to be able to expand its capacity to acquire, store, handle and distribute rescued food. Financial support is key for these entities to expand their capacity through additional trucks, storage (for both fresh and prepare foods), fuel, refrigeration units, and staff. This is especially true for small-scale receiving entities such as neighborhood or church pantries. Larger food collection and distribution entities such as Harvesters, After The Harvest, and Kanbe's already work with many smaller-scale receiving entities throughout the Kansas City metro area.

Objectives:

- Increase the capacity of food rescue collection and distribution entities.
- Increase amount of food going to people.
- Reduce amount of food waste going to landfills.

Audience:

Industrial, Commercial, Institutional

Action:

- Support food rescue, collection and distribution entities in their efforts to increase capacity.
- Identify, promote and utilize funding sources to increase capacity.

Measurement:

- Additional pieces of equipment in use.
- Additional transportation vehicles in use.
- Additional storage space in use.
- Additional individuals added to workforce.
- Additional pounds of food distributed.

Potential Partners:

- MARC Solid Waste Management District
- Food rescue entities
- Smaller-scale receiving entities (kitchens, pantries, churches, etc.)

Potential Funding:

- MARC Solid Waste Management District
- Public-private partnerships
- Foundations
- Federal agencies
- Banks

Diversion of food waste from residents for locally raised livestock

Description:

With more livestock being raised at single-family homes and urban farms throughout the Kansas City metro area, there are increased opportunities to feed that livestock with locally generated food waste. Chickens, goats, pigs and mini cows are just a few of the species that could benefit from locally generated food waste. Some of the local farmers associated with Cultivate KC are already using food waste to feed their livestock.

Objectives:

- Create and strengthen partnerships among residents and urban farms.
- Increase amount of food going to animals.
- Reduce amount of food waste going to landfills.

Audience:

Residential

Action:

- Work with existing urban agriculture entities to create and strengthen partnerships among residents and urban farms.

Measurement:

- Number of partnerships among residents and urban farms.
- Quantity and types of food waste diverted.

Potential Partners:

- MARC Solid Waste Management District
- Urban farms
- Neighborhood associations

Potential Funding:

- MARC Solid Waste Management District
- Federal agencies

Innovation and entrepreneurship in the development of food waste reduction solutions

Description:

Creating solutions to solve the complex nature of food waste requires innovation, collaboration, and persistence. Solutions will emerge by supporting innovators and entrepreneurs working throughout the food system. Business accelerators and incubators, public-private partnerships, economic development initiatives, businesses support resources, grant opportunities, culinary trade programs and value-added processing of rescued foods and food byproducts can really help move the needle on food waste reduction in the Kansas City metro area.

Objectives:

- Expansion of innovative and entrepreneurial solutions for increasing food waste reduction in the Kansas City region.
- Increase amount of food going to people, animals, industrial uses, and composting.
- Reduce amount of food waste going to landfills.

Audience:

Residential & Industrial, Commercial, Institutional

Action:

- Research best practices, existing partnerships, economic development initiatives, businesses support resources, grant opportunities, and culinary trade programs that are/ can be used to develop food waste reduction solutions.
- Strategize methods to provide support and implementation.

Measurement:

- Number and type of new businesses or services being offered.
- Number and type of support services provided.
- Financial investment.

Potential Partners:

- MARC Solid Waste Management District
- Culinary training entities
- Foundations
- Federal agencies

Potential Funding:

- MARC Solid Waste Management District
- Private-public partnerships
- Foundations
- Federal agencies

Tier 3

Date labeling policy advocacy

Description:

Consumer uncertainty about the meaning of the dates that appear on the labels of packaged foods is believed to contribute to about 20 percent of food waste in the home. While educating consumers about date labeling (see Consumer Education Campaign above) is a good first step, improving clarity and consistency in language, messaging and application related to date labeling at the policy level will have a much greater long-term impact.

Objectives:

- Improve consistency of language, messaging and application of date labels.
- Increase amount of food going to people.
- Reduce amount of food waste going to landfills.

Audience:

Industrial, Commercial, Institutional

Action:

Research:

- Current status of reforms initiated in 2017.
- Initiatives at state and national levels.
- Initiatives in manufacturing arena.
- Best practices to advocate for policy improvements.
- Engage stakeholders as partners on advocacy initiatives.
- Develop and implement strategy for advocating improved date labeling.
- Educate consumers on date labeling updates.
- Track progress.

Measurement:

- Changes in state and national policy.
- Changes in manufacturer policy and practices.

Potential Partners:

- MARC Solid Waste Management District
- Food and Drug Administration (FDA)
- United States Department of Agriculture (USDA)
- Grocery Manufacturers Association (GMA)
- Food Marketing Institute (FMI)
- Advocacy organizations

Potential Funding:

- FDA
- USDA
- Food industry
- Trade associations

Scalable residential curbside collection of source-separated organics

Description:

Providing curbside compost collection to single- and multi-family households can dramatically reduce the amount of wasted food sent to landfills. Source Separated Organics (SSO) refers to material that has been separated from non-compostable material at the point of generation, including food waste, yard waste, and other compostable items. Currently, food waste and yard waste are collected separately in the Kansas City metro area: yard waste by commercial waste hauling companies, and food waste by small food waste collection entities. Developing cost effective, integrated SSO models and incentives for collection will be crucial to the success of these efforts.

Objectives:

- Develop integrated SSO curbside collection pilot projects that are cost effective, convenient, and equitable for communities throughout the region.
- Increase amount of food being composted.
- Reduce amount of food waste going to landfills.

Audience:

Residential & Industrial, Commercial, Institutional

Action:

- Support integrated SSO curbside collection pilot projects throughout the Kansas City metro area.
- Work with existing collection entities to evaluate collection issues (permits, logistics, moisture content, carbon/nitrogen balance, processing capacity) and solutions.
- Develop options and incentives for people who can't or won't pay to participate.

Measurement:

- Number of entities offering integrated SSO collection.
- Number of households participating.
- Amount of food waste collected and composted.
- Collection costs.

Potential Partners:

- MARC Solid Waste Management District
- Compost collection entities
- Commercial haulers
- Local government
- Neighborhood associations and HOAs

Potential Funding:

- MARC Solid Waste Management District
- Public-private partnerships
- Foundations
- Federal agencies
- Local government

Tier 3

Capacity of centralized composting

Description:

Large-scale composting entities that process residential, commercial, institutional, and industrial food waste are a necessary component for the Kansas City region to achieve maximum food waste reduction. The primary challenge faced by our region's composting entities at this time is lack of capacity in general and processing capacity in particular. Current processing space is inadequate for expanding composting in a region our size.

Objectives:

- Increase capacity of centralized composting facilities including processing space, infrastructure, and staff.
- Increase amount of food being composted.
- Reduce amount of food waste going to landfills.

Audience:

Industrial, Commercial, Institutional

Action:

- Provide financial, political, and community support needed to increase capacity.

Measurement:

- Increase in processing space.
- Location of processing spaces.
- Number of buildings and pieces of equipment.
- Number of staff.

Potential Partners:

- MARC Solid Waste Management District
- Compost collection entities
- Local government
- State agencies

Potential Funding:

- Federal agencies
- Banks
- Public-private partnerships

Future Focus Areas

The following food waste solutions are future focus areas for the Kansas City region as it strives toward a comprehensive, long-term approach to food waste reduction:

Increase tax deduction benefits for commercial and agricultural food donation	Increasing tax deduction for donating and diverting food provides a financial incentive for businesses. Farmer tax credits need to be expanded, and tax credits already afforded large corporations need to be extended to smaller entities. Tax incentives to donate food need to be greater than the amount of money used to invest in donation processing costs or received through insurance claims. Incentivization should be pursued over donation requirements which can put receiving organizations in a bad position.
Trash hauler compost discounts	Trash contracting that gives discounts to residents (HOAs, etc.) and businesses that compost. This could be part of a pay-as-you-throw model.
Multi-tiered food waste reduction education and training initiative for grocers.	Grocery store policies and practices are key to reducing the large amount of food waste they create. Best practices should be implemented around inventory ordering, food handling, storage, and prep, portions, customer education, donation, and composting to prevent and divert food waste front and back of house at these establishments.
Diversion of material from commercial food supply chain to use as feed for livestock	Food scraps can be used directly or after minimal processing to feed animals. According to the EPA Food Recovery Hierarchy, using food to feed animals directly follows feeding hungry people, and should be considered before industrial uses. One approach could be a "chip drop" model which matches industrial/commercial food waste sources to willing farmers to use as feedstock.
Imperfect & Surplus Produce Channels	Surplus, off-grade, near-expiration, or imperfect produce that is packaged and distributed via alternative sales channels or directly to consumers.
Buyer Specification Expansion	Adjustment of purchasing specifications that allow for a greater variety of product grades into sales and recipes, while still ensuring that specs do not lead to in-house waste.
Partial Order Acceptance	Processes to reject at a higher level of granularity and limit rejections of product that meet specs.
Field Cooling Units	Structures, either purchased or constructed, that can be brought in-field to immediately reduce the temperature of produce, resulting in decreased metabolic respiration and associated decay, moisture loss, ethylene production, and microbial growth, resulting in improved shelf-life for storage and distribution.
In Field Sanitation Monitoring	Practices that can reduce contamination, microbial growth, pests, and other food safety concerns, which would otherwise lead to waste and disposal.
Innovative Grower Contracts	Mutually beneficial long-term partnerships established between buyers and sellers (producers) for food crops, animal production, or other soft commodities that reduce the need for overproduction or arrange whole crop purchases (of all product grades).

Future focus areas (continued):

Labor Matching	Use of systems, such as apps, web services, community bulletin boards, and/or word of mouth, to find farm workers to fill labor demand for harvests.
Smaller Harvest Lots	Purchasing smaller harvest lots to decrease harvest window time.
Home Shelf-life Extension Technologies	Technologies that extend the shelf-life of perishables made accessible for home use, such as slowing down ethylene production or chillers that utilize photocatalytics oxidation and ultraviolet light.
Intelligent Routing	Routing of product based on near time data on impacts to freshness, such as cold chain maintenance so that shorter-life product is routed to closer destinations.
Decreased Transit Time	Reducing time in transit by team driving to extend the distance product can move each day from farm to distribution.
First Expired First Out	Designing processes to move product based on what will expire first, rather than when it was received.
Temperature Monitoring (Pallet Transport)	Use of measurement and alert technology and other systems for pallet- or truck-level temperature tracking to identify areas for improved cold chain compliance, third-party issue identification, and real-time detection and resolution.
Reduced Warehouse Handling	Minimizing the number of touches on a product during distribution, preparation, and on display can prevent blemishes or bruising and reduce the potential for damages.
Advanced Shipment Notifications	An electronic message that notifies the recipient at the time of shipment departure. The purpose is to prepare the customer to receive the shipment and provide information about the status, time of receipt, weight, and other characteristics of the shipment.
Early Spoilage Detection (Hyperspectral Imaging)	Use of non-invasive light sensors to test food products for freshness, material integrity, contamination, and safety for sale and consumption.
Inventory Traceability	Develop systems for traceability and origin tracking (e.g. Blockchain) to increase efficiency and accuracy of food safety recalls, when needed, thus targeting the contaminated goods and minimizing the total amount of product culled during recalls.
Modified Atmosphere Packaging System	Manipulating the composition of atmospheric gases inside perishable food packaging in order to extend shelf life, maintain visual appeal, and sustain nutritional content without incorporating any chemical preservatives.
Vibration & Drops Tracking	Use of sensors to monitor vibrational frequencies during transit and to alert drastic changes in stability in order to ensure safe handling, storage, and / or operation.
Meal Kits	Assemblies of pre-measured ingredients to cook specific meals, marketed as a way to save time and minimize waste of raw ingredients purchased individually. Can be sold via direct-to-consumer or in-store channels.

Enhanced Demand Planning	Improved intelligence around demand planning through systems or incorporating historical data in future decisions, often using machine learning to aid in better forecasting and fulfillment.
Waste Tracking (Foodservice)	Technology-enabled tracking of food loss and waste to highlight opportunities for reduction.
Markdown Alert Applications	Applications that alert consumers to markdowns or excess food at retailers or restaurants.
Dynamic Pricing	Systems and technologies that automatically and comprehensively discount pricing for items, with the purpose of re-appraising based on remaining shelf life, inventory on hand, and incoming orders.
Minimized On Hand Inventory	Reduce product dwell time in distribution centers by not holding safety stock and excess days on-hand.
Decreased Minimum Order Quantity	Reduce minimum order quantities to avoid over-purchasing.
Increased Delivery Frequency	Increasing the frequency of delivery from suppliers to stores, restaurants, facilities, or other food destinations to reduce dwell time in distribution centers.
Assisted Distressed Sales	Assistance, through third-party companies or apps, in selling salvaged, off spec, overstocked, and out of date food at a discounted rate.
Temperature Monitoring (Foodservice)	Implementation of measurement and alert systems within foodservice cold storage units to detect out of range temperatures and notify automatically.
Direct To Consumer Channels	Use of alternative channels, apps, e-commerce models, or other, where products are sold directly to end customers without third-party retailers, wholesalers, or other middlemen.
Low-Waste Event Contracts	Developing event contracts with clients that minimize or remove production overages and allow for flexibility in food production to account for an increase or decrease of guest headcount.
Online, Advanced Grocery Sales	Advanced online purchase of groceries can help grocers forecast with more precision and avoid losses that occur at brick-and-mortar facilities.
Online Marketplace Platform	Online platform that facilitates Business-to-Business (B2B) sales between suppliers and businesses in a centralized space, which can increase accessibility to a variety of goods and decrease time and resources needed to make a sale.
Precision Event Attendance	Leveraging historic data and guest tracking details like the real- or near-time status of their RSVP, if they paid a registration fee, if they reside locally or need to travel to attend the event, etc. to accurately forecast the number of guests attending an event.

Future focus areas (continued):

Repackaging Partially Damaged Products	Removing single damaged products from bulk packs, such as apples and eggs, and repacking salvageable product for sale.
Retail Automated Order Fulfillment	Automating e-commerce fulfillment for grocery retailers, allowing retailers to cut down on labor costs and reduce food waste through increased efficiencies.
Package Design	Optimizing food packaging size and design to ensure complete consumption by consumers and avoid residual container waste.
Active & Intelligent Packaging	Packaging to slow spoilage through technologies such as ethylene absorption, modified atmospheres, moisture absorption, etc., or adaptive materials that inform as to the quality/safety of the contents.
Manufacturing Line Optimization	Identifying opportunities to reduce food waste from manufacturing and processing operations, such as in product line changeovers.
Edible Coatings	Natural barriers applied to fresh food that extend shelf life by blocking water from evaporating and preventing atmospheric oxygen from reacting with the food.
Precision Food Safety	Using genomics and other tools to improve definition and identification of pathogens, source tracking, and outbreak detection, leading to an overall shift from a reactive food safety management approach to proactive.
Improved Recipe Planning	Combination of creative recipe development and considerate ordering practices to increase full utilization of ingredients. Practices include cross-utilizing ingredients for multiple recipes and repurposing leftover items into new dishes.
In-house Repurposing	Developing prepared meals or deli items using meat, seafood, or produce nearing expiration within retail operations.
Centralized Anaerobic Digestion	Industrial-scale collection of food waste that undergoes the anaerobic digestion process at a dedicated central location, typically operated by a dedicated energy generator.
Co-Digestion At Wastewater Treatment Plants	A process whereby energy-rich organic waste materials (e.g. Fats, Oils, and Grease (FOG) and/or food scraps) are added to dairy or wastewater digesters with excess capacity.
Insect Farming	Utilizing insects as an intermediary to mass convert food waste into higher value animal feed, as insect-based proteins and fats, or fertilizer.
Rendering	Taking animal by-product and converting it into stable, useable materials.
Waste-Derived Agricultural Inputs	Processes that transform food scraps into liquid or otherwise processed fertilizers or nutrient products.

Waste-Derived Biomaterials	These technologies transform food waste into innovative and valuable materials, with uses such as concrete and building materials, textiles, supplements and beauty products.
Waste-Derived Bio-Plastics	Using food waste to create bio-plastics or compostable packaging materials.
Waste-Derived Processed Animal Feed	Processing of food waste into pellets or other feed formats and used as pet food or livestock feed.

Appendix

Pre-Workshop Survey Results

1. How does your organization currently address FLW?

- Composting (practicing & providing)
- Education & outreach
- Providing grants
- High use of multiple management strategies/tiers of EPA Food Recovery Hierarchy

2. What are your successes and challenges?

Successes:

- Compost program
- Amount of people wanting to tackle food waste
- Finding food donation partners
- Cross-utilization of different ingredients across kitchens

Challenges:

- General lack of education and awareness
- Lack of infrastructure and convenience
- Managing composting is time consuming
- Lack of participation in composting program
- Prevalence of contamination in composting programs
- Caterers – choosing between affordability and compostable serve ware
- Donating from a catered event
- Lack of food literacy
- Funding/financing to provide services
- Lack of awareness about existing services
- Getting volunteers
- Making contact with farmers, wholesalers and production facilities
- Finding commercial space to operate from
- Permitting: building facilities and working with government
- Portion control education
- Buy-in from leadership
- Food safety issues
- Funding
- COVID restrictions
- Event-based food for donation storage challenges
- Inability to deal with food waste created by franchise practices in food court
- The role of aesthetics: perceived abundance
- Cost of repackaging for donation
- Tenant limits – issues with owners and landlord
- Lack of temperature-controlled storage on-farm and during transit
- Venue size: the larger the venue, the harder it is to capture all the food waste
- Cost of compost services

3. What does your organization need to better address FLW?

- Funding
- Policy adoption
- Publicity/marketing/awareness/education
- Conversion to compostable packaging
- Increased commitment from leaders
- Improvements to all aspects of catering that have to do with FLW mgmt

4. What opportunities do you see for collaborating with other organizations to address FLW?

- Funding
- Economy of scale
- Greater sharing/pool/exchange of ideas/sharing best practices and synergy
- It's a personal and collective issue
- Education
- Working with grocers to address "shrink" (loss due to expiring or not looking pretty)
- Working with schools/school districts
- Good relationships with food donation entities
- More collaboration between food distribution hubs
- Easier for restaurants to donate
- Eliminate middlemen/3rd parties – connect restaurant directly to agency
- Finding groups that can take food on short notice

5. When it comes to reducing FLW, what has the metro area gotten right, and what are its challenges?

Gotten right:

- Creating an atmosphere of entrepreneurship
- Support for homegrown organizations
- Harvesters, After The Harvest, KCCG, Kanbe's, KC Can Compost, existing composting vendors

Challenges:

- Need curbside compost & drop-off sites
- Cities to adopt FLW policies and strategies
- Awareness/education that problem exists
- Purchase and use compost to close the loop
- Educating food donors on liability
- More residential and commercial compost programs needed

6. Do you know of any FLW reduction efforts outside the metro area that are successful?

- Rust Belt Riders – Cleveland
- Fertile Ground - OKC in terms of individual haulers/composters
- Toast Beer – England
- Refettorio Ambrosiano – Milan
- Municipal curbside compost - Uses anaerobic digestion to produce natural gas and a nutrient-fertilizer
- Lawrence, KS
- Menus of Change: The Business of Healthy, Sustainable, Delicious Food Choices - The Culinary Institute of America in collaboration with Harvard T.H. Chan School of Public Health
- Partnerships between academic and industry institutions
- "Text it and get it" app - show up to a catered buffet or meal where the food was still out and the last person had gone through the line, you have 15 minutes to show up with own container and take food
- 412 Food Rescue – Pittsburg
- Food for Free – Boston
- We Don't Waste – Denver
- Philabundance – Philadelphia
- MealConnect – App to connect food pantries with restaurants and caterers
- Pete's Garden – Kansas City

7. On a scale of 1-5 (1 being low, 5 being high), how big a priority is each of the following FLW waste reduction approaches for your business or organization?

- Composting – 4.24
- Prevention – 4.08
- Rescue – 3.65

8. What specific FLW topics would you like to see addressed in the upcoming workshops and plan?

- Wholesalers
- Definitions (food waste, wasted food, etc.)
- Food waste audits
- Prevention
- Curbside composting
- FLW policy mandates
- Food waste as animal feed
- Partnership between urban farms and municipal composting programs
- More markets/support for veggie seconds in value added products
- Adoption of city-wide FLW strategies and policies
- Private/public partnerships
- Grants for collaboration between industry and higher education
- Food loss approaches
- Household efforts
- Leftover cookbook
- Learning Kitchen LLC
- Compostable film for food packaging in the sports industry

9. Does your organization produce food waste? If it does, do you measure it/have you performed an audit?

- Some produce food waste, some don't
- Little to no measurement going on

10. Anything else you'd like us to know / any questions for us?

- Is the EPA going to expand WARM food waste categories?
- Will you work towards adoption of a city-wide policy and strategy for FLW?
- Address supply and demand issues around different types of donated/ donatable food: proteins, starches, produce, etc.

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Footnotes:

[1] *The Estimated Amount, Value, and Calories of Postharvest Food Losses at the Retail and Consumer Levels in the United States*

[2] *American Journal of Agricultural Economics, Estimating Food Waste as Household Production Inefficiency, 2020*

[3] *Pathways to More Sustainable, Resilient, and Inclusive U.S. Food System, 2021*

[4] *Farm-to-Kitchen Environmental Footprint of U.S. Food Loss and Waste, 2021*

[5] *Farm-to-Kitchen Environmental Footprint of U.S. Food Loss and Waste, 2021*

[6] *Farm-to-Kitchen Environmental Footprint of U.S. Food Loss and Waste, 2021*

[7] *Farm-to-Kitchen Environmental Footprint of U.S. Food Loss and Waste, 2021*

[8] *American Journal of Agricultural Economics, Estimating Food Waste as Household Production Inefficiency, 2020*