Food Loss and Waste
Template for Agency Action

Food Supply Chain

- Produce
- Store
- Transport
- Process
- Distribute
- Sell
- Prepare
- Consume
- Waste
Production Losses

- Biotic factors: arthropod, pathogen, weed, and vertebrate pests
- Abiotic factors: drought; excess rain; high/low temps
- Food that’s never harvested (e.g., market prices too low; supply exceeds demand; food safety scares; labor shortages)

NIFA Grant Programs Addressing Production Losses

- CPPM - Crop Protection and Pest Management Program
- AFRI – Foundational and Applied Science Program (FASP) – Plant Health Production and Plant Products – Pests and Beneficial Species in Ag. Production Systems
- AFRI –FASP - Critical Agricultural Research and Extension (CARE)
- AFRI – Sustainable Agricultural Systems
- SCRI – Specialty Crop Research Initiative
- OREI – Organic Agriculture Research and Extension Initiative
- SARE – Sustainable Ag. Research and Education
- SBIR – Small Business Innovation Research
Postharvest, Handling and Storage Losses

- Culling (based on quality or appearance criteria)
- Biotic factors: arthropod, pathogen, and vertebrate pests
- Abiotic factors: improper temp/humidity for storage

NIFA Grant Programs Potentially Addressing Postharvest, Handling and Storage Losses

- Crop Protection and Pest Management Program (CPPM)
- AFRI – Foundational and Applied Science Program – Plant Health Production and Plant Products – Pests and Beneficial Species in Ag. Production Systems
- AFRI – Sustainable Agricultural Systems
- SCRI – Specialty Crop Research Initiative
- OREI – Organic Agriculture Research and Extension Initiative
- SARE – Sustainable Ag. Research and Education
- SBIR - Small Business Innovation Research
Processing and Packaging Losses

- Trimming
- Overproduction
- Product and packaging damage
- Food contamination and spoilage
- Technical malfunctions

NIFA Grant Programs Potentially Addressing Processing and Packaging Losses

- AFRI – Foundational and Applied Science Program (FASP) – Food Safety, Nutrition, and Health – Improving Food Safety; Improving Food Quality; Food Manufacturing Technologies
- AFRI – FASP – Agriculture, Systems, and Technology – Agricultural Engineering; Bioprocessing and Bioengineering; Nanotechnology for Agricultural and Food Systems;
- AFRI - FASP - Agriculture Economics and Rural Communities – Small and Medium-Sized Farms; Economics, Markets, and Trade; Economic Implications and Applications of Big Data in Food and Agriculture
- SBIR - Small Business Innovation Research
Distribution and Retail Losses

• Inconsistent/inadequate/improper refrigeration or temp. exposure
• Loading dock/product inspection delays; rejection of perishable shipments
• Retailers order more than can be sold; overstocked product displays
• Expired “sell-by” dates; damaged goods; outdated promotional items; inadequate staffing
• Food bank limitations for handling perishable items
• Consumer expectations for perfect fruits and vegetables

NIFA Grant Programs Potentially Addressing Distribution and Retail Losses

• AFRI – Foundational and Applied Science Program (FASP) – Food Safety, Nutrition, and Health – Improving Food Safety; Improving Food Quality; Food Manufacturing Technologies
• AFRI – FASP – Agriculture, Systems, and Technology – Agricultural Engineering; Bioprocessing and Bioengineering; Nanotechnology for Agricultural and Food Systems; Food and Agriculture Cyberinformatics Tools (FACT)
• AFRI - FASP - Agriculture Economics and Rural Communities – Small and Medium-Sized Farms; Economics, Markets, and Trade; Economic Implications and Applications of Big Data in Food and Agriculture
Food Service Losses

- Kitchen losses – restaurants, cafeterias, fast food establishments, etc.
- Food served, but never eaten
- Excessive menu choices and serving sizes; undesirable side dishes
- Unexpected sales fluctuations
- Time limits on fresh products

NIFA Grant Programs Potentially Addressing Food Service Losses

- AFRI – Foundational and Applied Science Program (FASP) – Food Safety, Nutrition, and Health – Improving Food Safety; Improving Food Quality; Food Manufacturing Technologies
- AFRI – FASP – Agriculture, Systems, and Technology – Agricultural Engineering; Food and Agriculture Cyberinformatics Tools (FACT)
- AFRI - FASP - Agriculture Economics and Rural Communities – Economic Implications and Applications of Big Data in Food and Agriculture
Consumer Losses

- Non-acceptance of imperfect fruits and vegetables
- Lack of meal planning; impulse and bulk purchases; over-preparation - cooking or serving too much; lack of awareness about food waste
- Improper food handling and storage leading to spoilage
- Lack of understanding of date labels (sell by; use by; best by, best if used by; expiration date)

NIFA Grant Programs Potentially Addressing Consumer Losses

- AFRI – Foundational and Applied Science Program (FASP) – Food Safety, Nutrition, and Health – Improving Food Safety; Improving Food Quality; Food Manufacturing Technologies
- AFRI – FASP – Agriculture, Systems, and Technology – Agricultural Engineering; Food and Agriculture Cyberinformatics Tools (FACT)
- AFRI - FASP - Agriculture Economics and Rural Communities – Economic Implications and Applications of Big Data in Food and Agriculture
- Community Food Projects Competitive Grant Program
EPA’s Food Recovery Hierarchy

• Source reduction – reduce volume of surplus food generated
• Feed hungry people – donate extra food to food banks, soup kitchens, and shelters
• Feed hungry animals - divert food scraps to animal feed
• Industrial uses – provide waste oils for rendering and fuel conversion and food scraps for digestion to recover energy
• Composting – create a nutrient-rich soil amendment
• Landfill/incineration – last resort to disposal

NIFA Grant Programs Potentially Addressing Food Recovery/Waste
• AFRI – Foundational and Applied Science Program (FASP) – Food Safety, Nutrition, and Health – Food Manufacturing Technologies
• AFRI – FASP – Agriculture, Systems, and Technology – Food and Agriculture Cyberinformatics Tools (FACT)
• AFRI - FASP - Agriculture Economics and Rural Communities – Economic Implications and Applications of Big Data in Food and Agriculture
• SBIR - Small Business Innovation Research
• Community Food Projects Competitive Grant Program
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