

Food Loss and Waste Template for Agency Action

Food Supply Chain



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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**Robert M. Nowierski, Ph.D.
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